

*Agroforestry and Forestry in Sulawesi series:*

# Unravelling rural migration networks

## Land-tenure arrangements among Bugis migrant communities in Southeast Sulawesi

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Elok Ponco Mulyoutami, Ekawati Sri Wahyuni, Lala M Kolopaking



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Agroforestry  
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## **Abstract**

Spontaneous rural-to-rural migration has many impacts on every dimension of human life. Migration driven by the hunger for land has been stimulated by the development of high economic value crops. The study of migration networks will contribute to a better portrait of continuing migration and the related actors: their influence on the decision to migrate and their role in facilitating the migration. This study focussed on Bugis migrant communities— famous as great wanderers—in Southeast Sulawesi Province, Indonesia. In the province, smallholders' cocoa plantations are dominated by Bugis migrants, contributing two-thirds of the total 137 833 tonnes of cocoa production in 2010. Research was conducted at the migrants' destination (Konawae District) and origin (Sinjai District). The study showed that the main motivation for Bugis to migrate was to obtain land. The three main waves of migration to Southeast Sulawesi are characterized by development of a major commodity in each time period: 1) the 'green revolution' with paddy-rice development in the 1970s–80s; 2) the cocoa boom in early (1980s–2000s) and late phases (2000s until present). Four migration network patterns were deliberately or unintentionally developed by the Bugis migrant community: 1) kinship network; 2) patron–client relationship; 3) migration owing to work displacement; and 4) the pioneer migration: early migrants who have lived in Southeast Sulawesi for a long time. In each wave, the central actor in the migration is the land broker, linking different villages and families.

**Keyword** Spontaneous migration, migration decision making, migration network, Sulawesi, land acquisition, land broker

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# Introduction

Migration as a phenomenon has been the subject of discussion in many disciplines, such as economy, geography, demography, sociology and socio-psychology. As a social phenomenon, migration is influenced by, and affects, many human dimensions. Therefore, discussion about migration is endlessly conducted. The movement of populations across borders with different physical characteristics and communities raises various issues, such as the alienation of spaces and resources, environmental damage, unemployment and competition.

Zelinsky (1971) proposed a model of mobility transition using agricultural colonization as one strategy in the competition for productive land in the face of population growth. This model existed in the early phase of a society, when community livelihoods were still largely based on land and agricultural activities. One of the forms of agricultural colonization is rural–rural migration. Competition over land and resources in an origin village encourages population movement to a destination village that has more land and resources.

Migration from one region to another that is richer in land and resources becomes a source of social problems. It also has an impact on various social, economic and environmental phenomena. In the realm of environmental study, migration is often regarded as the major cause of environmental damage because of its links to changing the use of land, particularly deforestation. In the realm of sociology, as a continuation of the alienation of space and natural resources, migration is often identified as a cause of social conflict because of the exclusion of the receiving community as a result of success gained by the migrants; and conflict over protected spaces, such as nature reserves and wildlife sanctuaries. In general, natural resources are widely available in rural areas, thus, in this context, rural–rural migration clearly illustrates migration driven by the need for natural resources.

Rural–rural migration issues are generally related to government programs ('transmigration', post-disaster or -conflict relocation), however, spontaneous migration occurs simultaneously and even grows in number from year to year (Tirtosudarmo 2009:19). This spontaneous migration occurs gradually and in a sustainable manner, often exceeding the numbers of the programmed migration. This type of migration is sporadic and its growth is unpredictable. Spontaneous migration can also be defined as migration that happens as a continuing result of programmed migration, as described by Charas and Pain (1993).

A clear description of spontaneous rural–rural migration is clearly illustrated in the phenomenon of cocoa-farming migrants in Southeast Sulawesi. The province is the major cocoa producer in Indonesia, featuring the largest and fastest growth of cocoa production on the planet. Ruf and Yoddang (2001:227) stated that the rapid growth of cocoa production in Sulawesi was triggered, and accelerated, by massive migration and a 'forest rent' system that led to widespread deforestation.

Cocoa is not only a commodity that can cause an explosion in demand (boom) but can also experience a sharp decline (bust). During a boom, it adds huge economic value to local communities and fuels regional GDP growth. However, it is a double-edged sword in that the growth of the commodity brings attendant negative impacts, such as higher migration numbers, accompanying land-use issues and higher rates of deforestation.

In addition to programmed migration facilitated by the government, sporadic spontaneous migration also occurs in massive numbers in parts of Central Sulawesi and Southeast Sulawesi provinces.

Data from the national statistics agency (BPS) in 2010 showed that 99% of the 137 833 tons of cocoa production in Southeast Sulawesi that year were produced by smallholders' plantations spread over most of the province. The results of field observation and discussions with key informants and government figures revealed that the smallholders' plantations were mainly managed by migrant communities (more than two-thirds of the total number of plantations). Most of these migrants came from the neighbouring province of South Sulawesi, such as the Bugis and Tana Toraja groups.

The data also showed the percentage of migrants in the population in rural areas in Southeast Sulawesi was 4.22%. This was the highest compared to other parts of Sulawesi, which had only 2.08%. Central Sulawesi Province placed in second position with 4.03%. Some of the migrants originated from government 'transmigration' programs drawing on populations in Java, Madura and Bali. A few areas around the transmigration villages are populated by Tolaki (Southeast Sulawesi ethnic group) and spontaneous migrants from South Sulawesi (Bugis, Tana Toraja and Makassar ethnic groups). 'Local transmigration' is a program in which people living in areas surrounding the destination villages of the inter-island transmigration program are offered the opportunity to join the transmigration scheme.

The Bugis and Toraja groups have long been known as resilient nomads who are always successful in their destination areas (Lineton 1975, Acciaioli 1998, Pelras 2006). The culture of wandering found in Bugis and Toraja communities is a major factor behind their migration to other areas in Indonesia and even overseas, such as Malaysia. Abustam's study (1989) tried to explore some of the factors that influenced population mobilization in several farming communities. Abustam was in agreement with Lineton in that the tradition of 'sompe' or wandering had been a part of Bugis communities for centuries. The other factors were social conflict, concept of work, seamen or self-employed, the cultural value of 'siri' (shame) and the social structure of Bugis communities (Kinseng and Saharudin 2009, Vayda and Sahur 1985, Vayda and Sahur 1996).

This researcher's results in an early study showed that the migration to Southeast Sulawesi dominated by the Bugis and Toraja peoples had started in the 1970s. The first successful migrants to the new area motivated others from the same village of origin to move to the new area (Lineton 1975, Charas and Pain 1993, Weber et al 2007). The migrant community collected information from its established network about land that was for sale which could be used to plant cocoa. This network guided the establishment of the migration chains (Massey et al 1993:728) into Southeast Sulawesi.

Land is a commodity that encourages migrants to an area. Hall (2011) and Galudra et al (2013) explained that unclear status of land opens opportunities for land markets that facilitate migration. An influx of migrants changes the patterns of land use and is often associated with deforestation (Faust et al 2003). Conflict between local and migrant communities is the result. The indigenous Kaili and Kulawi peoples in the vicinity of Lore Lindu National Park, Central Sulawesi were expelled from their village because of a large number of migrants from South Sulawesi, who settled in, and dominated, the village (Abdulkadir-Sunito and Sitorus 2007, Weber et al 2007). They were forced to move into the national park (Sitorus 2002a), where they were regarded as intruders. However, they had no other choice since their land had been taken the migrants.

A similar phenomenon occurred in Southeast Sulawesi, where the land held by the indigenous community, the Tolaki people, has decreased as a Bugis migrant community has taken over.

This phenomenon has two sides. On one, the migrant community has accelerated development in Central and Southeast Sulawesi provinces. The migrants from the south absorbed new knowledge and quickly developed cocoa-planting techniques (Ruf and Yoddang 2001, Schippers and Faust 2009). Hence, cocoa production in the province has grown rapidly and supports the growth of other sectors. On the other hand, the indigenous communities, the original owners of the land, are being replaced and tend to take up other work unrelated to agriculture.

Various studies have examined the competition over land between the indigenous and migrant communities in Central and Southeast Sulawesi (Abdulkadir-Sunito and Sitorus 2007, Sitorus 2002a, Li 2012) as well as changes in agricultural structure (Sitorus 2002b, Soetarto 2003). However, details about the establishment of the migration chain for ethnic Bugis have not been fully noted.

This study provides more information about the reasons behind the large number of Bugis people migrating to Southeast Sulawesi and the ways they established their networks to obtain land for cocoa plantations in order to improve their livelihoods. There were two main research questions for this study.

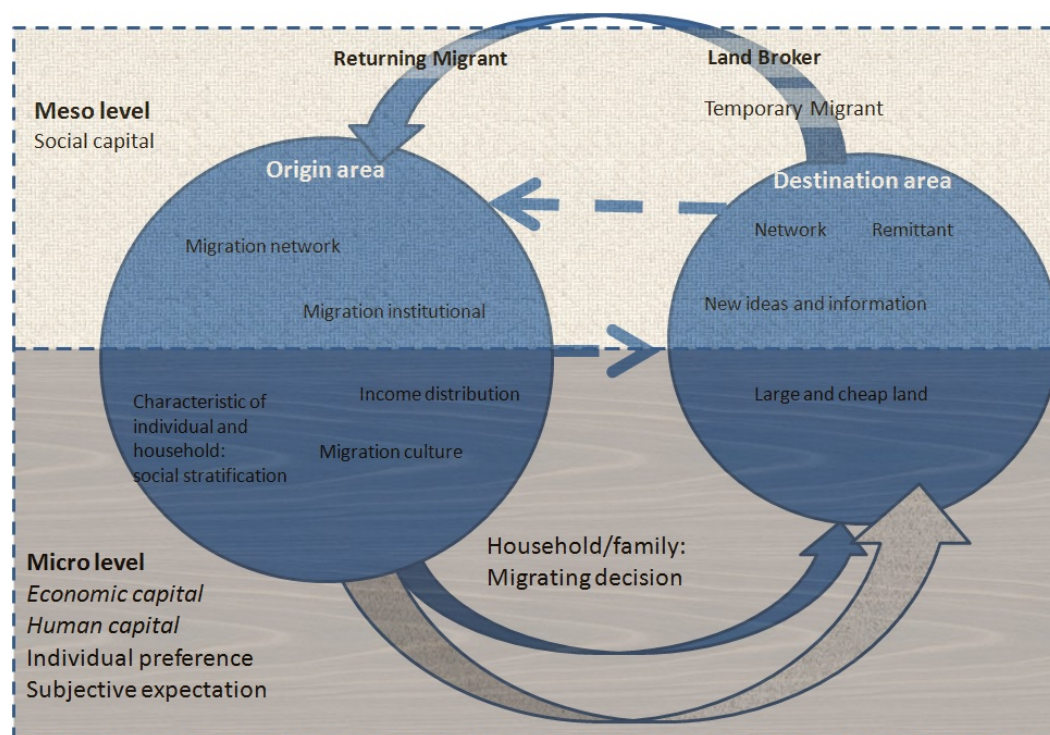
- 1) How were the migration networks established that facilitated access to farming and plantation land; who were the agents involved and what were their positions?
- 2) How did the networks influence decision-making in migrants' households?

## **Conceptual framework**

In line with the opinion of Harbinson (1981), this study used households as the focus, with individuals as members of the households. Decisions made by individuals are strongly influenced by other members of the family since the result affects them as well. Some factors that influence the decision to migrate—social, economic, cultural and psychological—are important considerations in

households. The migration networks helped minimize risks by reducing the social, economic and psychological costs (Figure 1). Economics and the effort involved in finding land were the two main factors that prospective migrants deeply considered. Land availability at the destination motivated people to migrate and restricted availability at the origin pushed them to leave.

Without negating conditions at the macro-level, such as the impact of development and migration regulations, the focus of this research is on processes at the micro- and meso-levels. At the micro-level, individuals and households develop a set of alternatives when deciding to migrate; and the influences of migration networks, at the meso-level, describe social interactions between migrants. Moreover, social networks not only involve those who decide to migrate but also others who influence their decision (Massey et al 1993, Portes 1998, Fazio 2009), therefore, the position of the community members who do not migrate also needs to be identified. Hence, this research was conducted in both origin and destination areas.



**Figure 1.** Research conceptual framework

In studying the reciprocal process of migration and the next occurring migration, a unit of time and place must be defined (Zelinski 1971): the pioneer migrants and the following migrants in each period of time; and whether the location of the following migration is the same as the location of the pioneers or different. This study was mainly conducted in the context of the migration destination. At the origin area, consideration of time and location are also necessary to be examined, specifically, the internal dynamics of the community members who do not migrate: why they decide to stay in their village during the period of others' successful migration. What were the social, cultural, psychological

and economic obstacles that influenced them? The causes of migration are not one factor but are cumulative and circular causations (Massey 1990).

This rural–rural migration study investigates the migration patterns of a not-too-large population. The ‘realistic network’ approach, as described by Fazito (2009), provides a complete picture of smaller migration patterns, however, it can also be applied to describing larger ones. Thus, the limit of this research is the Bugis migrants’ network members who work as cocoa farmers in Lawonua village.

## Method

### Location and period of research

A migration network and its implications for the decision to migrate are inseparable from the identity of the migrant community, which is determined by the context of the destination area and the structural and cultural conditions of the origin area. The Bugis migrant community in Southeast Sulawesi is characterised by either permanent settlement or seasonal visits, derived from both Southeast and South Sulawesi provinces. A Bugis migrant community, whose main income derives from cocoa cultivation, can be found in almost all villages in Southeast Sulawesi.

Lawonua village in Besulutu Sub-district, Kolaka District, Southeast Sulawesi is a destination area. Bugis migrants account for around 50% of the total population of the village. It was chosen as a research location because the migrant percentage and composition is almost the same as that of the local population. The flow of Bugis into the village has been continuous over the last few years, which assisted this study in tracing the identity of the migrant community from its own point of view.

The results show that some migrants in Lawonua were originally from Kalobba Village in Tellu Limpoe Sub-district, Sinjai District, South Sulawesi Province. Migration from Kalobba is a recent phenomenon—starting about 10 years ago—therefore, it can be more easily traced. Kalobba, as a research site, can be used not only to describe recent migration but also to provide a portrait of migration over a longer period. The village location is shown in Figure 2.

Field data collection was conducted in both destination and origin villages. A survey in the destination village in Konawe District was initially conducted (first phase) to trace the migration chains built by the migrants. This data collection was conducted over 4 weeks, starting in February 2013. The second phase was carried out at origin—Kalobba village in South Sulawesi—as well as the destination in Southeast Sulawesi, over approximately two weeks in April 2013.



**Figure 2.** Research sites in South Sulawesi and Southeast Sulawesi provinces

## Data collection method

Data collected was primary data obtained from in-depth interviews, household surveys and observation, as well as structured discussions. The primary data describes micro-conditions and explains the phenomenon at the meso-level of the migration network and the patterns of migrant decision-making. Secondary data, such as the results of a population census by BPS, related literature and documentation, were used to support an explanation of the migration phenomenon, mainly at meso- and macro-levels. Detailed information regarding the types of data, sources of data and data collection methods can be found in Table 1.

In the first phase, discussions with several village figures were conducted in the migration destination village in order to create a picture of general conditions, the patterns and models of population movement from time to time and the history of village development. Household surveys were conducted to better understand socio-economic conditions and to comprehend the connection between factors influencing the migration process. The structured interviews helped identify the network patterns and individuals' positions in the network. The samples taken in the household surveys were of Bugis migrants who managed land in Lawonua village. Thirty-two (32) respondents, representing each hamlet in Lawonua village, were interviewed using a structured interview method. Those respondents covered 90% of the Bugis community in the area. The number of respondents from the Bugis community was quite large considering the limited population who became migrants. In addition, it was best to interview most of the community in order to describe the patterns and



networks of migration so that they could be seen more clearly. The 10% of the community who were not interviewed were people who were either not present when the research was conducted or who declined to be interviewed.

In-depth interviews were conducted to understand the historical and social realities that describe the established migration chain and network. In an effort to comprehend the migration history, in-depth interviews with purposefully selected informants—who met the criterion of being Bugis migrants who played important roles in migration—were conducted. The next selection of informants used a snowball sampling method based on information collected from the previous informants. The criterion for selection was people who were still closely connected with their origin village. They were migrants who had recently moved to the destination village while some of their relatives still lived in South Sulawesi, therefore, they still regularly visited their original home. Six key informants were interviewed about their migration histories to Lawonua village, including their origins. Four other key informants, who were village figures (migrants who did not live in Lawonua village), were interviewed in order to describe the village's general condition, its history and those of the migration patterns and networks. The four informants were agents with roles in the recruitment of migrants from their origin areas.

The result of observation and interviews showed that nearly 40% of the migrants in Lawonua originated from wider Sinjai District and 60% specifically from Kalobba village, Tellu Limpoe Sub-district. The results from the six key informants also indicated that the continuing migration is derived from the same district. Thus, the village was confirmed as the research location.

Next, in the second phase (study in the origin area), a qualitative approach was used to comprehend how far the network factor determined migration decisions, why some of the population decided to stay in their village and their views regarding the established network that formed the migration chain. The selected key informants in the origin village were those connected with informants in the destination village or who had close relatives in one village (if migrants to the destination village moved with their entire family). In-depth interviews were conducted in order to trace their migration histories to the destination village and the type of connections built by the migrants to obtain land and knowledge about cocoa cultivation.

In the origin village, household surveys were also conducted with purposefully selected household samples involving 30 respondents. The chosen households were those in which half of the family members had migrated to Southeast Sulawesi (15 households) and households from which no family members had migrated (15 households).

The method of tracking migrants from their destination to their origin area is known as the 'tracing family history' method; it was very helpful in comprehending the migration routes and the connections with agents who built the routes (Wahyuni 2007). The tracing method uses one or two life histories, based on the premise that the same pattern will occur in different locations and in varied forms (Newman 2000:398).

