Evaluation of Transmigration (*transmigrasi*) in Indonesia: Changes in socioeconomic status, community health and environmental qualities of two specific migrant populations

(インドネシアにおける国内再移住プログラム（トランスミグラシ）の評価：
２つの特異な移民事例の社会経済状態・衛生状態・生活環境の質の変化をもとに)

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Abstract

Evaluation of Transmigration (*transmigrasi*) in Indonesia: Changes in socioeconomic status, community health and environmental qualities of two specific migrant populations

In order to mitigate its population redistribution and poverty problems, the Indonesian government started a transmigration program (*transmigrasi*) in 1905 to move landless people (mostly farmers) from the densely populated areas of Indonesia, mostly Java Island, to less populated areas of the country such as Papua, Kalimantan, Sumatra, and Sulawesi (this is called as "the first migration"). Whereas, due to population increases in the migration area and/or catastrophes such as natural disasters or civil wars, those migrants have been moved back to Java, but not to the original place (this is called as "the secondary migration").

It has been reported that the socio-economic status (SES) and quality of life (QOL) of the Migrants were generally improved as a result of the transmigration program. It is also pointed out that environmental degradations like deforestation, erosion or accumulation of garbage, deteriorated community health or epidemics happened in the migrated area. The present study aimed to evaluate the changes of migrants' SES and QOL, environmental qualities and community health before and after the first and second migration, with showing inter-relationships among these factors in two specific migrant populations.

The first specific migrant population is made up of fishermen who migrated into the coastal area of Lampung-Timur District, Lampung Province, Sumatra Island, in the mid-1980s. Structured interviews with 179 households in 2010 revealed that their SES and community health conditions generally improved after transmigration. In 1996, however, some people illegally moved out to the elephant-conservation area to seek for more fish. After having social conflicts with the forest authorities, they were forced to come back to the transmigration area in 2008. The perception of community health, and environmental qualities, and the QOL scores with social conflict experience were worse than without social conflict experience, and the desire for further migration was higher in the former. While, the QOL scores of migrants as a whole were lower than those of indigenous people (106 households).

The second specific population was migrants from Aceh and Kalimantan who faced catastrophes (social conflicts) in these first migration areas and had to move back to the Majalengka District, West Java province, Java Island in 1999 up to 2002. Interviews with 104 households in 2011 showed that migrants' average income drastically decreased after the catastrophes, and SES, community health conditions as well as environmental qualities did not improve by the secondary migration. Then, the QOL scores of these migrants were lower than those of indigenous people there (112 households).

In summary, even in these specific populations, SES, QOL, perception of environmental qualities and community health of the migrants gradually improved after settling down in the migration area with showing strong inter-relationships among

them. However, once catastrophes (social conflicts) happened, levels of SES, QOL, perceptions of environmental qualities and community health were lowered irrespective of the magnitude of social conflicts. Intensive supports from the transmigration program should be needed especially to the people on the secondary migration.

インドネシアにおける国内再移住プログラム（トランスミグラシ）の評価：
２つの特異な移民事例の社会経済状態・衛生状態・生活環境の質の変化をもとに

1905年にインドネシア政府は、人口過密や貧困問題の軽減を図ることを目的に、「国内再移住プログラム」（トランスミグラシ）を開始し、人口密集地域（主にジャワ島）の土地なしの人々を、パプア、カリマンタン、スマトラ、スラウェシなどの人口が少ない地域に移住させた（これを「第１の移住」と呼ぶ）。一方、移住後の地域で生じた人口増加、自然災害や内戦などの大惨事により、再びジャワ島に戻らざるを得なかった（しかし移住前とは別の居住地）者も存在する（これを「第２の移住」と呼ぶ）。

一般に、トランスミグラシにより移民の社会経済状態（SES）や生活の質（QOL）は、改善したと報告されている。しかし同時に、移住地で生活環境が劣悪化し（森林破壊、土壌侵食や廃棄物の蓄積など）、衛生環境も悪化して流行病が発生したことも指摘されている。本研究の目的は、「第１の移住」と「第２の移住」を経験した２つの特異な移民事例を基に、トランスミグラシ前後における移民のSES、QOL、生活環境の質と衛生環境の変化を、これらの相互関係も分析しながら詳細に評価することにある。