## Data analysis

The purpose of the research was to map the connections among agents, organizations, events (time) and locations, which is a pattern that is applied in general. The map of connections among agents can be described from specific phenomena that are part of a larger pattern or structure, or an even more complex connection. Newman (2000) called it a ‘structural explanation’. Hence, by bringing the migration process that occurred in Lawonua village into the foreground, especially the one deriving from Kalobba and a few other villages, the complex social phenomena of connections can be identified that determined the establishment of the migration chains.

A sociogram, a tool used in network mapping, was applied to recognize the relationships that form a network and concretely describe them (Scott 2013). NodeXL<sup>1</sup>, an application especially developed in Microsoft Excel to show diagrammatic networks of a social, discovery and exploration nature, was used to describe the network patterns, the relationships between agents, influential agents’ positions and to quantify the pattern of connections for further analysis.

**Table 1.** Types and sources of data

No	Data	Description	Method of analysis	Source of data
1	General conditions (micro- and meso-levels)	Geography Population Economy Land-use changes General migration patterns in village and district	Historic Qualitative: descriptive	Village and sub-district monographs Data from BPS (census and surveys between censuses) In-depth interviews Group discussions Field observations
2	Migration networks (micro- and meso-levels)	Migration chain Migration time dimension Migration destination location Social structure Information delivery process In-network actors in origin and destination areas	Historic Qualitative	In-depth interviews with a number of informants (snowball sampling method) Group discussions
3	Migration determining factors (micro- and meso-levels)	Migration network Job opportunities Land Life satisfaction Family background (culture)	Qualitative: descriptive Network analysis	In-depth interviews with informants Field observations 62 respondents of household surveys (30 in origin village, 32 in destination village)
4	Non-migrating determining factors	Reasons for not migrating Position and structure in the society	Qualitative (non-migrating informants)	

<sup>1</sup> NodeXL application can be downloaded from <http://www.codeplex.com/nodexl>.

No	Data	Description	Method of analysis	Source of data
5	Connections between migration determining factors (micro-level)	Farmers' characteristics: Age (year), education (year), job, income (per year), cultivated land area (ha), land condition, skills, network	Descriptive	
6	Income	Income Expenses	Income Expenses	Household surveys

Scott (2013:3) explained that a social network can be analysed quantitatively in recognizing the existing relationship and the significance of it, however, its structure and development can only be recognized through qualitative analysis.

The results of the household surveys was analysed using descriptive statistics and interpreted qualitatively to provide an explanation on migrants and non-migrants' characteristics, social typology, and actors involved in the migration chains. The income structures of migrants and non-migrants in both areas were analysed to determine the total contribution of the migrants in attracting the interest of others in the community to migrate and their contributions to regional income.

## General description of the study location

Tracing the identity of the migrant community was the first step taken in comprehending the established migration network, which is one factor in the migration decision. The identity tracing was conducted in relation to the community profile, which includes physical, social and economic conditions where the community exists. 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.

This research was conducted in the migrants' destination area—their current place of living—and also in the migrants' origin area and describes the physical environment and social and cultural conditions that influenced formation of Bugis migrant community in both areas. Table 2 shows the characteristics of both villages; the details of which are described below.

**Table 2.** Characteristics of the populations in the origin and destination villages

	<b>Kalobba, Sinjai District (Origin village)</b>	<b>Lawonua, Konawe District (Destination Village)</b>
Main source of livelihoods	Rice farming	Cocoa farming
Population (persons)	3434	782
Household (family heads)	862	154
Population density (person/km <sup>2</sup> )	166	38
Yearly population growth (%)	1.4	No data
Total of outgoing migrants (households) per year (2012)	7–10	0–3
Total of incoming migrants (households) per year (2012)	1	2
<b>Land ownership</b>		
Average (ha)	0.5	2
Maximum (ha)	6	18
Village area (km <sup>2</sup> )	20.69	20.39
District area (km <sup>2</sup> )	147.30	111.26
Income per capita (per day/IDR)	n/a	20,098

## Description of Bugis community in their origin village

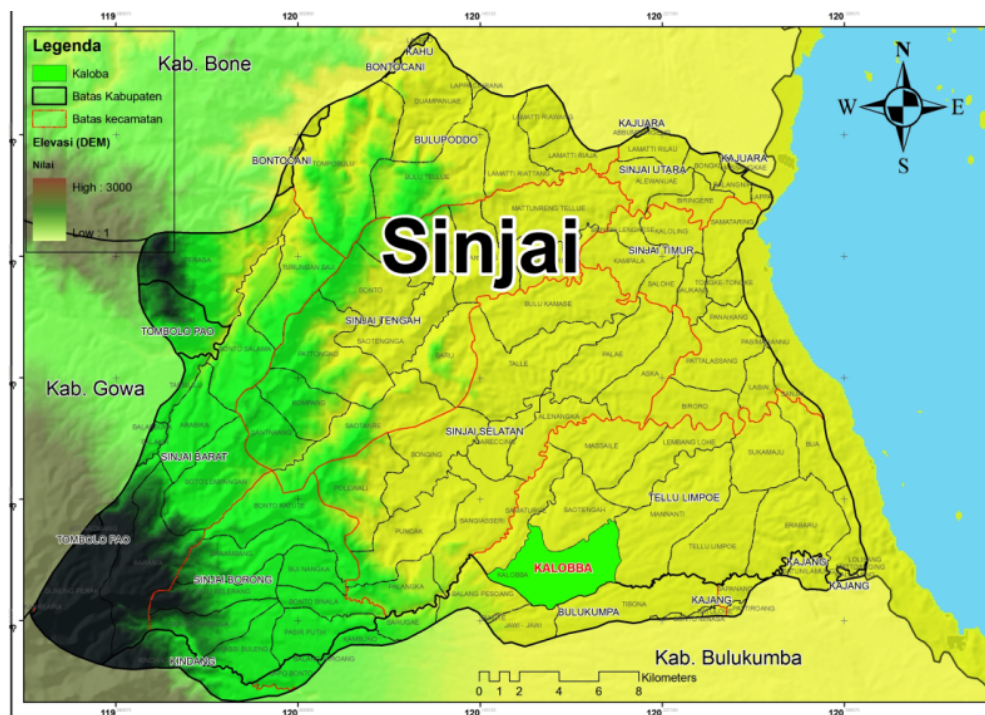
Kalobba, the migrants' origin village, is part of Tellu Limpoe Sub-district in Sinjai District, South Sulawesi Province. Classified as a 'self-sufficient' village, Kalobba has a land area of 20.7 km<sup>2</sup>. It consists of five smaller hamlets: Toribi, Attironge, Kambuno, Borong Ampirie and Sumpang Ale. The seat of government of Kalobba is in Toribi. Kalobba is located to the north of Bulukumba District, directly adjacent to Mananti Village in the east, with Sao Tengah Village in the far north and bordered by Samaturu Village (Figure 3).

The Bugis community's main sources of livelihoods in their origin village were mixed-tree farms and rice farming. Kalobba village, characterised by limited resources and medium agricultural technology, is classified as a 'suburb' if viewed with the typology proposed by Abustam (1987). In his typology, the characteristics of Kalobba are found in a 'type 2' village: a suburb, but still has access to better economic activities than a type 3 village, which is completely remote. Although Kalobba is not categorized as a remote village, its land resources are becoming more limited owing to pressure from outsiders. Competition for land causes a fairly high number of outgoing migrations from this village.

## Demography

The total population of the village is around 3244 people or 766 family heads, with females outnumbering males (nearly 52% of the total population). The density of the village population is 166 people per km<sup>2</sup>. Nearly 100% are Bugis ethnic. Detailed demography information is shown in Table 2.

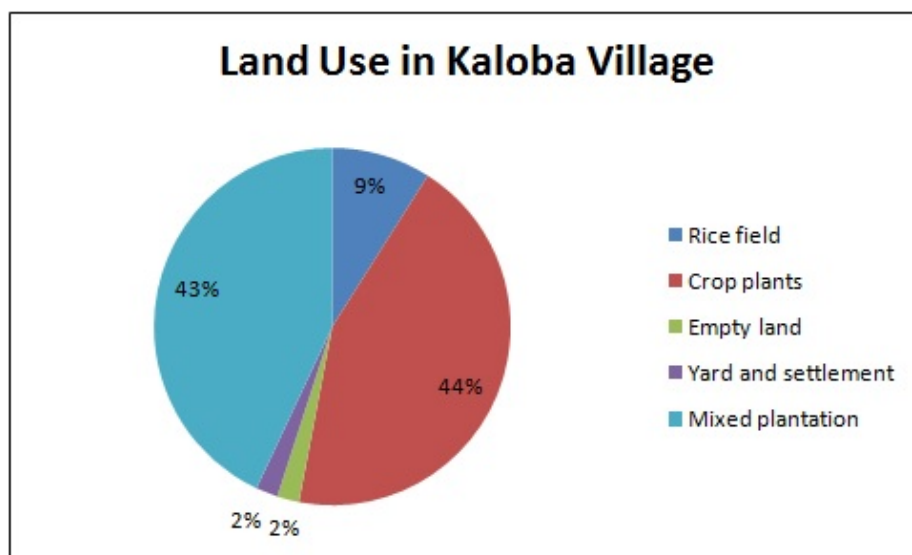
It was rather difficult to obtain a picture of the incoming and outgoing migration levels if only based on village potential and population data. A detailed portrait of migration will be explained in section 5, however, the overall data on migration in this village shows a fairly high level, with 7–10 families migrating every year. At the individual level, 3–10 people depart to Malaysia or Kalimantan annually.



**Figure 3.** The location of Kalobba village in Tellu Limpoe Sub-district, Sinjai District

## Physical condition of the area

As a village located at an altitude of 500 masl with a degree of slope of ranging 0–10%, Kalobba is dominated by plantations with a variety of plants, which is often referred to as ‘mixed plantations’ (Figure 4). In addition, the area of dry land that is planted with crops, such as cassava and vegetables, covers more than 40% of the land. Rice fields using semi-technical and rainwater irrigation takes up 9% of the total village area. The total area of the village is around 20.7 km<sup>2</sup>.



**Figure 4.** Land use in Kalobba Village

### History of the community's livelihoods

The main livelihoods' source of Kalobba is planting (38.5%). Chicken husbandry (27.5%) is a fairly important source of livelihoods, as is rice farming (22%). Non-farming activities, such as civil servant and trading account for only 5% of total livelihoods. Off-farm activities, such as labouring on other people's land, are done when people don't manage their own fields and plantations. Based on the researcher's observation, community members who labour work on other people's land are usually those who own a small amount of land. They become labourers for others mainly during rice and clove harvests.

Farmers' planting activities use a non-intensive system, which is without the application of fertilizer. Cash income is used to fund children's education and to cover other expenses. Farming income is a category of income that can fulfil their annual needs. They do not farm in order to sell the harvest. Therefore, rice farming is for subsistence needs only.

The community tried to fulfil their primary needs by planting corn and sweet potatoes at the beginning of the establishment of the village in the 1960s. At the beginning of the 1970s, the community then started to plant rice on dry land, which was often referred to as 'gogo' rice. For the next few years, the community built simple irrigation canals (using earth) without government assistance and planted rice. Permanent irrigation was built by the community on a 50–50% basis (self-help and government). The community in Bikeru built irrigation canals with the help of the Armed Forces of the Republic of Indonesia members. In Toribi, the irrigation canals were built solely by the community. Of the village communities who currently plant rice, around 35% are irrigated.

The community planted coffee at the beginning of the 1960s, influenced by the expansion of PT Lonsum in Bulukumba, which planted coffee on its plantation area. Interested members of the community sought coffee seeds in Bulukumba and the neighbouring area. Knowledge about coffee planting was gained through sharing with experienced farmers in Bulukumba. Silk (*Albizia chinensis*) and 'petai' (*Parkia speciosa*) trees were planted as protection for the coffee plants. In 1969, Toribi village began to replace their coffee plantations with cloves and small amount of rubber. In that year, clove plantations were programmed by the regional government, therefore, they were also provided with seeds. A result of the promotion of clove development in the early 1990s was a large amount of land being bought by entrepreneurs or government officials from outside of Toribi, which was then managed by their relatives who lived in Toribi. It was also in this period that some rice fields were converted into clove plantations owing to difficulties in sourcing water for irrigation.

Buffalo husbandry was started by the village community at the beginning of the 1960s after the House of Islam/Islamic Armed Forces of Indonesia (Darul Islam/Tentara Islam Indonesia/DI/TII) conflict. When the community began to grow cloves, buffalo were replaced with cows since the buffalo were considered pests.

Kalobba has become one of the main producers of poultry, especially for pure-bred and non-pure-bred chickens. It ranks third rank after Tellu Limpoe and Sao Tengah villages.

Around 1977, the village community began to plant pepper after it was introduced by the Department of Agriculture, which also introduced cocoa in 1983. A dramatic increase in commodity prices overall and the global financial crisis of 1998–1999 caused the price of cloves and cocoa to rise enormously (the price of cloves (wet) increased from IDR 250 to IDR 12 000 per kg). Such prices fuelled a huge expansion of agricultural land. A number of landlords from outside of the village became interested in land in Kalobba. They bought land either to be managed by their relatives or to rent for plantations. The local population itself began to look for more economic and promising land outside their village, such as in Central and Southeast Sulawesi provinces. Those who owned limited land but wanted to earn high income decided to go overseas to Malaysia or to Kalimantan or Papua.

### **Land-ownership structure**

Generally, the status of land ownership in Kalobba was individual ownership. Around 53% of the village community owned an area of plantation of 1–4 hectares, of which the average area per household was around 1 hectare. The community members who owned rice fields was 22%, with an average ownership per household is 0.25–1 hectare.

Discussions revealed that land owners were not only from the village community: people from outside of Kalobba owned about 20% of the total land. They were mostly entrepreneurs who lived in Makassar and Sinjai. Their land was managed by their relatives or neighbours who live in Kalobba. As explained previously, the boom in land ownership by outsiders was triggered by clove development and continued during cocoa development.

Key informants indicated that there were about 46% of the population who did not own land and were tenant farmers. Most of the landless depended for their living on work in the non-agricultural sector both in the village (transportation and services) and outside (temporary migrants) as well as being labourers in other people's plantations.

About 24% of the village was part of Balang Pesoang Conservation Forest, Bulukumba District. The conservation forest covered 648.88 hectares, regulated under the Decree of Agriculture Minister no. 760/Kpts/Um/10/82/Mentan. Most of the area of Kalobba that was part of the forest was located in Sumpang Ale' hamlet and another small part was in Kambuno and Toribi on the border between Sinjai and Bulukumba. The forest was planted with cocoa, pepper and cloves, which were managed by some of the villagers and by people from outside of Kalobba.

The ownership status of the land that was part of the conservation forest is still contested up to the time of writing. The land is part of the conservation forest but in reality there are still many people from outside of Kalobba turning it into productive plantations. Expulsion of people inhabiting the forest—burning their cocoa, coffee and clove plantations—took place about 10 years ago, however, the area is still being worked by a small number of people from both inside and outside of Kalobba.

## Description of the Bugis migrant community in the destination village

Lawonua is located around 37 km from Unaaha, the capital of Konawe District, and about 39 km from Kendari, the capital of Southeast Sulawesi Province. The village is a part of Besulutu Sub-district (03°57.962' S and 122°19.921' E), which is a fairly big producer of cocoa in Konawe District. The cocoa area is around 2141 hectares, which produce around 263 tons of cocoa. Pepper is also a potential plant for expansion because of its current level of production, which reaches around 380 tons per hectare. Corn, watermelon and soybean are also produced in the district.

As a destination village, Lawonua has a balanced population of ethnic Tolaki locals and Bugis migrants. Both ethnic groups, practising different agricultural and planting systems, live in harmony today. The Bugis migrant community has tended to develop cocoa plantations, which they manage intensively, far away from the central village. The Tolaki community prefers to live in the central village, where the houses are close to each other, and work their seasonal agricultural system with its main plants: vegetables and other crops.

## Physical condition of the area

Lawonua covers 20.39 km<sup>2</sup>, consisting of three hamlets—numbered 1, 2, 3—and another that is included in Hamlet 3, Sambarapa, but is located too far from the village centre.

The village is bordered by Konawe'eha River on the east, forming its direct border with Besulutu Village. On the north, south and west the village borders Amosilu, Asaria and Ramolua villages.



Sixty-five percent (65%) of Lawonua Village consists of plain and the remainder is hilly and dominated by cocoa (38%), fruit—such as ‘rambutan’ (a medium-sized tropical tree in the Sapindaceae family), ‘langsats’ (lanzones (*Lansium domesticum*) a species of tree in the Mahogany family) and durian—pepper and other crops.

At the time of research, 17% of the total area of the village was under oil-palm plantations, which were managed by PT Utama Agrindo Mas (PT UAM). The company planned to operate plantations on 45 000 hectares spread across Bondoala, Wonggeduku, Sampara, Besulutu, Pondidaha, Lambuya and Puriala villages. However, only the land in Lawonua had been planted to date.

Agriculture and plantation sectors together contributed 54% of total household income in Lawonua, while the other 46% was generated from non-farming and planting activities (Janudianto et al 2012, Rahmanullah et al 2012). In the plantation sector, most of the community members earned their living from planting cocoa (42%) and a lesser number, pepper (9%). Fruit plantations, such as rambutan and durian, were fairly important sources of livelihoods. Other commodity plants found in the village were coffee, cloves and ‘nilam’ (patchouli, *Pogostemon cablin*).

The development of Lawonua has been the result of support by some government programs and the local community itself. The Sustainable Rural Development Program at the end of the 1990s was very helpful in boosting the community’s economy through provision of seeds, funding and other technical support.

### **The history of demography dynamics**

Lawonua was established around 30 years ago as an extension of Amosilu Village. In 1978, the Department of Social Affairs conducted a relief program as a response to Konawe’eha River flooding (Janudianto et al 2012). Houses of 4 x 6 m were built for the community and their living costs and necessities were provided for a year. The new settlement, which was later known as Lawonua Village—built on land that was once forest—was occupied by 10–20 young or newly-wed couples from Amosilu. The new village could only be reached via a 3-hour walk from Amosilu, which was located on the Kendari–Unaaha Road.

Lawonua became a part of Besulutu Sub-district as per regional regulation (Perda no. 16/2013) in 2013. Previously, the Lawonua area was a part of Amosilu Village in Sampara Sub-district. The village was a transmigration location for people from Java and Bali when it was still part of Sampara. However, nearly all the migrants left and returned to their home villages in Java and Bali. Their main reasons for leaving were pests and plant diseases. Some sources stated that pests, such as monkeys and pigs, aggressively attacked the new planted land at the beginning of the 1980s. Other reasons varied, such as the inadequate condition of the settlement and its distance from the main road; the land given to them not meeting their expectations; and conflict between the local and migrant communities.

## Population movement in the migrants' origin areas

The motivation for, and supporting factors of, migration need to be understood to obtain a full picture of the established migration network in a migrant community. The various factors can be seen in the pattern of a community's livelihoods, which are closely related to development and the economy that influences the physical, social and cultural conditions where the community lives. The movement of population, migrant characterization, the community members who choose to settle in the new village and the pattern of decision making can provide explanations about the process of migration in the origin village and describe the migration network established among those migrants. This sub-section explains the population movement and the decision-making pattern. Networking is one of the factors in the decision to migrate.

### The spread of the Bugis community: an historical analysis

#### Within the conflict period

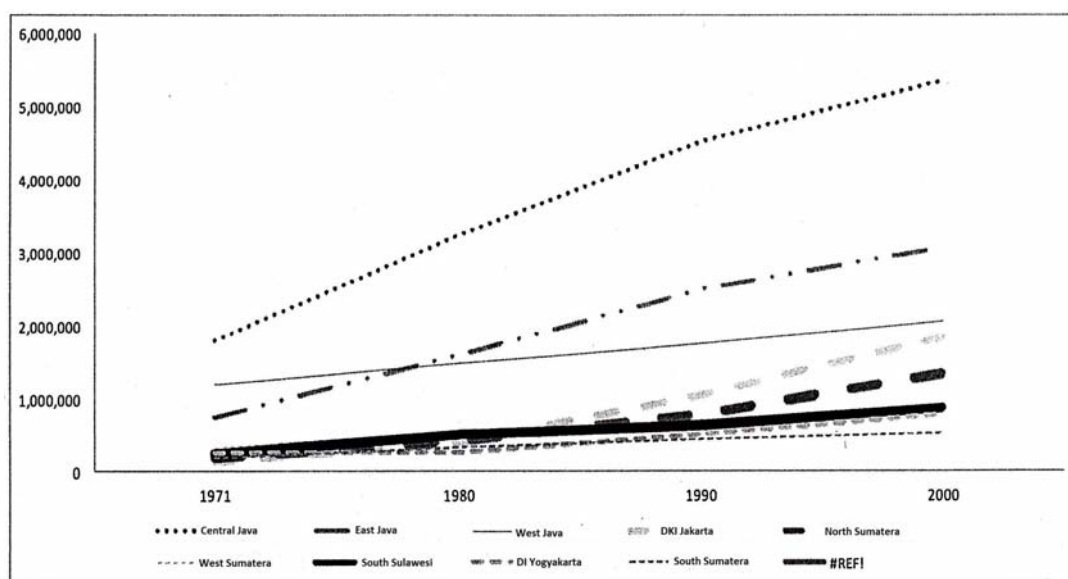
By examining census data from the Central Statistics Bureau (BPS) of 1961, McNicoll (1986:37) found that internal mobility in South Sulawesi Province was fairly high.

Similarly, the BPS data for the years 2000 and 2005 also showed a fairly high number of lifelong outgoing migrants from South Sulawesi: 874 338 and 968 140 people, respectively. The total increase of outgoing migration in South Sulawesi was 139 342 people in 2005 and 169 663 in 2000.

The rate of outgoing migration in South Sulawesi from 1971 to 2006 ranked the province sixth in Indonesia (Figure 5). South Sulawesi was the only Sulawesi province in the top 10; provinces in Java and Sumatra occupied all other ranks. Migration from South Sulawesi has been continuous and spontaneous although in relatively small numbers (Charras and Pain 1993).

Migration—both voluntarily and forced—to other areas has been a feature of the Bugis community for a long time. Moreover, they are known as 'pasompe', or tough nomads, who have proven to always be successful; they stand out from the crowd wherever they go. The figure of Sawerigading, a hero and nomad, features heavily in the Bugis epic, *La Galigo*, which provides a detailed description of the Bugis as a nomad community. There is an extensive literature on the equally widespread Bugis community.

Massive migration is often triggered by conflict related to occupation or insurgency as well as political turmoil. Acciaoli (1998) found that the process of migration of the Bugis Wajo community to areas in Central Sulawesi had begun in the distant past: from the time of the defeat of the Makassar kingdom by the Dutch and their subsequent occupation. The shame the Bugis felt triggered a mass movement to Central Sulawesi. Details of the mass migrations of Bugis communities to the eastern part of Indonesia—such as East Timor, Ambon, Papua—and also Central Sulawesi was described by Ammarell (2002).



**Figure 5.** Provinces with the highest rate of outgoing migration

Source: BPS, Population Census 1971, 1980, 1990 and 2000

One of the conflicts that greatly influenced migration was the revolt of Kahar Muzakar (1953–1965), which was centred in South Sulawesi. Lineton (1975) provides an account of how the community of Bugis Waju of Anabuana moved to Pangkal Duri and Ayam River in eastern Jambi Province, Sumatra. McNicoll (1968) discusses the increasing number of Bugis migrants from Sulawesi to Jambi and Riau provinces in the period 1956–1958 (approximately 1000 people). Research by Vayda (1996) in East Kalimantan found that the first migrants who arrived in Teluk Pandan (Bontang) in the 1960s originated from Bone District, South Sulawesi. These were communities who had suffered the loss of their sources of income in their villages as an impact of the revolt of Kahar Muzakar. Vayda and Sahur's studies (1985, 1996) on the Bugis community in Samarinda, East Kalimantan also showed high rates of migration in almost the same period. A significant rise in the migration rate of Bugis to Central Sulawesi also occurred around the same time, as shown by Li (2002) and Acciaoli (1998).

Instead of decreasing, the number of Bugis migrating to East Kalimantan gradually increased in the post-conflict period (Vayda and Sahur 1996). The loss of their sources of livelihoods and possessions and the evident success of earlier migrants who returned to their home villages from time to time became major encouraging factors to migrate. In addition, Abustam (1989:174) explained that the first wave of migration from South Sulawesi to Papua (then called Irian Jaya) took place during 1962–1969 (the final period of the Kahar Muzakar revolt). Widespread logging and the accompanying sawmills attracted migrants. Trading and carpentry were the most attractive sectors for migrants, who generally lived in urban rather than rural areas (Upton 2009).

## Post-conflict period

An earlier study conducted by this researcher in some villages in Bantaeng and Bulukumba districts showed the pattern of outgoing migration in the 1980s tended towards urban areas of South Sulawesi. Non-farming activities, such as carpentry, trading and transportation, became the migrants' sources of livelihoods (Table 3). Migration from some villages to Riau Province and Timika in Irian Jaya Province was still occurring in small numbers during the period 1980–2010. The main objectives were to become oil-palm plantation labourers in Riau and mine workers in Timika. Kalimantan remained a destination owing to job opportunities in the oil-palm plantation, transportation and trading sectors, and for establishing cocoa or pepper plantations.

**Table 3.** Population movements in Bantaeng and Bulukumba districts, South Sulawesi Province

Destination	Ethnicity	Year	Prediction of total migrants	Livelihoods' systems in the destination area
Urban areas: Bone Bulukumba Makassar	Konjo Makassar	1985 1995 2005	Less (< 5)	Non-farm and off-farm activities
Kalimantan	Bugis Makassar Konjo	2000 2012	Medium (around 5–10)	Oil-palm labour (plantations) Mine work Manufacturing labour Cocoa and clove plantations
Southeast Sulawesi: Kolaka, North Kolaka, Konawe	Bugis Makassar	1993– 2000 2002– 2012	More (>10)	Cocoa and cloves plantations
Malaysia	Bugis Makassar Konjo	1985 1993– 2000 2011– 2012	More (>10)	Oil-palm labour
Central Sulawesi	Konjo Bugis	1980 1985 2012	More (>10)	Oil-palm labour Cocoa plantations
Riau	Bugis	1985	less(< 5)	Oil-palm labour
Timika	Makassar Bugis	2010	less (< 5)	Mine work

Starting in the 1980s, larger numbers of Bugis migrants left for other parts of Sulawesi, encouraged by macro-conditions related to commodity-plant development, such as expansion of rice fields (the government planned to increase rice production through its Panca Usaha Tani (Five Farming) program). Rice-field expansion was carried out by Bugis communities at their destination areas of Lake Lore Lindu and the uplands of Central Sulawesi (Acciaioli 1998, Li 2002, Abdulkadir-Sunito and Sitorus 2007).

Table 3 shows that massive migration from South Sulawesi to Central Sulawesi occurred in early 1980 and to Southeast Sulawesi began in the middle of 1990. Further to this, information collected

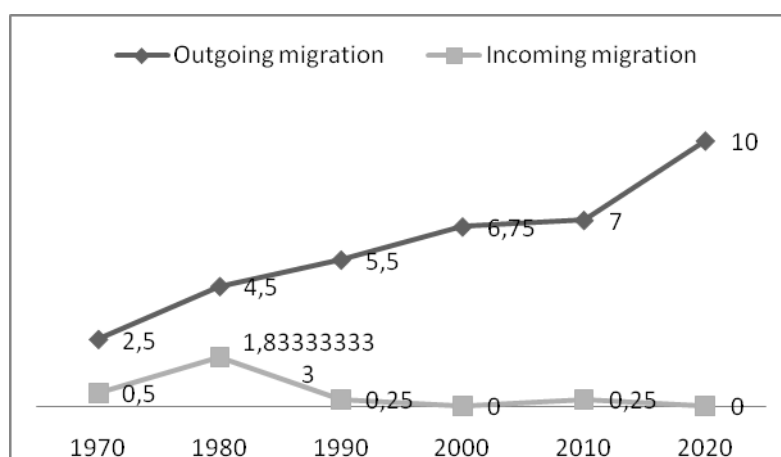
during interviews in the destination areas in Southeast Sulawesi revealed that an earlier migration from South to Southeast Sulawesi took place from 1970 to 1980 but from villages other than those discussed in this paper. In this case, the dispersal of Bugis to Central and Southeast Sulawesi has been occurring over at least a 20-year period.

## Population movement from Kalobba as origin village

Discussions held at Kalobba Village indicated that 20–30 villagers departed to the eastern part of Kolaka District in Southeast Sulawesi by means of wooden boats in 1976, where they made livings as loggers. After 1–2 years of seasonal migration to Southeast Sulawesi, which generated relatively high incomes from logging, their success encouraged other villagers to migrate to the Southeast.

It is interesting to observe the migration pattern in Kalobba where the development of agricultural and planting systems are connected (Table 4). Figure 6 shows an estimation of incoming and outgoing migration by the Kalobba population, which began in the 1970s, and its future prediction. In terms of outgoing migration, discussions indicated that the high rate of migration was closely related to the limited choices of livelihoods in Kalobba as well as higher economic opportunities in the new area. The prediction of an even higher rate of migration in 2020 is owing to promising opportunities of higher incomes from plantations and non-farming activities in Malaysia and Kalimantan that will likely encourage the population to migrant

In the previous section, it was explained that Kalobba has the characteristics of a village in category ‘phase 2’ as proposed by Zelinski. Abustam (1989) recognized patterns of population movement in three rice-growing communities in South Sulawesi by taking into consideration the aspects of space and time, as well as the urge or intention of the migrants before migrating, by categorizing the patterns into permanent and semi-permanent migrations and circular and shuttle movements.



**Figure 6.** Estimation of incoming and outgoing migration in each period at Kalobba Village

Source: Group discussion results

**Table 4.** Population movements at the origin village (Kalobba, Sinjai)

Population movement	Destination	Duration	Members of households who migrate	Livelihoods' sources at the destination village
Permanent and semi-permanent migration	Southeast Sulawesi	More than a year	With family	Cocoa and pepper plantations
	Central Sulawesi		With family	
	Malaysia		Individually	Oil-palm harvesting
Semi-permanent migration	Irian (Papua)	1–1.5 years	Individually	Logging
	Kalimantan		with family	Driving or construction labour
Seasonal migration	Southeast Sulawesi	4–10 months	Generally only husbands	Cocoa and pepper plantations
	Pinrang Palopo	1–2 months	Husbands and wives	Rice harvesting
	Bone, Gowa, Malino	1 month	Individually	Clove harvesting
	East Java–Lombok	6 months		Fishing
	Kalimantan	4–10 months	Husbands	Driving, asphaltting, sand digging (Samarinda)

This study used the same parameters as what Abustam (1989) proposed: trying to describe Kalobba villagers' movement by studying the timing and their purposes of migration. The population movements identified in Kalobba village were classified as 'permanent', 'semi-permanent' and 'seasonal' migrations. The two characteristics of population movements were also taken into consideration, that is, either people move individually (only one member of a family) or they move with their entire family.

There were two types of population movement to Southeast Sulawesi: permanent and semi-permanent. A small number of the population in Kalobba, especially those from Toribi and Attirange, migrated semi-permanently to work as seasonal labourers or to help their relatives with harvesting in Lawonua and a few other places in Southeast Sulawesi. They would generally depart to the Southeast between April and October to help with the cocoa harvest and other agricultural and planting activities.

Malaysia became their favourite destination. Around 40% of the migrants who departed to Malaysia decided to stay and settle, sending their children to school there. Only a few were legal migrants, however, with the assistance of local officers they managed to enrol their children. Seasonal migration was carried out by some of the community to seek alternative livelihoods, such as rice harvesting between February and April, and clove harvesting, which took 1–2 months.

### Characteristics of outgoing migrants

As discussed previously, the three most popular destinations for this village were Malaysia, Kalimantan and Southeast Sulawesi. The difference in outgoing migrants' characteristics based on

their destinations will be discussed in this sub-section. The characteristics of departing migrants are shown in brief in Table 5. The terms ‘outgoing’ or ‘leaving’ in this sub-section refer to migrants who moved permanently or temporarily, respectively. A ‘leaving migrant’ in the context of seasonal migration is hard to identify since they only appear for fairly short times during certain periods, such as rice harvesting, and during the course of this research there was no population seasonally migrating.

Most of the leaving migrants were men with Kalimantan and Southeast Sulawesi as their main destinations. It has been explained previously that leaving migrants were predominantly men, who were later followed by women who moved to Southeast Sulawesi in the seasonal migration category. Almost 11% of female migrants migrated either permanently or temporarily for a period of time longer than could be considered ‘seasonal’. Female migrants who migrated seasonally were not included in the table 5.

The younger age group (16–24 years old) preferred to migrate to Malaysia. It has been discussed previously that this group constituted the younger generation who had just finished high school and were eager to obtain experience and cash. Household survey data showed that the total number of female and male migrants to Malaysia was nearly the same (Table 5). Discussions with some key informants revealed that Malaysia attracted equal numbers of female and male migrants. Generally, females who departed to Malaysia were partners of previously migrated males; they did not just decide to look for jobs in Malaysia. However, there was a small number of male migrants—and a very small number of females—who settled in Malaysia without their families.

On the other hand, older populations (over 40 years-old) tended to migrate to Southeast Sulawesi. The characteristics data shows that the age group who departed to Southeast Sulawesi—20–54 year-olds (relative productive age range)—was the highest among other groups. It indicated that areas in Southeast Sulawesi were more attractive for productive migrants.

The types of migrants who decided to migrate to Southeast Sulawesi were mainly people who made their living from rice farming (20%) and plantations (around 10%) in their origin villages. The migrants were generally farmers who managed rice fields or plantations belonging either to themselves or others and who wanted to expand their landholding or buy land for themselves to establish cocoa plantations. It can be surmised that such migrants had basic knowledge about farming and commodity plants. Around 6% of the leaving migrants were those who had no source of income. They obtained their capital to move to Southeast Sulawesi from their parents or relatives who had first settled in the village.

**Table 5.** Characteristics of leaving migrants based on their destination

	Kalimantan	Malaysia	Southeast Sulawesi
<b>Gender</b>			
M	26.04%	18.16%	26.91%
F	0.00%	18.16%	10.72%
<b>Age group category</b>			
16 - 24 years old	3.72%	7.00%	2.63%
25 - 39 years old	17.72%	23.85%	16.41%
40 - 54 years old	4.60%	5.47%	16.63%
Over 54 years old	0.00%	0.00%	1.97%
<b>Profession in their origin village</b>			
Plantation	13%	13%	10%
Agriculture	10%	16%	29%
Non-farm	0%	3%	0%
No source of income	0%	0%	6%

*Note: Data reflects n value which is the total migrants identified from respondents and their family members. The total is around 32 people*

## Decision to migrate

The determining factors influencing people to look for their livelihoods outside of their village come from several directions. Decisions are affected by the natural environment, socio-cultural and information factors. These could either encourage or prevent migration. However, Lee (1996) stated that migration determination factors can never be accurately defined. Therefore, the only thing which can be identified is how the factors determine the decision and the implications for population movement patterns.