第１の特異事例は、1980年代半ばにスマトラ島、ランプン州ランプンティムール郡の沿岸に「第１の移住」をした漁民である。構造的面接法を用いた調査（2010年に179世帯を対象）により、彼らのSESと衛生環境が移住後に改善さ

れたことが明らかになった。ところが、何世帯かの漁民はさらなる漁獲を求めて1996年に象の保護区域に違法の再移住を行なった。そのため政府と対立し、2008年に（焼き払いなどにより）強制的に元の地に戻されることになった。この政府との対立を経験したグループは、経験しなかったグループに比べて、衛生環境、生活環境及びQOL得点が低かった。また、政府との対立を経験した人々の多くは、さらなる移住を希望していた。なお、「第１の移住」をした漁民全体におけるQOL得点は、土着民（106世帯）の値より低かった。

第２の特異事例は、アチェ、カリマンタンに「第１の移住」をし、そこで大惨事を経験したことにより、ジャワ島、西ジャワ州マジャレンカ郡に1999年から2002年に「第２の移住」をした人々である。同様の構造的面接法を用いた調査（2011年に104世帯を対象）の結果、大惨事により彼らの収入は激減しており、第２の移住地でSES、衛生環境や生活環境はまだ改善されていなかった。また、彼らのQOL得点は、土着民（112世帯）の値より低値を示した。

以上のことから、これら２つの特異集団においても、「第１の移住」後にはSES、QOL、生活環境、衛生環境は相互に関連しながら次第に改善されていた。しかしながら、一度大惨事が起こると、その大きさに拘わらず移住者のSES、QOL、生活環境、公衆衛生は低下した。トランスミグラシからの強い支援が、特に「第２の移住」を行なわざるを得なかった人々に必要である。

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GLOSSARY OF TERM

Catastrophes: An event resulting in great loss and misfortune. Catastrophes in this study refers to extraordinary events due to natural disasters or conflicts (social conflict or ethnic conflict) in the migration areas.

Ethnic conflict: A conflict between ethnic groups often as a result of ethnic nationalism and ethnic hatred. Ethnic conflict in the migration area is usually happened due to economic different among migrants and indigenous people.

First migration: The first movement from mainly islands (Java-Madura-Bali-Lombok) to outer islands through the transmigration program.

Migration: Movement by humans from one area to another, sometimes over long distances or in large groups. In this study, the word of migration is used to replace the word of transmigration.

Migrant: People who migrate into others territory. The term migrant was usually understood to cover all cases where moving to another region to better their material or social conditions and improve the prospect for themselves or their family. In this study, migrant is who migrate to others areas through transmigration program.

Second migration: The secondary movement after the first migrated from mainly island to outer island trough transmigration program. Usually, migrants return to origin places (mainly Islands) because of unsatisfied or catastrophes in migration areas.

Social conflict: The struggle for agency or power in society. Social conflict occurs when two or more actors oppose each other in social interaction, reciprocally exerting social power in an effort to attain scarce or incompatible goals and prevent the opponent from attaining them. Social conflict in conservation areas is refers to social conflict where happened in conservation areas.

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CHAPTER I. GENERAL INTRODUCTION

1.1 Background

The Republic of Indonesia is located in Southeast Asia, on an archipelago of more than 17,508 islands near the equator. The total land area is 782,665 square miles, and the sea area covers 1,222,466 square miles, the world's 16th-largest country in terms of land area. It is situated between 6 degrees northern latitude and 11 degrees southern latitude, and spreads from 97 degrees to 141 degrees eastern longitude. It is located between the two continents of Asia and Australia.Indonesia shares maritime borders across narrow straits with Singapore, Malaysia, the Philippines, and Palau to the north, and with Australia to the south. According to Logan (1850), the name 'Indonesia' was coined from the Greek *indos* (India) and *nesos* (islands).