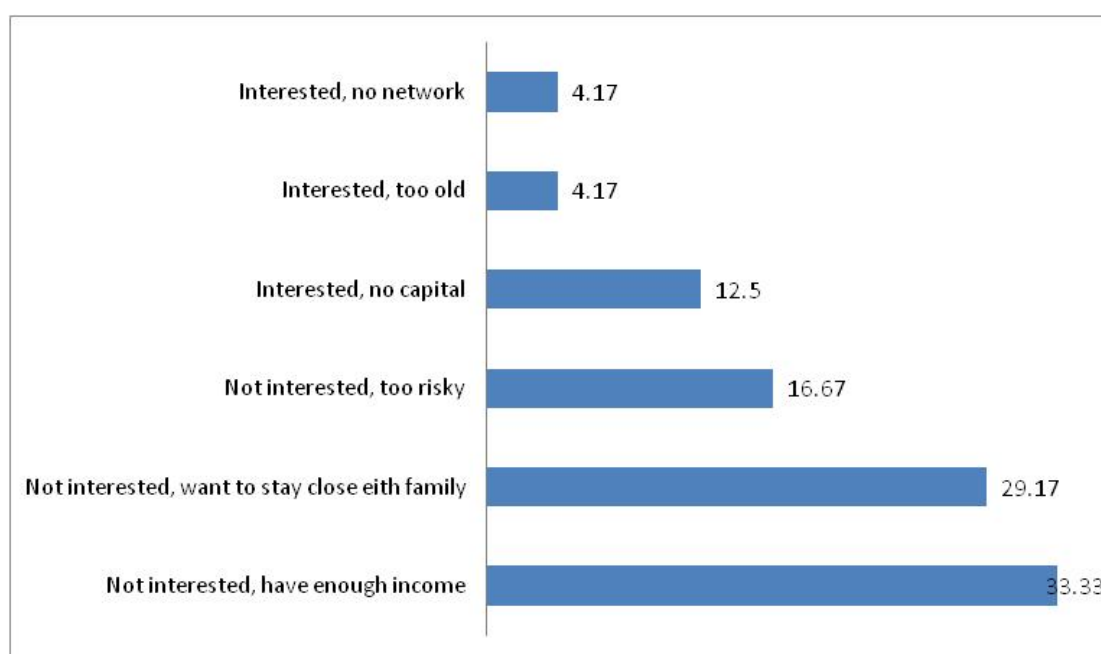
Some of the considerations of non-migrants, who decided to remain in their village, are shown in Figure 7. There were several choices of destination, either to Southeast Sulawesi to cultivate cocoa or other areas to earn substantial amounts of cash, such as Malaysia, Papua or Ambon, as well as a few mining areas. Non-migrants mostly did not feel the need to migrate or earn income in the above-mentioned areas since their income in the origin village was enough to cover their household needs (33%). The successes of their relatives and neighbours in increasing their incomes in the new land did not—at least not by the time of this study—encourage them to migrate. Those opinions were stated by households whose incomes were generated from non-farming activities.

The family factor is a fairly important factor to be considered, such as education facilities for children. According to the non-migrants, educational facilities in the destination areas were not as good as those in their origin village. And around 29% of the non-migrants stated that they did not want to leave their family for the sake of migrating.



Costs and risks in migration were factors that prevented 16.67% of the non-migrants to choose to remain in their village. The uncertainty of success of cocoa plantations and the high cost of migration were factors that prevented them from moving to new areas. Moreover, they were not interested in migrating to Malaysia or Kalimantan thanks to unsuccessful migrants' experiences. There were about 17% of non-migrants who were actually interested in migrating but didn't have enough capital or strong information network, hence, they could not decide to migrate.

*Mrs FW's husband worked as a farm labourer in Bulukumba. Mrs FW wanted to plant cocoa in Southeast Sulawesi but didn't have enough capital. Her husband's income from labouring was only enough for their daily household needs. Therefore, her intention to plant cocoa was put on hold. In addition, there were not many relatives of either Mrs FW or her husband who had migrated. Thus, the costs and risks of migration were too much for them since there were no relatives who would be able to help them in Southeast Sulawesi.*



**Figure 7.** Non-migrants' considerations for remaining in their village

Some non-migrants in this village already had sufficient experience of migration. They had migrated when they were younger or before they were married.

Mr AF migrated to Malaysia before he married and had children. He worked in Malaysia for 10 years. The money he earned was used as capital to open a small shop that is still managed by his wife.

*Mr MM and Mrs ND are husband and wife. Mr MM worked in Malaysia for five years and Mrs ND for two years. After they married, they no longer wanted to go anywhere and preferred to live by managing their own rice field and working as occasional labourers in other people's rice fields. They had experienced how hard it was to live in a foreign land and were no longer interested because, in the end,*

*they couldn't save enough money. However, they were interested in looking for land outside of their village if they could afford it.*

The household survey results described the characteristics of 'leaving migrants' and 'non-migrants' in Kalobba village. The level of education of the leaving migrants, both female (7.17 years) and male (8.17 years), generally showed a lower ratio than the non-migrants (male 8.36 years, female 10.28 years). From a gender point of view, female non-migrants, interestingly, have a higher ratio than the males.

The result of in-depth interviews with some informants indicated that some male non-migrants who departed to Southeast Sulawesi did not take their family since their wives were still continuing their studies and/or working in non-farming sectors, thus, they could not migrate with their husbands. Hence, the migrating husbands did not permanently settle in the Southeast; they still returned to their hometown at least once a year. Interestingly, they arranged their return schedules to ensure that there were still people available to manage their plantations in the destination village while they were away.

The higher level of education of the non-migrants compared to the leaving migrants is supported by the data of non-farm income of the non-migrants (Rp 18.053.846,00), which was higher than the non-farm income of the leaving migrants (Rp 10.972.308,00). The job opportunities in non-farm sectors as the result of higher levels of education caused lower interest of the non-migrants in migrating compared with the leaving migrants. In total, the income difference data between non-migrants and leaving migrants was striking. The difference was mainly caused by income from off-farm activities, which created a large margin (around IDR 8 million<sup>2</sup> per year). Non-migrants were generally people whose livelihoods' sources were mostly off-farm activities, such as elementary school teachers, village officers and drivers.

### **Land ownership and population movements**

A number of studies have shown that the act of migrating is commonly done by poor households who have no land to manage (Hugo 1981). From a land ownership point of view, data in Kalobba village showed that the average amount of land owned by leaving migrants (mixed garden owned by non-migrant is 0.38 ha and leaving migrant is 0.50 ha, while the maximum mixed garden areas were owned by non-migrant, 1.30 ha) was slightly more than non-migrants. The range of the amount of land owned by leaving migrants (maximum area owned is 6 ha – formed as monoculture garden) was also greater than the non-migrants (maximum area owned is 1.30 ha – formed as mixed garden). It proves that the non-migrants were not a group who did not own land nor were in the 'very poor' category. Research results from Sumatra (Charras and Pain 1993) also indicated that most migrants owned land, although not enough, but were still able to make a living from it. The motivation to obtain land as a factor in migration was only strong in community members who did not own land.

<sup>2</sup> Approximately USD 800 (USD 1 = IDR 10 000)

Lipton (1980) proposed a type of leaving migrant who left their origin village (to obtain better jobs and education) by using their agricultural and planting income from their origin village (capital accumulation ability). This type of leaving migration was called ‘pulled-out’ or ‘drawn-out’ mobility by Lipton. From a number of interviews, it was obvious that the motivation to obtain land was due to ‘pulled-out’ factors, as described by Lipton (1980), for leaving migrants to move to Southeast Sulawesi and a few other areas in Kalimantan. Vadya (1996) explained that the first wave of arrivals in Kalimantan was driven by escape from conflict and paved the way for other nomadic farmers who were interested in establishing pepper plantations. Migrations to areas in Central Sulawesi and Southeast Sulawesi were more a result of the expansion of cocoa as a commodity crop. In addition, the motivation to move was mainly expansion of landholdings, as the leaving migrants were farmers who already owned land.

*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’.*

Most of the land in this village was designated forest although it was managed by the community as cocoa and seasonal crop plantations. Most of the land was owned by local authorities as well as people from other areas in South Sulawesi and managed as cocoa plantations, with the labourers drawn from the local community or imported from outside the village. The community’s land ownership was decreasing, therefore, they looked for land outside of their village to develop cocoa plantations. In 1997, when cocoa began to spread widely and attract many people, land annexation by people outside of the village was quite high, although they did not migrate to the village. Land prices increased, reaching IDR 1 million (approximately USD 100) per hectare at the time. For some time thereafter, the number of migrants leaving the village was high, with most seeking land for the expansion of plantations. This showed that the low availability and high price of land were driving factors in the village population’s decision to migrate. Lipton (1980) called this factor ‘pushed out’.

In summary, the leaving migrants’ decision to move to another village was based on triggering factors from outside, namely, the existence of adequate land at more competitive price compared to the limitations in their origin area.

### **Individual decision or family encouragement?**

The decision to move settle in an area is generally derived from mutual agreement between husband and wife. Migration is a family strategy because it has implications for the function and structure of the family (Harbinson 1981, Wahyu 2007). In Kalobba village, the family plays an important role in determining an individual's decision to stay or leave. Decision making is always considered as both partners’ responsibility, although males play a greater role. Of the total respondents with family members who migrated, approximately 54% stated that the decision was made by the husband; about

18% reported it was made by the wife; and 4.5% stated that the parents and/or in-laws made the decision to migrate. The remaining 22.7% of decisions were made by other members of the household, divided 6.13% by females and 16.34% by males. Clearly, the majority of decisions are made by the male members of households.

The decision to migrate has implications on the division of labour in the household and can cause problems with other family members. Some households decide to migrate with their entire family to bear all risks, especially in terms of cost. This was mainly decided by those who were just starting a family. The husband migrates first and when he is successful, he later encourages his wife to move and assist in agricultural and planting activities. Similar conditions were also described by Mulyoutami et al (2014) in the context of origin villages in West Java. Migration decisions were based on agreement between the husband and wife but the husband was the main decision-maker. Not only regarding migration but also for community activities and sources of livelihoods males made most of the decisions, with reference to female opinion (Mulyoutami et al 2014, Colfer et al 2015).

A change in the allocation of family resources occurs in the family who stays. At the time the husband leaves, the wife and other family members should have sufficient income to support their daily lives. Therefore, the wife is generally responsible for their plantation and rice fields. In those cases where there are extended family members in the neighbourhood, farming and planting activities are assisted by them. Families that have high income also use wage labour. However, very few families were found to be using wage labourers, from inside or outside the village. People who did not manage their own plantations preferred to work in the non-agricultural sector rather than becoming wage labourers. The wage labour system only operated during specific periods, such as harvests. Wage labourers are generally people who cultivate their own land and have time to help others with harvesting. Diversification of resource allocation within the family is done to minimize the risks resulting from migration.

In situations where women migrated, they generally went to Malaysia and the families left behind managed the plantations and fields. The husbands were responsible for taking care of the plantation and farming while the wives were making cash income in Malaysia. In this type of family, to maintain the integrity of the household the husband was responsible for taking care of the members of the family who were left behind.

Typical resource allocation among people who migrated to Southeast Sulawesi permanently consisted of the migrant being followed by other family members on a seasonal basis. Seasonal migration especially occurred during the peak of cocoa harvests. Family members who lived in the origin village went to the destination village to help with harvesting. They lived in the destination village for 1–3 months, depending on the duration of the cocoa harvest. This family labour migration helped reduced the cost of cocoa harvesting. The migrants did not have to employ labourers in the destination village to help with harvesting. In addition, the arrival of migrants' family in the destination village strengthened their bonds. Migrants no longer needed to send money to their origin village but could

instead simply give it directly to family members who helped with harvesting. Other migrants who were not helped by their family members from the origin village could send remittances from the cocoa harvest through the returning families' members.

The example of Mrs S and Mr A shows how a migrant family maximized their family resources.

*Mr A was a 50-year-old man who lived in Lawonua Village with his son, Mr N, who was approximately 30 years-old. Mr A and Mr N lived together, while their wives lived in Kalobba, their home village. Mrs S, the wife of Mr A, comes regularly every year to Lawonua to help her husband and son harvest cocoa. She would go to Lawonua alone or together with another family group who lived in Southeast Sulawesi to help with the cocoa harvest. She would arrive in late March and stay in Lawonua for about 2 months. After the cocoa harvest ended she returned to Kalobba to cultivate her rice fields and cocoa plantations. Fortunately, harvest time for cocoa in Kalobba and in Lawonua was not the same, therefore, Mrs S could still harvest cocoa in her origin village. This mechanism was established in agreement with her husband and her son.*

## **Nomad culture**

Nomadism has been a major feature of the Bugis community for a very long time and has been frequently described (Pelras 2006, Mc Nicoll 1968, Ammarel 2002, Vayda 1996). With a variety of motivations to migrate, Bugis nomads are nevertheless renowned for always being successful and often achieve fairly high social status in their destination areas because of their success, for example, as fishers in Jakarta and the southeast coast of Sumatra (Kinseng and Saharudin 2009); as expert traders in Kalimantan and Johor, Malaysia; and as plantation farmers in Southeast Sulawesi, Central Sulawesi and Sumatra's Jambi Province. This nomad culture is associated with 'siri', the tradition of in pride family members being willing to take the risk to move to another area.

## **Information and networking**

Information through networks of relatives or neighbours who had first moved to a destination area is an important factor in the decision to migrate (Hugo 1981, Mantra 2008). Relatives, neighbours or acquaintances do not only provide information but also temporary accommodation in the early days before migrants find places that meet their expectations. These networks also help reduce the high costs of migration and risk of failure.

*K is a resident of Kalobba Village who has just returned from Malaysia. K received information from his relatives about Lawonua Village, where he has been starting a cocoa-plantation business. Two of K's cousin moved to Lawonua first and invited him to follow. One of the cousins sold him approximately 1 hectare of land so that K could establish a cocoa plantation. K hasn't paid for the land he uses since he is yet to harvest. According to Pam, his cousin who sold half of his land to K, K can pay it after the land produces. When he first arrived in Lawonua, K stayed at Pam's house for about 2 weeks until K finished*

*building the plantation house he now occupies. K stated that it was not easy for him to make the decision to move to the Southeast because he did not have enough capital. However, thanks to the network he later boldly decided to move.*

The story of K shows the importance of the role of relatives and neighbours in making the decision to migrate. The help during the early days and the land purchase system, which allows payment after the harvest, were both very important for K.

Cases such as this were not isolated. Similar situations were reported by residents from other villages.

## **The migration of Bugis cocoa farmers in Southeast Sulawesi**

Social networks and their influence on migrants' decision-making evolve in line with the pattern of migration, which will become clear if viewed in the broader context of migration as a tradition of the Bugis community. The history and population dynamics of Bugis' diaspora in several regions in Indonesia can provide illustrations of migration patterns. This section discusses the patterns and history of migration in Southeast Sulawesi, in particular, by giving attention to the more general context both in, and outside of, Sulawesi Island.

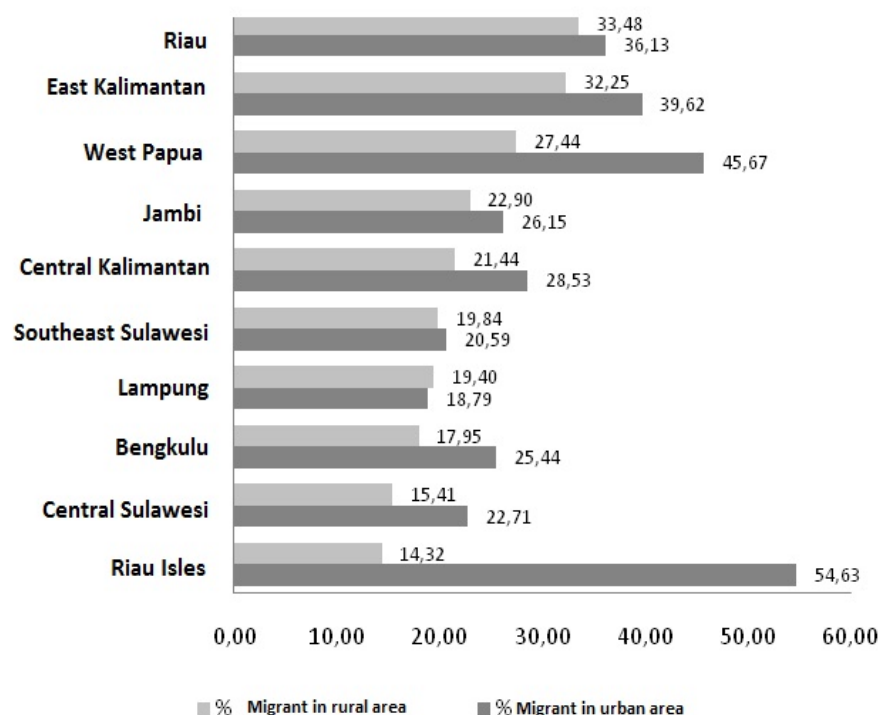
### **Rural areas in Southeast Sulawesi: Bugis migrants' destination areas**

Southeast Sulawesi has been a destination for both government transmigration programs and spontaneous migration. Migrants from various regions in Indonesia have settled in both rural and urban areas in Southeast Sulawesi. Census data from 2010 shows the percentage of migrants in rural areas of Southeast Sulawesi was approaching 20%, only slightly lower than the percentage of those in urban areas: 20.59%. The composition of the lifetime migrant population living in rural areas in the province was relatively high when compared to other provinces of Indonesia, as discussed below (BPS 2010).

Interestingly, Riau, East Kalimantan, Papua and Jambi—which are the provinces with higher compositions of migrants in rural areas than Southeast Sulawesi—are favourite destinations for Bugis migrants. In Papua, Bugis migrants are commonly referred to as part of the 'BBM' (Bugis, Buton and Makassar: origin areas). In East Kalimantan, Bugis migrants dominate the trading sector as well as pepper plantations. In Jambi and Riau, Bugis are dominant in oil-palm plantations and the fishery sector.

Data from the 2010 Population Census show that the composition of the lifetime migrant population for rural areas in Southeast Sulawesi is quite high, especially in the districts of Kolaka (43.3%), North Kolaka (40.99%) and South Konawe (33.71%). In line with information from the interviews

conducted as part of this study, these three districts are the pioneer areas of migrants from South Sulawesi Province, as well as target areas for transmigration. The composition of recent migrants (those whose place of residence is different from that of five years ago) in North Konawe shows the highest percentage (7.98%), followed by Bombana (7.58%). These two areas are visited by migrants from various regions owing to the mining activity of the last few years. Kolaka (5.07%), North Kolaka (5.13%), Konawe (4.25%), and South Konawe (4.25%) are still preferred destinations for the development of commodity crops, such as cocoa and pepper.



**Figure 8.** Percentages of rural and urban migrants in selected provinces of Indonesia

Source: BPS, Population Census in 2010

The high composition of the rural population in Southeast Sulawesi is also a result of government-programmed migration, known as ‘transmigration’, which supports movements of population from more-densely to less-densely settled areas of Indonesia. Konaweha, a village in Kolaka District, Southeast Sulawesi was one of the very first transmigration destinations, in the 1940s, along with Sukadana in Lampung and Sawah Lunto in West Sumatra. Data from the Department of Transmigration show that more than 200 families from Central Java, East Java and Bali were placed in the Konaweha area. Transmigration destination areas in the Southeast later expanded to almost every district. There were once 34 transmigration settlements (Unit Permukiman Transmigrasi/UPT) in Southeast Sulawesi with migrants from West, Central and East Java, Bali and Lombok. Most of the UPTs have grown to become one or even two villages. The distribution of the population in some rural or urban areas in Southeast Sulawesi is also suspected of being a result of this transmigration

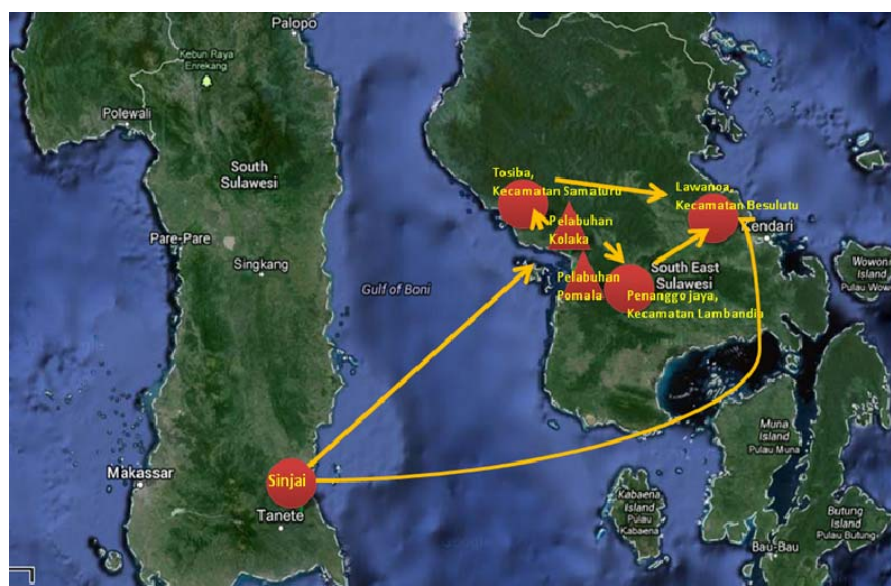
program, where some successful migrants with sufficient capital remigrated to other areas in the province to expand their plantations and fields. Migrants who preferred non-agricultural jobs moved mostly to urban areas.

### Bugis migrant arrival waves

There is not much literature discussing the Bugis migration process in Southeast Sulawesi. The process of migration started in the 1970s, with the initial wave made up of communities from South Sulawesi Province—mostly from Sinjai, Sopeng and Bone—who landed in Kolaka District, heading mainly to Samaturu and Lambandia Sub-districts to cultivate rice.

In Samaturu District, one of the popular areas for Bugis arrivals was the lowland village of Tosiba. The village has rice fields and oil-palm and cocoa plantations. Communities in Tosiba originated from Sinjai, Bone and Polewali. The name Tosiba is a compound of ‘Tondong’, ‘Sinjai’ and ‘Balangnipa’, the origin areas of the Bugis communities who established the village. Informants claimed that the Tosiba area was originally occupied by a ‘karaeng’ or lord, a member of a royal family from Tondong, Sinjai who purchased hundreds of hectares of land and invited his followers to settle and live in the area, which originally was part of Tamboli Village. The karaeng later introduced his followers to rice farming and, until now, the village is famous for its large production of the grain.

Konawehea Village in Kolaka District was also home to pioneer migrants of the 1970s–1980s. The village is located in the coastal lowland of Bone Bay. Penanggo Village in Lambandia District was a further destination. An overview of migration flows from South to Southeast Sulawesi can be seen in Figure 9.



**Figure 9.** Migrants’ routes from South Sulawesi to Southeast Sulawesi



South and Southeast Sulawesi provinces are naturally bordered by the Gulf of Bone. Sinjai District is located in the southeast of South Sulawesi province, which is adjacent to Bone District with its harbour that is renowned as a transit hub for migrants: Port Bajo'e. The community from South Sulawesi travelled to Port Kolaka in Kolaka District from Port Bajo'e. Konawe is located in central South Sulawesi; its western part is directly adjacent to Kolaka District. Thus, the most strategic route for people coming to this region from South Sulawesi was through Port Kolaka or, alternatively, Port Pomala.

Preliminary studies conducted by this researcher in five villages that have populations of Bugis migrants—1) Lawonua in Besulutu Sub-district; 2) Wanoahoa in Lambuya Sub-district; and 3) Anggawo in Uepai Sub-district, all in Konawe District; and 4) Simbune in Tirawuta Sub-district; and 5) Lamunde in Tinondo Sub-district, both in Kolaka District—revealed that the pattern of migration into the territory of the villages was especially motivated by the need to expand landholdings for farming and plantations.

But different periods had different livelihoods targeted by migrants in their new areas. The 1970s was the golden age for agriculture fields and expansion into the Southeast was generally driven by the need for land for new rice fields. In 1981, when cocoa was introduced by government programs, Bugis migrant communities looked for land suitable for cocoa planting in the Southeast while also continuing to seek flatter areas to be used as rice fields. A large wave of migration in beginning in 1997 targeted Lawonua, as well as several other Southeast villages and also Central Sulawesi (Li 2002, Acciaioli 1998), driven by a three-fold increase in the price of cocoa, from IDR 6000 to IDR 24,000 per kg.

The destination villages were also different in each period. Table 6 shows that Simbune and Lamunde were migrants' destinations in the early period, however, owing to decreasing availability of land in the area the migrants moved to other villages that had more land available. From 1997 onwards, Lawonua became a destination because there were many locals willing to sell their land. At the time of writing, Lawonua still featured one or two people buying land in the village but availability has become limited.

The first migration (pioneer), with whatever driving factors and triggers, spawned other waves of migration in different numbers and periods. The choice of destinations depended heavily on how the pioneer migrants established a network to attract new migrants either from their origin areas or other places. A 'pioneer migrant' is defined as a migrant who came directly from South Sulawesi to Southeast Sulawesi. Subsequent migration is migration that followed the pioneer migration wave.

The pioneer migrants bear the highest risk, that is, financing all the movement costs alone. It is noteworthy that in this study very few pioneer migrants were found who actually came without a network. On average, all migrants had relatives, or at least acquaintances, who guided them in search of available land, whether looking for land for sale or 'open access'. Thus, it was somewhat difficult to identify who were the true pioneers who came directly to the area in Southeast Sulawesi without a

network of relatives or friends. The researcher agrees with the analysis by Ruf and Yoddang (2001) that the first wave of migration into this area was most likely owing to the conflict in South Sulawesi, therefore, people migrated randomly into several areas in Central Sulawesi and Southeast Sulawesi.

**Table 6.** Incoming migrants to villages in Southeast Sulawesi

Year (approximately)	Origin	Ethnic	Destination village	Livelihood at the destination
1970–1980	Maros Bone Sinjai Bulukumba	Bugis Makassar	Simbune Lamunde	Rice fields and crops
1981–1987	Mamasa (Toraja) Rantepao (Toraja)	Tator	Lamunde	Rice fields and crops Cocoa plantations
1997–1999	Sinjai Soppeng Bulukumba	Bugis	Lawonua	Cocoa and clove plantations
2000	Pinrang Sopeng Bone, Tator Polmas	Bugis Tator	Anggawo Wanoahoa	Cocoa plantations
2004	Pinrang Sopeng Bone, Tator Polmas	Bugis Tator	Wanoahoa	Cocoa plantations

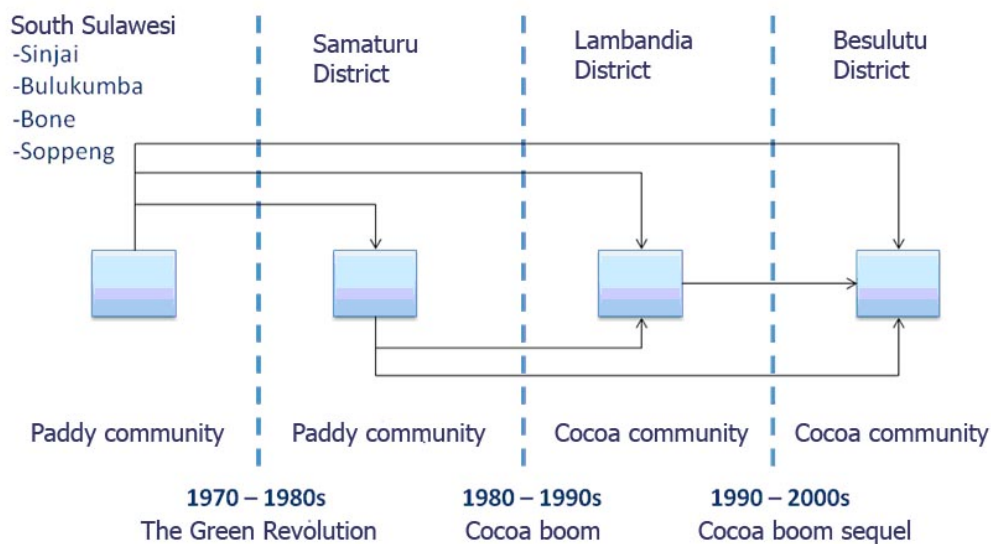
Subsequent migration was probably be motivated by the desire to improve livelihoods, for example, with capital from selling goods or assets or from loans. These migrants were usually from lower economic groups. They usually had land in the area of origin but wanted to increase their incomes. There was also another group who were deliberately brought in to work on land owned by a wealthier migrant and his followers. This group was generally derived from lower economic levels, with most not holding large assets but only limited land and minimal livelihoods.

Figure 10 shows migration phases and the every major events underlying each phase. The ‘Green Revolution’ with its ‘five farming’ development program, which lasted from 1970 to the 1980s, was one of the biggest drivers of mass migration from South to Southeast. In this phase, the dryland farming communities of several villages in South Sulawesi sought to improve their fortunes by establishing rice fields in Southeast Sulawesi in villages designated for rice field development by the local government. Their periodical arrival during this phase helped the rapid development of the destination villages.

The second phase accompanied cocoa development, from 1980 to the 1990s. Migrants also came from the South to the Southeast during this period, along with internal Southeast Sulawesi migrants. The direction of migration was to areas with available land. Most of the migrants established new fields,

both through purchases and by occupying areas with unclear ownership and converting them to cocoa plantations.

The third phase, underway at the time of this study, is almost the same as the previous phases except that it is rare now that a migrant clears forest illegally. Most of them obtain their land through purchases. The trigger remains the same: the development of cocoa plantations. The destinations of the migration are villages or districts that still have land for sale.



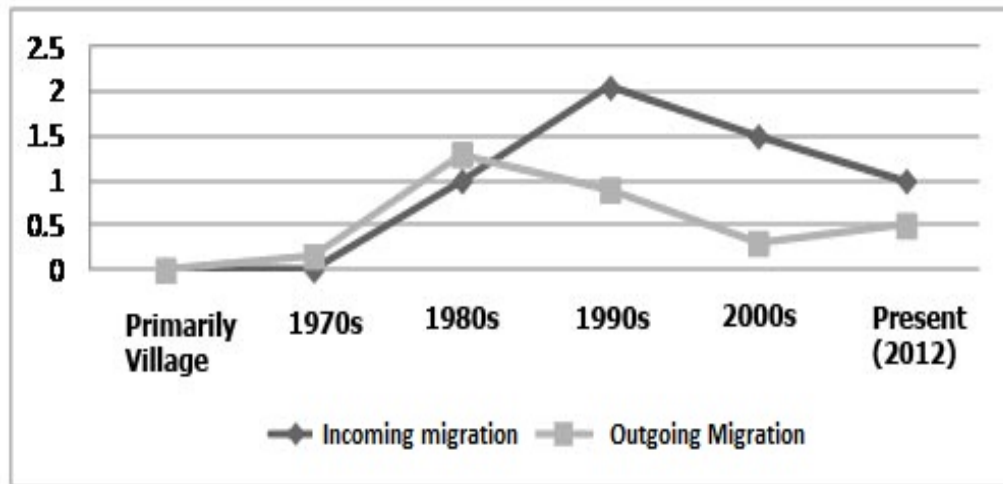
**Figure 10.** Migration phases in Southeast Sulawesi and some of the factors underlying the phases

## Migration and livelihood patterns in a destination village

Lawonua, the destination village of Bugis migrants that is the focus of this study, is an agricultural village with a history of migration that is relatively new compared to destination villages in Konawe and Kolaka districts.

The movement of Bugis migrants from the South to the Southeast can be described in detail since most of the migrants who first came to the village can still be interviewed. Moreover, a number of people in the village were also the first migrants to the Southeast.

The migration and livelihood patterns of the village community, despite having their own peculiarities, can serve as illustrations for other villages in Southeast Sulawesi with nearly similar circumstances.



**Figure 11.** Migration patterns in Lawonua village

Around 1985, a counsellor originally from South Sulawesi was placed in Lawonua as part of an agricultural extension program. Bugis migrants settled and cultivated in the village sometime afterwards. At the time of this study, more than half of Lawonua's population was ethnic Bugis. The largest arrival wave began around 1997, deriving from various regions in South Sulawesi, such as Sinjai, Soppeng and Bulukumba districts.

Incoming and outgoing migration patterns in a certain periods are shown in Figure 11. Outgoing migration from Lawonua usually led to Bombana (panning for gold in rivers) and to Buru Island (underground mining with traditional processing using a rotating drum). Some residents of Lawonua (both women and men) worked as oil-palm plantation labourers in Malaysia and sent remittances to their families of approximately IDR 1.5 million ( $\pm$  USD 150) every two years. Temporary migration to Bombana was done once by young people with the intention of panning for gold. However, interest in Bombana waned owing to diminishing income. Another migration destination was Ambon, with job opportunities in gold mining, which was still considered worthwhile at the time of writing.

Lawonua is one of the few villages in Southeast Sulawesi that has a large proportion of Bugis migrants (Janudianto et al 2012). In this village, Bugis migrants make almost 55% of the total population (694 inhabitants); the other is the indigenous Tolaki, with only a few people who are Javanese or Makassar ethnicity. Population density per 1 km<sup>2</sup> is 34 people.

Before various types of commodity plants were cultivate, the community relied on maize and soybeans to fulfil their daily needs. Pepper was planted as a source of cash during the mid-1970s. In the 1980s, the community began to plant cocoa, silk trees ('sengon', *Paraserianthes falcata* and cashew trees (*Anacardium occidentale* L). The cashew trees were attacked by pests and diseases and many farmers replaced them with cocoa and silk trees (around 1990). In the mid-1990s, soybean farming began to disappear as it was replaced with perennials, such as coffee, cocoa and silk tree.

Cocoa began to boom and experience a ‘golden age’ in Lawonua around 1997–1998 following the rise of prices worldwide. Li (2002) described the same condition in Central Sulawesi, which also experienced a large arrival wave from South Sulawesi during the same period owing to a decrease in production in the Ivory Coast that led to product shortages and increased prices. Indonesia became a promising candidate for ‘major cocoa producer’ at the time.

A project operating via a loan from the Asian Development Bank (ADB), called Sulawesi Rainfed Agriculture Development Project (SRADP), began in Lawonua around the same time. SRADP aimed to develop plantations and rural communities were given high-quality cocoa (1200 per hectare), rambutan and durian seedlings along with fertilizers, herbicides/pesticides and agricultural equipment. The cocoa plantations began to develop rapidly, fuelled by a massive influx of migrants from South Sulawesi. SRADP was run by the Directorate-General of Plantation Production Guidance to increase the productivity and income of dryland farmers, reduce poverty and protect and enhance the environmental quality of dry land.

An interesting aspect of this village, which is also found in several other villages in Southeast Sulawesi, is that native and migrant communities have different patterns of land-based livelihoods. Native communities prioritize income from growing annual crops while perennials are planted by migrants. (A contrasting situation occurs in Minang, West Sumatra where perennials are more desired by the native Minang people whereas the Sundanese and Javanese migrants prefer seasonal crops (Colfer et al 1989).) A study conducted by Janudianto et al showed that the semi-intensive farming of Bugis migrants (and Tator people in several other villages) had brought significant changes in the patterns of agriculture and plantation management in communities in Southeast Sulawesi, although not all the native Tolaki communities apply such changes.

After the entry of the oil-palm company, PT Agrindo Mas Utama, the livelihoods of communities began to change. Monthly incomes earned by the community (both native and migrant) through clearing land, planting and caring for oil-palm plantations as casual day-labourers became important for most people. There was also a group that worked for the oil-palm company under contract for a particular period to clear land, plant seedlings and carry out other tasks. Members of the communities with higher education levels worked for the company as supervisors or office staff.

## Patterns of migration

Based on the stories submitted by migrants, Bugis migrant types can be grouped into 1) new migrants (one-time movers); 2) recurrent migrants (multiple movers); and 3) follow-up migrants (family movers). New migrants (pioneer migrants) are categorized as migrants who came directly from the South to the Southeast and have never lived in Southeast Sulawesi before their migration. This category was common in many groups of migrants after 2000. They came to the Southeast driven by the motivation to obtain land and increase their incomes. Characteristics of migrants residing in the study areas (destination villages) are shown in detail in Table 7.