Major islands include Sumatra, Java (with more than half of Indonesia's population), Bali, Lombok, Sumbawa, about three-fourths of Borneo (Kalimantan), Celebes (Sulawesi), the Moluccas, and the western portions of Timor and New Guinea. Indonesia has one of the most diverse populations in the world. There are around 300 distinct indigenous ethnic groups in Indonesia, speaking 742 different languages and dialects (Lewis, 2009). Most Indonesian descendants came from Austronesian-speaking peoples, whose languages can be traced to Proto-Austronesian, which possibly originated in Taiwan. Another main group is Melanesians, who inhabit eastern Indonesia (Merdekawaty, 2006). The largest ethnic

group is the Javanese, who comprise 42% of the population, and are politically and culturally dominant. The Sundanese, ethnic Malays, and Madurese are the largest non-Javanese groups (Kingsbury, 2003). A sense of Indonesian nationhood exists alongside strong regional identities. Society is largely harmonious, although social, religious and ethnic tensions have triggered horrific violence. The traditional activities in the western islands fall into three broad divisions: the inland wet-rice cultivators (primarily of Java and neighbouring islands); the coastal trading, farming, and fishing peoples, including the Malays of Sumatra; and the inland societies of shifting cultivators, such as the Dayak communities of Borneo. In the east, the distinction is between coastal and local peoples.

As of 2010, Indonesia's estimated gross domestic product (nominal) was US$706.73 billion, with an estimated nominal per capita GDP of US$3,015; per capita, GDP PPP was US$4,394 (international dollars) (CIA World Factbook, 2011). The industry sector is the economy's largest, and accounts for 46.4% of GDP (2010). This is followed by services (37.1%) and agriculture (16.5%). However, since 2010, the service sector has employed more people than other sectors, accounting for 48.9% of the total labour force; this is followed by agriculture (38.3%) and industry (12.8%). Agriculture, however, had been the country's largest employer for centuries. According to the Central Bureau of Statistics in 2011, Java represented 60% of the national economy. Combined with Sumatra, the share reaches more than 80%. It is somewhat heart-breaking to see that the rest of Indonesia enjoys less than 20% of the national economic pie. Java and Bali are significantly more developed than Eastern Indonesia in terms of economic activity, infrastructure, and population. The break

outlook for global commodities prices, both in the short and medium term. This means that economic growth in commodity-producing areas such as Kalimantan, Sulawesi, Nusa Tenggara, Maluku and Papua will slow down. This could worsen the imbalance between Java-Sumatra and the rest of Indonesia in the future.

According to the Indonesian census of 1920, Java comprised 70.9 percentage of the population, but only 6.6 percentage of Indonesia's land area. Other islands of Indonesia are less crowded than Java. In 1930, the population density in Sumatra was almost equal to that of Sulawesi at 17 and 22 people per square kilometer, respectively, while Kalimantan and other islands were more sparsely populated with densities of 4 and 8 people per square kilometer, respectively. The contrast between the density in Java was even more conspicuous at 315 person per square kilometer (BPS, 1981). A similar situation was observed in 2011, when the population of Indonesia was 242.3 million, with the population growth rate still high at 1.9 percent. Sixty percent of Indonesia's population was living on the island of Java, the world's most populous island, as shown in Figure 1.1. The uneven population distribution problem has become more serious in Indonesia from the colonial period to the present. The population density in Java and Madura can cause unbalanced development and environmental pressures. Due to the high population density in Java and Madura and Indonesia's general uneven population distribution, experts have proposed decreasing Java's population and increase other the populations of other islands, which currently have a relative shortage of inhabitants.

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Figure 1.1 Indonesia population density in 1961

1.2 Transmigration program

1.2.3 Transmigration history

One of the most sticking features of the Indonesia human geography was the lack of demographic balance that described in the previous paragraph. Java and Madura Island was overcrowded islands compared to others islands. The only method considered for decreasing the population of densely populated areas was to move people from Java to other islands like Sumatra, Kalimantan, Sulawesi, Maluku and West Irian. According to that problem, the Indonesian government made a transmigration program to move landless people from densely populated areas of Indonesia to less populous areas of the country in 1905 (Figure 1.2). This involved not only moving people permanently from the island of Java, but also a lesser extent from Bali and Madura to less densely populated areas including Papua, Kalimantan,

Sumatra, and Sulawesi. As shown in Figure 1.2, transmigration is Indonesia's program of transporting millions of people from the overcrowded islands of Java, Madura, Bali, and the Lombok Islands to settlement areas in the outer Islands of Sumatra, Kalimantan (Indonesian Borneo), Sulawesi (formerly the Celebes), and Irian Jaya (Indonesian New Guinea) (Fearnside, 1997).