**Table 7.** Migrant types and characteristics in destination areas

Migrant types	%	Origin areas	Educational background (% of population)				Migrant age groups (%)				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	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 Jeneponto Maros	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	69.7	15.2	12.1	3	2.78	6.94	2.78	-	6	3

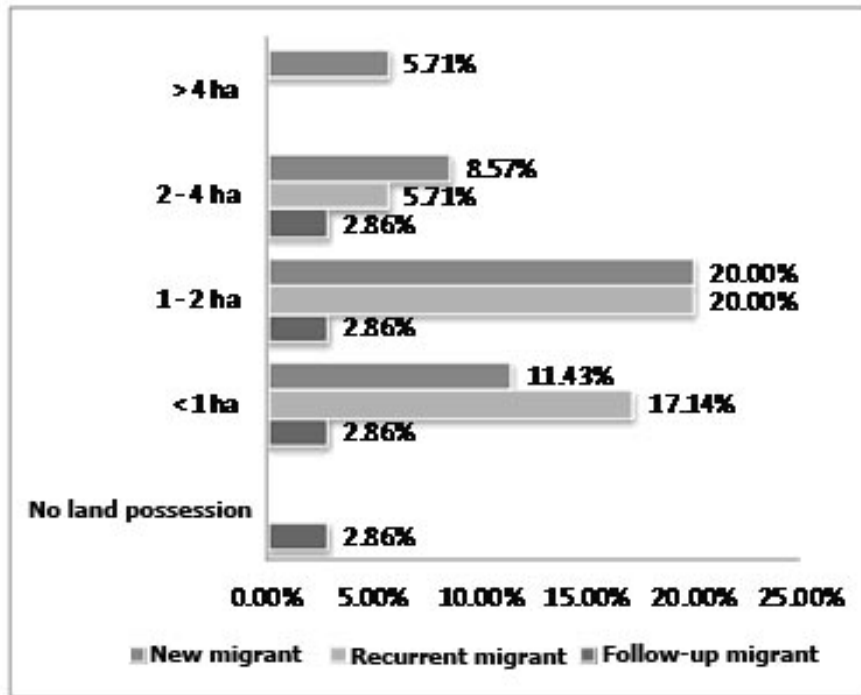
Note: N=32

Recurrent migrants or multiple movers are those who already moved into, and out of, the region in Southeast Sulawesi more than once. Moving for work to other areas besides Southeast Sulawesi, for example, Malaysia and Kalimantan, are also included. Recurring migrants in Lawonua were generally migrants moving from an area in Kolaka, Pinanggo Village in Lambandia Sub-district, Tobuha or Ponggolaka and Konawehea. In general, they came in the late 1970s or early 1980s and their main livelihood in their village of origin in Southeast Sulawesi was rice farming.

*P, 68 years-old, a cocoa farmer from Kampala Village in Sinjai District sailed to Konawehea, Kolaka District in the 1970s by sailboat. 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 ( $\pm$  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 Konawehea 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 in order to equip them for the future. In 1995, P sought land in Lawonua assisted by SF. Once the land was obtained, P did not move to Lawonua but still lived in Kolaka. However, in 2000, P finally decided to move to Lawonua with his wife and child.*

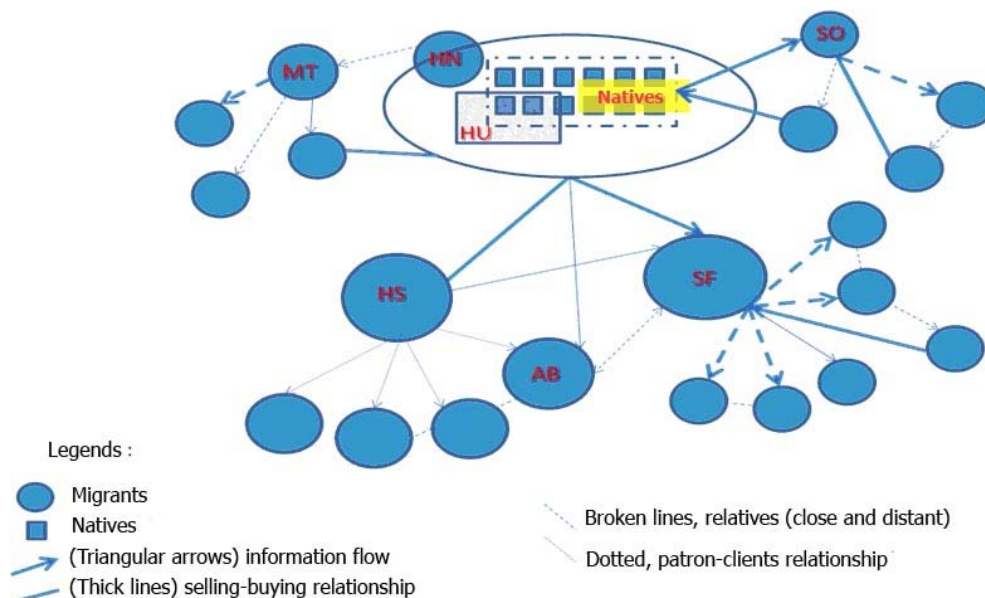
These recurring migrants migrated with the motivation to increase the amount of land they owned. Some of them had financial difficulties and intended to sell land in Pinanggo or Konawehea to overcome their problems. Land in the area was more expensive than land in Lawonua. Selling the land in their area 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. Figure 12 shows land amounts dominated by types of migrants. It appears that recurring migrants have land. The acquired land is later shared as inheritance or dowry for the marriage of their offspring.

Follow-up migrants are descendants of migrants who have lived for a long time in Southeast Sulawesi. Most of them were born in South Sulawesi and later moved to the Southeast as toddlers or teens after their parents, who had already moved there. There are still Bugis migrants who are married but do not yet have land in Lawonua. They are follow-up migrants who haven't received a share of the family land and nor been able to obtain their own land.



**Figure 12.** Land ownership based on migrants' typology

Bugis and Makassar migrants in Lawonua came in waves; their population now covers 54% of the total population of the village. The waves of migrant arrivals are divided into five models based on the pattern of migrants' entry. The arrival and network models are illustrated in Figure 13.



**Figure 13.** Established patterns of migration and network models

Note: MT, HN, SO, HU, HS, AB and SF were the initial actors who became the centre of each network



## **Migration owing to job placement**

The first model of migration was the arrival of an extension counsellor stationed in the village, who then married a native and settled there. HN, an extension counsellor from Soppeng District came to the village around 1987. At that time, the Department of Agriculture and Plantation ran a program that placed a number of graduate students from secondary agricultural schools in Makassar in other areas in Indonesia, including Southeast Sulawesi and East Nusa Tenggara provinces. HN and seven others were placed in Southeast Sulawesi in different villages. HN helped develop the village together with the village head, up to the present.

## **Independent migration**

This model is migration by people with the motivation to seek for land. They have the goal of finding land for cocoa plantations and together try to access villages that have land, based on the information they receive.

One example of independent migrants is SO, a Bugis from Waempubbue Village in Amali Sub-district, Bone District who arrived about 1988. SO first lived in Ponggolaka Hamlet in Pinanggo Village, Kolaka for 4 years. To seek land, SO's wife suggested moving to Lawonua because of the relatively cheap prices there. SO moved to the village together with eight other families.

Those eight families had a variety of reasons for moving. Most of them aimed to establish cocoa plantations. Some of them already had land in Ponggolaka but a few of did not because they were follow-up migrants. The eight families all originated from Pinanggo Village in Kolaka. Therefore, the types in this group are the recurring and follow-up migrants who wanted to purchase new land or move to a new location. Most of them still retained land in Pinanggo while others had sold their land in Southeast Sulawesi.

Before moving to Lawonua, SO and some friends intentionally went to visit Lawonua's village head to enquire after land that could be purchased. After going through several stages of negotiation, SO finally bought the land that he is still occupying up to the present from a native. SO bought the land still in forest-like condition. It took hard work for SO to establish his cocoa plantation. He needed to do that since he no longer owned land in the previous village where he lived, which was sold for the capital to establish the plantation in Lawonua.

## **Land broker or agent**

The land broker or agent plays an important role in facilitating the process of migration. They provide information about land for sale, including its condition and price. Through the network of kinship and acquaintances, the agent actively seeks potential migrants who are interested in buying land in the new area. Initially, they were migrants who had settled in one of the villages in Southeast Sulawesi. The agent provides information about land that is being sold, with the value of the information

enhanced through their understanding of the dynamics of the land market in the region. The number of Bugis in the village had grown substantially from one or two groups because of the agent.

Some incoming migration occurred in Lawonua because of facilitation by SF and AB. Both figures were well known by the Lawonua villagers as agents for purchasing land. SF was a Bugis who had lived in Kolaka and helped sell land owned by HU (a native). At that time, around the years 1997–1998, SF also helped HS, who was looking for land. SF deliberately took the time to visit relatives and acquaintances in South Sulawesi. He managed to convince five families to purchase land in Lawonua. Land information was also conveyed by him to neighbours and relatives who lived in Southeast Sulawesi and who intended to seek new land. SF was not working alone: he was assisted by his partner, AB. SF did not then live in the village but AB was a resident who owns land for cocoa cultivation. By the early 2000s, 2–5 families per year were migrating to Lawonua.

### **Migration through kinship network**

Migrants from Soppeng arrived during 1997–2000 through the network established by HS. One of the migrants who utilized his in-law's information was MT. In 1997, he was invited to find land in Lawonua and for an initial survey. During the survey, MT stayed with his relatives and, after studying the conditions of the village he finally bought 4 hectares for IDR 500,000 ( $\pm$  USD 50) per hectare from a native citizen. After obtaining the land, he returned to Soppeng to prepare for his move. A few months later, he came back to Lawonua with his wife to settle. He also brought along three others who were interested in looking for land in the village. These three eventually bought land and established plantations there, although they left the village after several years of managing their plantations. Migrants from Soppeng were still arriving in the later years, as well as ones from different villages, who still had kinship with residents. Around 1–2 families arrived per year.

### **Patron-client relationship**

The relationship between a land owner ('ajjoa'raeng') and their followers ('joa') became one of the doors through which a large number of migrants entered Lawonua around 1997. Their relationship was a manifestation of the 'siri' value that drives the mobilization between the two (Pelras 2006).

Land owners have capital to open cocoa plantations and recruit followers from their home village to clear the land, plant and care for the cocoa. When the plantation begins to produce after five years, a sharing system is implemented.

The land owners maintain relationships with their clients to support their economic activities as well as maintain the power of their networks (Pelras 2006). The patrons' clients, who generally come from lower socio-economic groups, have better income sources through the patron compared to those in their home village, which no longer attracts their attention. In addition, through the patron's support their migration to the new area becomes lower in risk and the cost required to migrate is reduced. The

reciprocal relationship (reciprocity), although it is not entirely symmetrical (it is often highly asymmetric), is still able to improve their income.

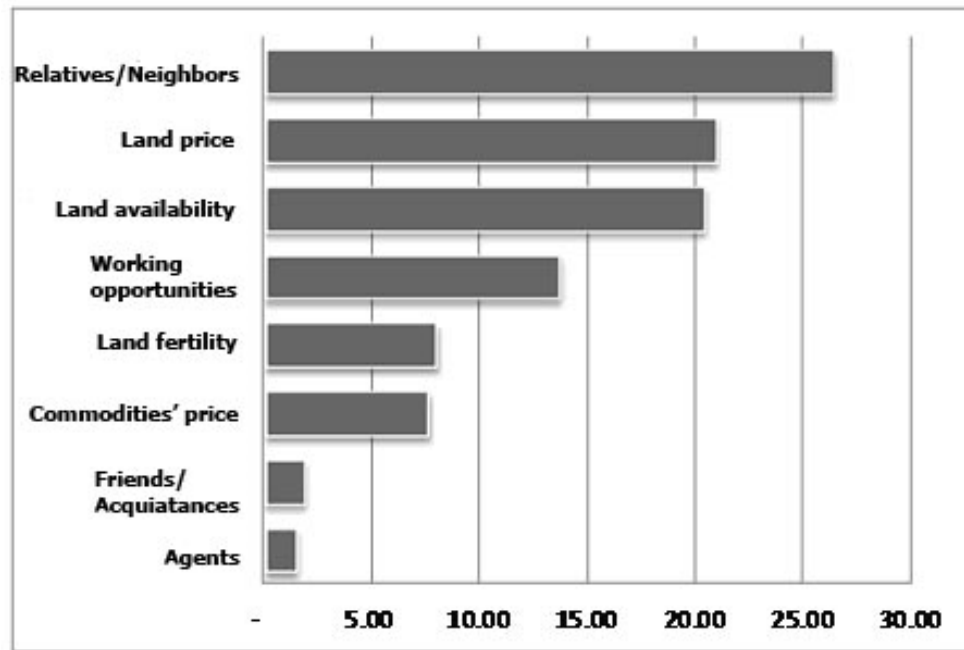
*Around 1997, HS, a karaeng from Barru, purchased a large amount of land in Lawonua with the help of SF, AB and HU. HS (a patron) later recruited his men (clients) to manage his land. His men were given approximately 4 hectares of land for rubber plantations. During the first six months, HS men were given a living allowance of approximately 20 kg of rice per month, salted fish and a few other staples. After the 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 land owner and another part for the workers.*

## Why migrate?

The reasons given by migrants for choosing Lawonua as their destination village were varied, as described in Figure 14, but the existence of relatives or neighbors in Lawonua was the main determining factor.

Success stories by returning migrants to their origin villages were the main attractors to Lawonua. In addition, the price and availability of land being sold either by natives or other migrants (who intended to move again) were also factors.

Employment opportunities, land fertility and the competitive cocoa commodity price when compared to southern regions were also considerations when deciding to move. Job opportunities in Lawonua were especially important for new migrants in the last three years, thanks to the establishment of oil-palm plantations. They absorbed fairly large numbers of labourers from surrounding villages for land clearing and planting. Soil fertility was considered very suitable for cocoa plantations, producing better fruit compared to South Sulawesi. Moreover, the commodity price was perceived to be more competitive.



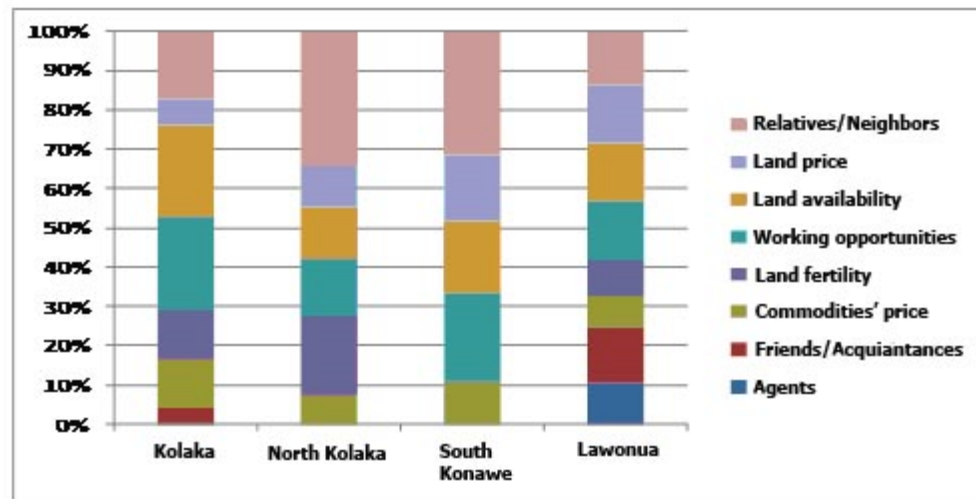
**Figure 14.** Factors in the decision making of migrating location

Migrant communities in Lawonua have considerable access to information about land for sale, from an agent or a pioneer migrant who already has access to information about land. However, the results of in-depth and structured interviews show that the Lawonua community did not consider the role of agents to be great because they were just their relatives, acquaintances and neighbours from the village of origin. Yet the chain of information provided by the agents started with the migrants' relatives and later reached the ears of the migrants themselves. In this case, the more involved party was the relative, according to the migrants.

Figure 15 shows the factors that influenced the decision to migrate to some of the areas which became the main destinations for migrants who currently live in Lawonua. Kolaka, North Kolaka and South Konawe were areas that many migrants had targeted since the initial wave of migration (from around 1970) until the time of writing. Relatives or acquaintances were still the primary consideration in determining the time and migration destination in almost every village, especially in North Kolaka and South Konawe. Business opportunities became a significant factor in population movements, especially for destination villages in Kolaka, South Konawe and North Konawe. Migrants to Kolaka and South Konawe looked for more fertile land and that suitable for rice fields, therefore, the availability of land that could be sold, or was otherwise accessible to the community, becomes the third-most important factor after the network. Consideration about land prices and employment opportunities were also determining factors but their influence are not great.

Agents rely on kinship and 'brotherhood' as well as taking advantage of networks, thus, they are not formally recognized by the community as new actors in the migration networks. The term 'agents'

was defined as a group of people who actively invite, as well as facilitate, the migration of Bugis people to Lawonua.



**Figure 15.** Migrating determination factors in some destination areas in Southeast Sulawesi

## Land and Inheritance

Land is the attraction for migrants from South Sulawesi. More than 90% of the migration to Lawonua had an economic motivation: the search for better fortunes through the expansion of plantations. The area of land owned by Bugis migrants in Lawonua ranged 1–4 hectares per family. The Bugis community controls nearly 56% of the land in Lawonua compared to the native population. Native people who own cocoa and other plantations make up only about 32% of the total population of natives; the remainder rely on seasonal crops and non-agricultural jobs for their livelihoods.

Land and all it contains are essential commodities for the Bugis community because they are used as means of exchange in the marital tradition: the dowry in a Bugis marriage is land. The minimum land size for a dowry is approximately 2–3 hectares for plantations and two rice fields for paddy. It is around IDR 5 million ( $\pm$  USD 500) in cash. The land size and the amount of the dowry money depends on the ability of the men. If the man does not own land he can give the bride a dowry of trees with high economic value, such as five clove trees.

## Unravelling the migration network

A migration network is a form of social network that consists of a structure and relationships between actors involved in the migration process. Social network analysis (SNA) needs to be conducted in parsing how the migration networks were formed and the role of each actor in the migration process. The analysis was used to understand interpersonal relationships among the Bugis ethnic community of

cocoa farmer migrants in Southeast Sulawesi. It focuses on the positions and relationships between actors (interconnection) not just the actors alone.

## Vertical and horizontal social networks

Social networks developed by migrant communities when determining their decision to migrate were traced in their origin and destination areas. This study found three models of network that are strategies used by the migrants and which influence 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. 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 cultivation as a requirement for planting.

The second was the network set up to gain profit. 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 his land as well as minimizing their migration risks. In this type of relationship, often the client's decision to migrate was not a voluntary decision 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 characterised by identity, location of origin, and current residence similarities and was generally found in migrant communities who had been the pioneer settlers in Southeast Sulawesi. These groups built a network of neighbourhood or identity similarity among Bugis people who had the same goal of increasing the number of plantations by expanding to villages that still had available land.

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 neighbourhoods, which are horizontal. For example, in the patron-client relationship, the kinship between the two often enlarges the clients' decision to migrate not only because of economic need but also reluctance to reject an offer from a relative.

## 'Betweenness centrality' and 'eigenvector centrality'

The analysis of migration or social networks was conducted using NodeXL software, which is able to measure and visualize the relationships of actors. In the software, the actor(s) in migration is visualized in a node (or nodes) that are connected by lines that describe the connection with each other. Social network analysis can be performed quite well at a micro-scale or in smaller communities

because the connections among actors are not too complex. However, when network mapping and analysis are done at the larger scale of a more numerous and complex community, a computational technique is then needed. NodeXL is built on that basis and represents more systematic data.

Although this study was not done in a large community, it used NodeXL software with the hope that if a similar study is conducted in other areas it can store inter-regional data and describe more general conditions. In other words, if we want to increase the scale of the study, the data will be better organized if it is presented using this tool.

In this analysis, ties or relationships between knots (nodes) or actors consist of a variety of models. Kinship (nuclear family and extended family/extended family network), sale-purchase relationship, patron-client relationship, and the transfer of information are indicators used to recognize the position and relationships between individuals or knot. By relying on Burt's concept (2013) of the structural hole that is capable of breaking down and uniting networks contained in social capital, this study aimed to identify which nodes play an important role in the structural hole. In that sense, Mitchell (1974) emphasized the importance of identifying the connection, density and size of the network.

Referring to Borgatti's concept (2005), two models of centralization in social network have been identified: 'betweenness centrality'; and 'eigenvector centrality'. Based on the results of in-depth interviews, indicators such as land information relating to the location and price were an important factor in determining migrants' decisions. Thus, the flow of information itself is an important component in measuring actors' centralization, hence, the 'betweenness centrality' proposed by Borgatti is relevant to the analysis. According to Borgatti (2005), 'betweenness centrality' refers to the actor or the central node in the network based on his or her role as a network information mediator or controller. The actor has an important role as a conduit of information to other actors for whom the information helps determine their decision to migrate. An actor with the highest point of 'betweenness centrality' is the one who plays a role in providing information to migrants and is capable of bridging separate groups (non-homogeneous).

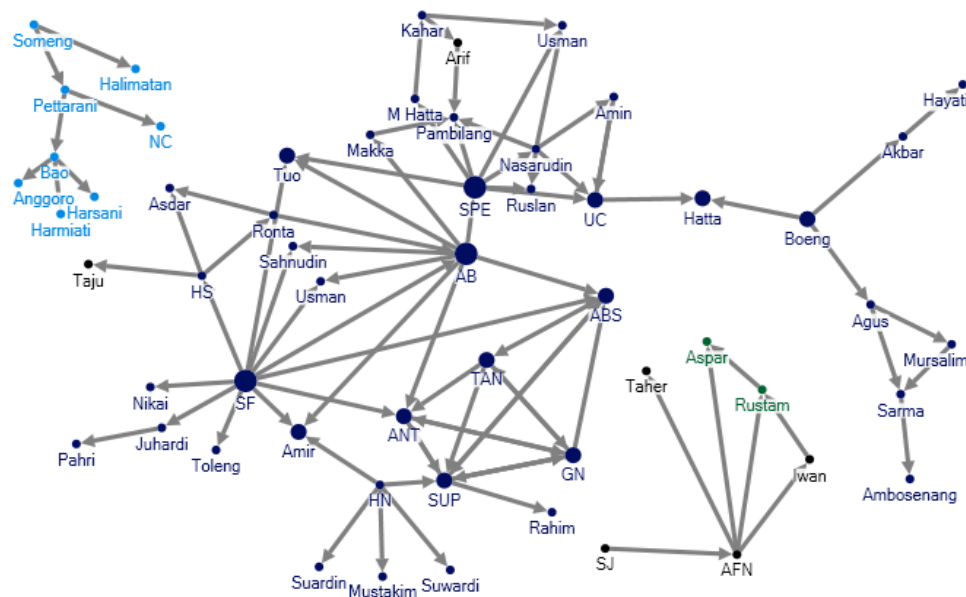
The reputation or power of actors is crucial in migrants' decision to migrate. Thus, in line with Borgatti's concept (2005), 'eigenvector centrality' or power centrality is used as a benchmark in identifying which nodes or actors are central. Bonacich (1987) measured the power centrality of the actor or node that has the highest value on the basis of the size of the knot and ties with other actors. This study observed that the actor or node which had a high value of power centrality was the one capable of influencing the decisions of Bugis migrant communities to move to Lawonua.

Modeling using NodeXL provides visualizations of relationships between actors/individuals (Figure 16). It can be seen on the migration network map that three actors—SPE, AB and SF—have the thickest knots. These thick knots indicate that the three are the centres of the social network. The three knots have high values of betweenness and eigenvector centralities compared to the others.

Networking groups indicated by lines separated from the rest (Someng, Bao etc) are groups of networks that utilize the network they built based on the similarity of identity of Bugis migrants who

had been long settled in Southeast Sulawesi. If we return to the analysis (Figure 13), we will see that they belong to a group of migrants who moved independently. They built this network in the 1990s in order to purchase land in the village. Another separated network is that made up of a pattern of vertical relationships built by AFN. AFN established a network of kinship, although he did not utilize intermediary networks built by AB and SF. This migrant group is a relatively new group of migrants (built in the last five years).

The result of NodeXL modeling of the migration network in Southeast Sulawesi shows that migration flows in the village were controlled by SF and AB, actors who had strong reputations or high binding strengths (Table 8). This value is indicated by the high value of eigenvector centrality. Information collected from in-depth interviews showed that both actors were land agents or who controlled the land market. Many migrants who came to the village received information about land for sale and were assisted to acquire the land by these two figures. Both of them were central actors since they actively searched for, and built, a network with new areas by combining some of the existing networks in some areas based on similarity of origin areas in Southeast Sulawesi (previous migration destination), origin villages in South Sulawesi, and the ‘brotherhood’ relationship.



**Figure 16.** Migration networks and centralization of actors

The greatest values of betweenness centrality are held by AB and SPE. The points indicate the number of connections (paths) which go through the actors. Borgatti (2005) stated that the number of lines can be interpreted as how much, or how often, a node is used by other nodes to obtain information. Interview results show that AB and SPE utilized both a close kinship network (closed family network) and a distant kinship network (extended family-based network) in establishing migration flows. This suggests that the role of kinship networks in mediating, or controlling, the information in migration is quite important. Information on the availability of land that is accessible,



its price and condition are conveyed and become part of the determining factors in deciding to migrate. SPE proved to have less value in the eigenvector centrality, or lesser power, compared to SF. The decision to migrate was also determined by the influence of actors/individuals/organizations. In addition, this value of eigenvector centrality also shows whether the actor/individual/organization is able to penetrate the boundaries of the groups or not when influencing their decisions, which is shown by the kind of relationships (close or distant) between the actors, as well as the many relationships they create with actors/individuals who are not in the same group. SF and AB were able to penetrate the patron-client networks made by HS and also influence the decisions of HS as patron as well as his clients.

The power centrality value of ABS and ANT was quite high. This shows that both actors were influential in migrants' decisions to migrate and in choosing Lawonua. However, they do not have significant value of betweenness centrality, which may indicate that they could penetrate other non-homogeneous groups.

**Table 8.** Betweenness centrality and eigenvector centrality values of some actors in migration networks in Southeast Sulawesi

Initial actors	Betweenness centrality	Eigenvector/power centrality
AB***	824.333*	0.095*
HN	490.000	0.003
SPE**	871.133*	0.042
SF***	475.067	0.094*
UC	570.000	0.013
ABS	0.008	0.082
ANT	0.008	0.082
GN	0.006	0.052
SUP	0.006	0.057
TAN	0.006	0.052

Note: \* The highest value for each category value; \*\* Actor/individual/organization which is the centre/second centralization in the network; \*\*\* Actor/individual/central group/main centralization in the network

## The mediator: main knot in migration networks

Migration to Lawonua, Southeast Sulawesi, the sample village in this study, was facilitated by migration intermediaries or brokers. The intermediaries are ones who bridge the various groups of migrants from various regions to select land and encourage them to decide to move and live in the village.

Burt (2013) explained that an intermediary or broker is an actor who is able to bridge the individual or group of individuals who initially were not interconnected. Burt (2013) emphasized that an intermediary or broker is able to build the trust or confidence of migrants who ultimately decide to live in the village. The function of intermediaries was also emphasized by Stovel et al (2011) in their study of intermediaries that identified that one of the essential characteristics of an actor is to bridge the gap of information and goods and services distribution in the social structure of the society.

Stovel and Shaw (2012) revealed two aspects of brokers or intermediaries related to their conflicting positions and structure in migrant and native communities. Brokers or intermediaries 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. As in the process of international migration, which emphasizes the legality of migrants (passport and visa acquisition for residence permit), the Bugis migrants needed the services of land intermediaries to minimize their risks in accessing land. Migrants have to pay more for the price of land they purchase and services provided by the broker or intermediary to facilitate the migration process. From the local community's point of view, brokers or intermediaries help them sell land. Local communities who do not have an interest in planting cocoa because they are more interested in planting crops are helped by the existence of an intermediary or broker in times of need and when intending to sell their land. On the other hand, intermediaries or broker sometimes suggest they sell their land that they do not manage.

In the context of international migration, McKeown (2011) suggested that brokers and intermediaries are often labeled as the source of criminality in migration. They take away benefits of migration in order to make profits for themselves. Various legal actions have been developed to address the emergence of brokers and anticipate the coming of new brokers. McKeown (2011) discussed how rules were then made to regulate borders as the entrance of migration and facilitate freelance migrants, which involved person per person. This rule only supported the role of broker when it became more invisible and the solutions to overcome mass migration were not apparent, according to McKeown (2011). In the context of internal migration, especially in spontaneous rural-rural migration, as revealed in this study, the role of brokers and intermediaries needs to be viewed from the structure of the migrant community and society at large. Thus, efforts to solve the problems caused by mass migration can clearly be seen. McKeown (2011) criticized that true attempts to find solutions should consider the process of migration and the position, as well as the roles, of brokers in the structures that form the migration.

The network concept views social structures as patterns of relationships between social entities that make up a society (Stovel and Shaw 2012). This view recognizes distributed relationships among social relationships in which there are pockets of multivalent relationships, such as families, neighbourhoods, ethnic groups and other social groups that stand alone and are not connected to each other. Each group has different strengths and weaknesses in forming bonds. A structural hole is a gap

that can be seen in the relationship patterns or bonds. A broker or intermediary is an actor who is capable of connecting social entities that are not connected. Thus, sociologically, a broker or an intermediary has a difficult function that cannot be parsed and significant influence in the formation of a new migrant community in a particular area.

Faist (2014) described in detail how an intermediary is involved in facilitating the migration process. According to Faist (2014), intermediaries can determine the choices and migrants' decision-making although they are often unnoticeable. Information given by the intermediary regarding land which is for sale leads the migrants to choose their migrating destination. The information is sporadically announced through the network they built from families or relatives, neighbours and friendships. The decision to migrate as well as the destination will highly depend on the relationship among intermediaries, relatives and the migrants themselves. Stovel and Shaw (2012) stated that comprehending the role of a broker should start from the micro-aspect, which indicates an informal relationship between individuals. The significance of an intermediary can be seen from the consequences of their role at the macro-level. They are the ones who influence the land market as well as how the production of the commodities are marketed.

This section describes the role of intermediaries in facilitating a migration network in Lawonua, as well as some other areas in Southeast Sulawesi. Discussion about intermediaries and their positions in the social structure of a community is mostly done in the context of international migration (Faist 2014, Fazito and Soares 2008), which also includes the role of intermediaries in supporting the legality of a migration process (Spaan 1994). In the context of internal migration, the results of this study show the role of intermediaries in facilitating the process of rural-rural migration that are not driven by the motivation to migrate yet for the purpose of obtaining land in order to increase the migrant community's source of income. The process undertaken by migration brokers to obtain land and the various strategies they developed are discussed in this study.

## Land and the cocoa commodity boom

The broker or intermediary mechanism is formed through informal relationships and occurs at almost all stages of migration. In the era of crop development implemented by government programs (the 'Green Revolution', agricultural intensification, 'five farming' and agricultural extension), migration occurred spontaneously in those communities that wanted to improve their livelihoods. Kinship networks were still strongly binding; the functions of intermediaries were not visible. However, 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 expansion of cocoa plantations. Migration increased massively and spread to other areas; migrants from different origin villages began to arrive. The roles of intermediaries became stronger during this phase, using networks of kinship, neighbourhood and friendship.

Ruf and Yoddang (2001) proposed an analysis of how Bugis migrant communities, who migrated in the era of the 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. They gained knowledge of cultivation techniques from their experience in migrating under the schemes inspired by the Green Revolution, which turned out to be compatible with cocoa cultivation. The new technology (such as herbicides and hand tractors) introduced in the Green Revolution for rice fields reduced the length of time on farm, therefore, the opportunities to manage more land became greater. Their mobility was increased as well owing to less time being consumed on farm and they were motivated even more to look for land and manage cocoa plantations in other places. Some of those 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 the land markets, drawing on the pool of people they knew, be they relatives or neighbours, to buy the land.

The study of motivations to migrate conducted in remote areas in the Philippines by Amacher (1998: 100) indicated that the direction of migration to remote areas was largely determined by the availability of land that was accessible for the migrants. Accessible in this context meant that the land had no clear ownership status so that they could easily cultivate it. Ruf and Yoddang (2001) called it as a mechanism of forest or agroforest rent: farmers preferred to plant cocoa on formerly forest land owing to lower production costs. The term 'forest rent' proposed by Yoddang and Ruf (2001) refers to farmers enjoying the benefit of soil with high fertility. If the land is deforested, the forest rent is no longer valid. In his study, Amacher (1998) indicated that the target region was generally an area with less density. Hall (2011) stated that the preferred destination areas of plantation seekers in response to the cocoa commodity boom were those where local institutions were not too strong. Some migration pioneers who wanted to increase their incomes were aware of this and they looked for land in new areas that did not have many inhabitants yet still had ample land availability.

Forest and agroforest rent mechanisms have not been implemented much in the present era because there is very little forest area left that is accessible to the migrant community. Most of the land that is accessible is already owned by local communities or is in areas in which conflict between companies, governments and communities is in progress. If models of land, forest and agroforest rent mechanisms were strategies to acquire land cheaply before and after the initial period of the cocoa commodity boom, at the time of this study land could only be acquired through the native or migrant communities who had access.

The opinions of Amacher (1998) and Ruf and Yoddang (2001) regarding the direction of migration that followed the availability of land are in line with migration development in Sulawesi. If, in the 1980s, migration destinations were in Central Sulawesi and the northern part of Southeast Sulawesi, Bugis migration began to spread to Southeast Sulawesi after the early 1990s. 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 the ban on selling land to new settlers was strictly implemented. It was proven to be the case by this researcher, who visited the village in 2014. All land was still controlled by local residents.

Ruf (1995) analysed the effects of cocoa development on migration. The model of migration for 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 include forest rent, land sharing and patron-client relationship. The local community, the Tolaki, did not have much interest in planting cocoa. This researcher observed in Lawonua and other villages that the Tolaki community preferred seasonal crops for their livelihoods. Thus, they did not adopt technology and knowledge related to plantations.

### Migration owing to broker

Some of the roles of intermediaries in Lawonua identified in this study were to 1) provide information about the condition and price of land for sale in an area; 2) help facilitate the payment of land that is generally not made in cash; 3) help resolve various issues related to the status of the land that had been sold to the migrants.

In the context of the research village, AB and SF were migration brokers or, more accurately, land brokers. Each figure not only has played a major role in helping the process of purchasing and selling land in Lawonua but also at the same time facilitating the migration of some communities. SF, with strong ties to his home village and an extensive network because of the length of time he had been settled in Southeast Sulawesi, had a role in spreading information about accessible land in several villages in the Southeast. The migration network included not only those of the community who were still living in the South but also those who lived in the Southeast but still wanted to expand their cocoa plantations to another village. AB, since settling in the research village, contributed to land and price negotiations as well as being payment collateral and, furthermore, monitored various developments that took place in the village that affected the status of land. Local communities who were willing to sell their land to migrants required AB as collateral of the sold land so that the buyer would not take a long time to make the payment.

The first Bugis who migrated to Lawonua was a pioneer migrant who previously lived in Kolaka, working as a paddy farmer. He was originally from Ponggolaka, an area dominated by Bugis migrants from South Sulawesi well known for producing rice. He intentionally visited several villages around Konawe to find land he could access. Some of them argued that the price of land in the area where they lived at that time was fairly expensive since almost all land was owned by individuals. He eventually acquired land in Lawonua and decided to move to the village and restart his life from scratch. The village still had ample land because it had just begun to develop at that time. The land was obtained from a Tolaki landlord who was in need of funds for his medical treatment. The land search was not done alone but in groups, until they moved to Lawonua. However, not all migrants

were able to survive with the existing conditions. When they moved to the village, the soil was still forested and quite exposed. Access to the village was also quite difficult, not to mention acceptance by the local community: they were not well received.