Figure 1.2. Transmigration program in Indonesia

The word "transmigration" originated from the Latin *transmigratus* (*trans*: opposite, *migrare*: moving). The Latin *Migratus* or *migrare* mean to move from one place to another. According to *Indonesian Dictionary* (2005), "Transmigration" is in the class of nouns that signifies displacement of residents from densely populated areas (islands) to other, more sparsely populated ones. Hereafter, the term of

"migration" rather than "transmigration" will be used for the action, and "migrants" for people who migrate under the Indonesian transmigration program.

Indonesia's migratory "colonization" began under the Dutch in 1905 (Hardjono, 1977). The transmigration program (*Transmigrasi* in Indonesian) was an initiative of the Dutch colonial government and was later continued by the Indonesian government. According to Swasono (1970), a program of this nature had been considered since the time of Sir Thomas Raffles in 1814; however, its implementation was delayed until the time of van Deventer, the minister of the Dutch colony from 1899 to 1904, who was known for the mantra "education, irrigation and migration". The first wave of colonialisation comprised 155 families moving from Java Island to Gedong Tataan village, Lampung province (Sumatra Island). In the 1905–1931 period, 27,338 people were moved, an average of only 1013 people per year (Jones, 1979). As the most accessible of the outer islands, Sumatra were the destination. The high cost and obvious insignificance of the program in reducing population pressure on Java led to abandonment of the program in 1928, but the situation changed radically in 1929, the plantation owners in Lampung and South Sumatra provinces dismissed thousands of workers, as did industries on Java, leading to resumption of colonization on a larger scale to relieve the resulting social pressures (Sevin, 1989). In this period, the dutch government launched a general transmigration. General transmigration (*transmigrasi umum*) is the name given to the program where the government provides transportation to the settlement site, as well as infrastructure, a house, and a living allowance intended to support the people until the first harvest. The government gave support for their livelihood activities depending on their transmigration types,

especially for farmers. Each transmigrant family received transportation and accommodation, as well as a house 21 m, food for 1-1.5 years and land area 0.5 ha.

World War II interrupted colonization until the current transmigration program was launched in 1950. The first president Sukarno continued the program, using the term "transmigration." Sukarno's plan would have moved an incredible 48 million people over a period of 35 years (1950 to 1986), and in December 1950, 23 families left Java for Lampung, Southern Sumatra, as the first migrants after independence. According to the Indonesian Government Act No. 56/1958 in the Sukarno era, the transmigration program objectives are to improve living standards, promote regional development, contribute to a more balanced population distribution, foster the utilization of natural as well as human resources, and strengthen national unity and security. Transmigration brought significant economic, social, cultural, and environmental impacts and changes to the destination areas. However, in the Sukarno era it was not possible to reach this target, because it was unrealistic and was not given priority in the development program. In this era, the government also gave support to general migrants in the form of houses, land area and food for 1 to 1.5 years. General migrants received a land area 1-3 ha bigger than in the colonial period.