The Tolaki landlord (HS) was later willing to sell other land to Bugis migrant communities who were interested in opening cocoa plantations. However, the selling process was not easy. SF, who knew HS, eventually recognized the potential. SF, together with a group from Ponggolaka, bought a large amount of land from local residents and invited other people from his village in South Sulawesi to help him sell it. At the same time, a landlord (patron) was willing to buy and intended to bring some families from South Sulawesi to help him in cultivating the land (the clients). Thus, SF's status as an intermediary in land and migration was increased. AB later became one of the clients of the patron and lived in Lawonua, managing the land. AB later acted as collateral. Land purchases were generally made by down payment followed by full payment after the cocoa began to produce. This kind of payment system was risky for sellers but with the presence of AB in the village as collateral, the seller of the land had more confidence. Below is information taken from an interview with AB, which illustrates his process of acquiring land in the village.

*AB moved to Lawonua in 1996. At first, AB lived in the home of one of his family members from Sinjai who had first settled in the village. At that time, AB made a down payment on 500 hectares, with prices ranging IDR 200,000–500,000 ( $\pm$  USD 20–50) per hectare. He then offered the land to his relatives in South Sulawesi as well as in several other areas where a lot of Bugis lived, such as Kolaka in Southeast Sulawesi.*

*AB deliberately sought families from South Sulawesi who intended to move to Lawonua and cultivate land. AB aimed to make the village friendlier so that cultivation could be done more easily. Various attempts were made by AB to encourage his family members to move to the village to manage his land. At that time, many families were interested in purchasing and cultivating his land.*

*Many people had gradually moved from AB's home village and surrounding villages up to the time of interview. According to AB, he had to encourage people to migrate by providing the capital for the down payment on land, as well as influencing people to purchase and manage the land in this village. AB stated that his efforts in influencing people did not go smoothly, mostly because he has a grim past and was known as a thug. However, because of his determination he managed to prove that he could cultivate successfully: his plantation produced satisfying results that earned him the trust of the community. In addition, AB provided easy terms of payment for the family or neighbours who purchased land through him by allowing them to pay in instalments after the plantations began to produce. AB stated that he would bear the greatest risk, therefore, he earned the reward of selling plantations at a fairly high price (two or three times the land price).*

The legality of land in the market is often 'grey'. Some land does not have a strong legal basis supported by a letter or certificate from the National Land Agency. Some transactions are overseen by

the village head, with the buyer obtaining a 'sell and purchase' letter from the head, while in other cases people just arrived and began to cultivate land that was owned by their relatives and the active legal document was the one obtained by the previous buyer.

Purchases made through intermediaries are generally more secure because both the buyer and the seller always want a clear land status. Some migrants registered their land status to obtain certificates for the land. Status registration attempts are also made with the help of intermediaries in order to simplify and speed the process.

As discussed above, in the last three years (2011–2014), most of the land in Lawonua community was handed over to PT UAM, an oil-palm company. Both local Tolaki and Bugis migrant communities converted most of their land to oil palm by using the mechanism of profit-sharing after the plantation produces. Approximately 80% of the plantations of PT UAM have been established on land of which the ownerships remains with the community. The company helps with planting and fertilizing and later the harvested crops are divided in half. Hand-over of land to the company was not without problems. The land brokers who facilitated the Bugis migrant community to obtain land also played important roles in ensuring the status of land handed to the company. Ambiguous property borders on the certificates of purchase had to be addressed. In this case, SF and AB played very important roles in facilitating resolution of conflict between the local Tolaki and Bugis communities and the company. The Lawonua village head also facilitated resolution of any conflict over land, especially if the root of the conflict was SF and AB as land brokers. Thus, the important role of mediator (intermediary) was in the hands not only of the migration brokers but also the village government.

## Conclusion

Migration and expansion of agricultural land are often claimed to foster the emergence of social problems, such as the marginalization of native communities, inequality of economic growth between migrants and local communities, and threats to the environment (particularly, deforestation).

However, on the other hand, migration has been noted as playing an important role in boosting regional economies thanks to the work ethic of migrants, who are generally more progressive than local populations. Economic growth of a region has been shown to significantly increase after migration.

These two opposing bodies of evidence of the impact of migration have stimulated experts in sociology, demography, geography and population density to discuss the issues from various points of view. Understanding the migration process and the various instruments involved in it needs to be within the context of understanding the social structure of the communities involved. Moreover, it is important to discuss a variety of non-economic factors since they are able to explain the decision-making process.

This study shows that at a macro-level the economic motive that was apparent in the need for land is one foundation of the decision to migrate. At the micro-level, the instrument used to migrate is based more on non-economic factors, namely, the existence of a social network that provides the social capital for migration. This study provides empirical evidence on how social networks become a major instrument in the process of internal migration from one rural area to another. The study provides theoretical and empirical contributions to sociological and population developments from specific micro-studies at migration. The concept of 'social networks' complements the 'rational choice' explanation in socio-economics which describes the process of chained migration in details.

In this study, social capital in a specific location—the destination area—is able to increase the potential for incoming migration. The direction of migration will be to a place where social capital is built upon the availability of land. If this resource become more limited, the social network then begins to be built in new areas. Until the point of saturation, the direction of migration can be switched to other areas where the resources are more abundant and more accessible.

The migration intermediary is the key node in a migration network. The intermediary is the actor who is capable of penetrating the boundaries of migrant communities at the destination. The networks of kinship, friendship and neighbourhood as well as the similarity of origin village are used by intermediaries to disseminate information and their influences. Intermediaries control the information in the migration process. Intermediaries emerged out of the conditions built upon established historical structures in the local and migrant communities. Intermediaries in this study were pioneer migrants who utilized what they learned from their migration experience, their relationship with the community at the destination as well as the kinship and neighbourhood relationships with the



community in the home village. Intermediaries emerged owing to a gap in communities in a region. An intermediary is a node that is able to fill the gap, therefore, groups which were originally unrelated can be connected. The destination of migration is the tool to connect the groups. The migrant communities need to reduce the risk of migrating, which is facilitated by the intermediaries by applying a payment guarantee system.

This study shows that intermediaries and kinship, which facilitate the migration process, can be very visible at the micro-scale because there is a large impact on the wider land market. This study was conducted in-depth in one village, however, it is not enough to fully describe the roles of brokers and kinship in the wider arena, which involves land markets at meso- and macro-levels, as well as in the development of cocoa as a commodity, which is quite dominant at the meso- and macro-levels. Similar studies are needed in several areas in Southeast Sulawesi, as well as in Central Sulawesi, to better understand the dynamics of intermediaries and kinship, which are the principal instruments in the process of spontaneous migration of the Bugis community. Spontaneous migration is not typically performed by the Bugis community alone. Several other communities, such as Semendo in Sumatra, also expanded to several areas in Sumatra, which, of course, is also in need of further study on who is involved in the migration process.

## References

- Abdulkadir-Sunito M, Sitorus M. 2007. From ecological to political buffer zone: ethnic politics and forest encroachment in Upland Central Sulawesi. In: Tscharntke T, Leuschner C, Zeller M, Guhardja E, Bidin A, eds. *Stability of tropical rainforest margins: linking ecological, economic and social constraints of land use and conservation*. Berlin: Springer.
- Abustam MI. 1989. *Gerak penduduk, pembangunan dan perubahan sosial. kasus tiga komunitas padi sawah di Sulawesi Selatan*. Population movement, development and social change. Three cases from rice-growing communities in South Sulawesi. Jakarta: Penerbit Universitas Indonesia.
- Acciaoli GL. 1998. Bugis entrepreneurialism and resource use: structure and practice. *Antropologi Indonesia* 57:81–91.
- Bonacich P. 1987. Power and centrality: a family of measures. *American Journal of Sociology* 1170–1182.
- Borgatti SP. 2005. Centrality and network flow. *Social Networks* 27:55–71.
- BPS. 2010. The 2010 Indonesia opulation census.  
<http://sp2010.bps.go.id/index.php/site/topik?kid=5&kategori=Migrasi>
- Burt RS, Kilduff M, Tasselli S. 2013. Social network analysis: foundations and frontiers on advantage. *Annual Review of Psychology* 64:527–547.
- Charras M, Pain M. 1993. *Spontaneous settlements in Indonesia: agricultural pioneers in Southern Sumatra*. Paris: IRD Editions.
- Colfer CJP, Newton B, Herman. 1989. Ethnicity: an important consideration in Indonesian Agriculture. *Agriculture and Human Values* VI:52–67.
- Colfer CJP, Achdiawan R, Adnan H, Moeliono M, Mulytana A, Mulyoutami E, Roshetko JM, Yuliani EL, Balang, Lepmil. 2015. Preparing the ground for better landscpae governance: gendered realities in Southern Sulawesi. *Forests, Trees and Livelihoods*, 24:1, 59-83, DOI: 10.1080/14728028.2014.951002
- Faist T. 2014. *Brokerage in cross-border migration: from networks to social mechanisms*. Bielefeld, Germany: Center on Migration, Citizenship and Development, University of Bielefeld.
- Faust H, Maertens M, Weber R, Nuryartono N, van Rheezen T, Birner R. 2003. *Does migration lead to destabilization of forest margins*. Discussion Paper Series no. 11. Goettingen, Germany: Stability of Rainforest Margins in Indonesia.
- Fazito D, Soares W. 2008. Undocumented migration, brokerage and solidarity: an exploratory network analysis in the Brazil-US migration systems. In: *Proceedings of the Congress of the Population Association of America*. New Orleans. Silver Spring, MD, USA: Population Association of America.  
<http://paa2008.princeton.edu/download.aspx?submissionId=81497>
- Fazito D. 2009. The role of social network in Human Migration. *Revista Interdisciplinar da Mobilidade Humana* 17(32)
- Galudra G, van Noordwijk M, Agung P, Suyanto S, Pradhan U. 2013. Migrants, land markets and carbon emissions in Jambi, Indonesia: land tenure change and the prospect of emission reduction. *Mitigation and Adaptation Strategies for Global Change* 19(6):715–731 .
- Hall D. 2011. Land grabs, land control, and Southeast Asian crop booms. *The Journal of Peasant Studies* 38(4):837–857. DOI: <http://dx.doi.org/10.1080/03066150.2011.607706>
- Harbinson SF. 1981. Family structure and family strategy in migration decision making. In: De Jong GFD, Gardner RW. Migration decision making. Multidisciplinary approaches to microlevel studies in developed and developing countries. *Population Studies* 37(3):466–468.

- Hugo GJ. 1981. Village-community ties, village norms, and ethnic and social networks: a review of evidence from the Third World. In: De Jong GFD, Gardner RW. Migration decision making. Multidisciplinary approaches to microlevel studies in developed and developing countries. New York, USA: Pergamon Press. pp. 186–224.
- Janudianto , Khususiyah N, Isnurdiansyah , Suyanto S and Roshetko JM. 2012. Agroforestry and Forestry in Sulawesi series: Livelihood strategies and land use system dynamics in Southeast Sulawesi. Working paper 156:53 p.
- Kinseng RA, Saharuddin. 2009. *Pola penyebaran dan mobilitas sosial nelayan Bugis di Indonesia*. Spread, pattern and social mobility of Bugis fishermen in Indonesia. Proceedings of the Seminar on Research Results. Bogor, Indonesia: Institut Pertanian Bogor.
- Khususiyah N, Janudianto , Isnurdiansyah , Suyanto S and Roshetko JM. 2012. Agroforestry and Forestry in Sulawesi series: Livelihood strategies and land use system dynamics in South Sulawesi. Working paper 155:47 p.
- Lee ES. 1966. A theory of migration. *Demography* 3(1):45–57. <http://links.jstor.org/sici?sici=0070-3370%281966%293%3A1%3C47%3AATOM%3E2.0.CO%3B2-B>
- Li TM. 2012. *The will to improve: perencanaan, kekuasaan, dan pembangunan di Indonesia*. The will to improve: planning, power, and development in Indonesia. Jakarta: Marjinkiri.
- Lineton J. 1975. Pasompe ‘Ugi’: Bugis migrants and wanderers. *Archipelago* 10:173–201.
- Lipton M. 1980. Migration from rural areas of poor countries: the impact on rural productivity and income distribution. *World Development* 8:1–24.
- Mantra IB. 2008. *Demografi umum*. General demographics. Yogyakarta, Indonesia: Nurcahya.
- Massey DS, Arango J, Hugo G, Kouaouci A, Pellegrino A, Taylor JE. 1993. Theories of international migration: a review and appraisal. *Population and Development Review* 19(3):431–466. <http://www.jstor.org/stable/2938462>
- Massey DS. 1990. Social structure, household strategies, and the cumulative causation of migration. *Population Index* 56(1):3–26.
- Mc Nicoll G. 1968. *Internal migration in Indonesia: descriptive notes*. Southeast Asia Program Publications No. 5. Ithaca, USA: Cornell University. pp. 29-92. <http://www.jstor.org/stable/3350764>
- McKeown A. 2012. How the box became black: brokers and the creation of the free migrant. *Pacific Affairs* 85(1):21–45.
- Mulyoutami E, Martini E, Khususiyah N, Isnurdiansyah and Suyanto S. 2012. Agroforestry and Forestry in Sulawesi series: Gender, livelihoods and land in South and Southeast Sulawesi. Working paper 158:74 p.
- Mulyoutami E, Fauziyah E, Widyaningsih TS, Awalina D and Lusiana B. 2014. Perantau Dan Pengelola Kebun Sebuah Kajian Migrasi Di Kabupaten Ciamis, Jawa Barat. Presented at Seminar Nasional Agroforestri 5, Ambon, November 2014. . Bogor, Indonesia. World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.
- Newman WL. 2000. *Social research methods: qualitative and quantitative approaches*. Needham Heights, USA: Pearson Education Company.
- Pelras C. 2006. *Manusia Bugis*. Bugis humankind. Jakarta: Nalar; Forum Jakarta-Paris; Ecole Francaise d'Extreme-Orient.
- Portes A. 1998. Social capital: its origins and applications in modern sociology. *Annual Review of Sociology* 24:124.
- Rahmanulloh A, Sofiyuddin M and Suyanto S. 2012. Agroforestry and Forestry in Sulawesi series: Profitability and land-use systems in South and Southeast Sulawesi. Working paper 157:17 p.

- Ruf F. 2001. Tree crops as deforestation and reforestation agents: the case of cacao in Cote d'Ivoire and Sulawesi. In: Angelsen A, Kaimowitz D. 2001. *Agricultural technologies and tropical deforestation*. Wallingford, Oxon, UK: CABI Publishing; Bogor, Indonesia: Center for International Forestry Research. pp. 291–316.
- Ruf F, Yoddang. 2001. Cacao migrants from boom to bust. In: Gerard F, Ruf F. *Agriculture in crisis: people, commodities, and natural resources in Indonesia, 1996–2000*. London: Routledge.
- Scott J. 2013. *Social network analysis*. London: Sage Publications
- Schippers B, Faust H. 2009. *Migrants as cash crop “pioneers”? Socio-cultural change and land use in Central Sulawesi*. Discussion Paper Series Sub-program A on Social and Economic Dynamics in Rain Forest Margins No. 29. Goettingen, Germany: Stability of Rainforest Margins in Indonesia.
- Sitorus F. 2002a. *Land, ethnicity and the competing power, agrarian dynamics in forest margin communities in, Central Celebes, Indonesia*. Discussion Paper Series Sub-program A on Social and Economic Dynamics in Rain Forest Margins No. 5. Goettingen, Germany: Stability of Rainforest Margins in Indonesia.
- Sitorus F. 2002b. *“Revolusi Cokelat”: Social formation, agrarian structure, and forest margins in upland Sulawesi, Indonesia*. Discussion Paper Series Sub-program A on Social and Economic Dynamics in Rain Forest Margins No. 9. Goettingen, Germany: Stability of Rainforest Margins in Indonesia.
- Soetarto E. 2003. The ‘cultural core’ in multi-ethnic communities and its impact on agrarian resource management. Discussion Paper Series Sub-program A on Social and Economic Dynamics in Rain Forest Margins No. 10. Goettingen, Germany: Stability of Rainforest Margins in Indonesia.
- Spaan E. 1994. Taikongs and calos: the role of middlemen and brokers in Javanese international migration. *International Migration Review* 28(1):93–113.
- Stovel K, Shaw L. 2012. Brokerage. *Annual Review of Sociology* 38:139– 158
- Tirtosudarmo R. 2009. *Mobility and human development in Indonesia*. Human Development Research Paper 2009/19. New York, USA: United Nations Development Programme.
- Upton S. 2009. The impact of migration on the people of Papua, Indonesia. A historical demographic analysis. Doctoral Thesis, Faculty of Arts and Social Sciences, Department of History and Philosophy. Sydney, Australia: University of New South Wales.
- Vayda AP, Sahur A. 1985. Forest clearing and pepper farming by Bugis migrants in East Kalimantan: antecedents and impact. *Indonesia* 39(April):93–110.
- Vayda AP, Sahur A. 1996. *Bugis settlers in East Kalimantan's Kutai National Park*. Bogor, Indonesia: Center for International Forestry Research.
- Wahyuni ES. 2007. The impact of migration on family structure and functioning in Java. In: Loveless AS, Holman TB. *The family in the new millennium: world voices supporting the ‘natural’ clan*. Westport, USA: Praeger Publishers. pp. 220–243.
- Weber R, Faust H, Schippers B, Mamar S, Sutarto E, Kreisel W. 2007. Migration and ethnicity as cultural impact factors on land use change in the rainforest margins of Central Sulawesi, Indonesia. In: Tschardtke T, Leuschner C, Zeller M, Guhardja E, Bidin A, eds. *The stability of tropical rainforest margins, linking ecological, economic and social constraints of land use and conservation*. Berlin: Springer. pp. 417–436.
- Zelinsky W. 1971. The hypothesis of mobility transition. *Geographical Review* 61(2):219–249.

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