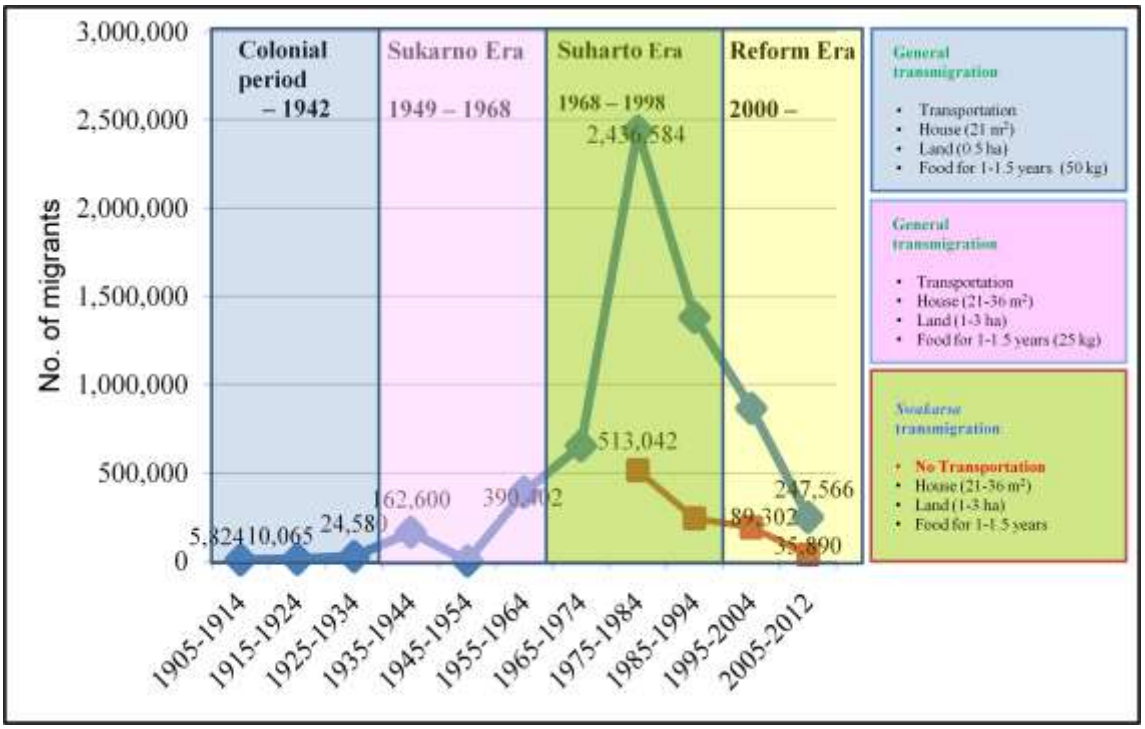


Figure 1.3. Transmigration program periods

After 1968, the Indonesian economy gradually developed under the New Order period, or President Suharto era (1968–1999), and many people participated in the program to fulfil their dreams. From 1969 to 1997, the government moved 3,264,902 families (some five million people) from the crowded inner islands to the more sparsely-populated outer islands (Tirtosudarmo, 2001). Approximately 12,000 km^2 have been used during the establishment of transmigration settlements, and this may be said to be a relatively small area. However, there has been a tendency for migrants to spread their activities far outside the original settlement areas, entailing considerable impact on the indigenous people. The program continued and was expanded to send migrants to more areas throughout the archipelago, such as Papua.

The peak movement happened between 1979 and 1984. 535,000 families (almost 2.5 million people) moved through the transmigration program. This form of transmigration has been progressively replaced with partially-assisted transmigration (which refers to *Swakarsa* transmigration) in locations such as Sumatra, where a significant number of people from Java are willing to move at their own expense. Especially in Irian Jaya, fully sponsored general transmigration has persisted. *Swakarsa* transmigration is where people are part of the government program, but must transport themselves to the transmigration areas. *Swakarsa* migrants receive less government support than general migrants, but at the least receive a land plot that has been surveyed and planned by the government.

Sumatra has received the largest number of migrants so far. Most of the migrants have come from Java Island (Holden *et al.*, 1995). This had a major impact on the demographics of some regions; for example, in 1981, 60% of the 3 million people in the southern Sumatra province of Lampung were migrants. During the 1980s, the program was funded by the World Bank and Asian Development Bank as well as by many Western governments, who appreciated Suharto's anti-communist politics. However, as a result of the 1979 energy crisis and increased transportation costs, the budget and plans for transmigration program were severely reduced (Goldman, 2006). The number of people participating in the transmigration program has decreased since 1999 (Anata, 2003). In August 2000, after the Asian financial crisis and the fall of the Suharto regime, the government reduced again the scale of the transmigration program, due to a lack of funds.

After the end of the Suharto regime, and under the restructured Department of Manpower and Transmigration, the government is continuing the transmigration program, although on a smaller scale than in previous decades. The Department assists in annually relocating approximately 15,000 families, or nearly 60,000 people. The rate has shown gradual increases in recent years, with funding for transmigration activities at $270 million (2.3 trillion IDR) and a target of relocating 20,500 families in 2006 (Almubarok, 2006).

1.2.2 Problems in migration areas

Migration can solve the population problem, but there are some problems that are often faced by migrants. These frequently occurring problems include natural disasters, social conflicts in conservation areas, and ethnic conflicts. According to a recent National Disaster Risk Index (NDRI) ranking of 229 countries based on their vulnerability to natural disasters, Indonesia has been rated as the topmost nation at risk from extreme weather and geophysical events. The methodology has been refined to reflect the likelihood of an event occurring and covers natural disasters including earthquakes, volcanic eruptions, tsunamis, storms, floods, droughts, landslides, extreme temperatures, and epidemics. One of the major disasters that occurred in Indonesia, which had a huge impact on the resettlement area, was the 2004 tsunami in Aceh. According to the U.S. Geological Survey (2005), a total of 227,898 people died in the catastrophe (see table below for details). In terms of the death toll, this is one of the ten worst earthquakes in recorded history, as well as the single worst tsunami in history. Indonesia was the worst affected area, with the death

toll estimated at around 170,000. However, another report by the Indonesian Minister of Health of that time, estimated the death toll to be as high as 220,000 in Indonesia alone, listing a total of 280,000 casualties (BBC, 2005). This disaster not only resulted in a lot of casualties, but also resulted in many refugees, including the migrants who had lost their houses and farm lands.

In the second problem cases in migration areas are social conflict in conservation areas. The dispute between migrants and land conservation happened due to limited economic resources for migrants, so they are forced to rely on natural sources or gathering in forests in conservation areas. An example from the first case study research found a social conflict between fishermen migrants and a conservation area. The Lampung province government received 500 migrants households (2000 persons) from Java, Sulawesi and Nusa Tenggara ethnic areas in 1984, as it was difficult for fishermen on Java Island to catch fish in the 1980s. Their income decreased so this encourages them to participate in the transmigration program on the outer islands (Supardjo, 1985). The government puts the fishermen migrants in the coastal areas of East Lampung, Muara Gading Mas village in 1984. In 1996, it became difficult to get fish around the transmigration area, and some migrants (84 households) moved again to the border of the Lampung National Zoo's conservation area (+10 km from their area), even though the settlement was restricted. They settled in Wako Kali and Way Kambas because this region had higher fish stocks than in the transmigration area. Wako Kali and Way Kambas were located on the border of Lampung National Zoo's conservation area. Lampung National Zoo's conservation area has been designated as a Wildlife Sanctuary since 1936 and confirmed again by

the Decree of the Minister of Agriculture Number: 429/Kpts-II/1978 dated July 10, 1978 as a Nature Conservation Area, therefore the area cannot be settled. Migrants fought with the forest police but then the processes of conflict resolution started in late 2008, and the forest police ordered the migrants to leave by the end of January 2009. Nevertheless, they refused to move out. After negotiations on November 6, 2009, the migrants agreed to return to the transmigration areas by November 26, 2009. More than half of the migrants followed the agreement, but 40 households remain in the Lampung National Zoo's conservation area. The forest police burned their houses on July 15, 2010, and most of them returned to the migration area. This social conflict that occurred with one group of fishermen migrants in the first study site is an interesting point of discussion in this paper. Others examples of social conflicts in conservation areas also occurred in Aceh between migrants and Leuser forest conservation authorities. 800 families of migrants migrated to the border of Leuser forest conservation areas during 1999 up to 2000 from migration settlement areas of Aceh because of security problem in migration area of Aceh. Migrants were living illegally in the surrounding conservation area. They encouraged illegal logging in forest areas. In 2010, Leuser conservation authorities forced migrants to return to their migration areas of Aceh.

The third problem in migration areas is ethnic conflict. The inter-ethnic conflict in the Outer Islands is sometimes viewed as being purely a malfunction of the transmigration program. However, the issue is more complex than this. Part of the complexity arises from the fact that more people have moved from Java and Bali to the Outer Islands under their own auspices rather than under the transmigration

scheme (Hugo, 2000). These migrants have come to dominate the small and medium scale commercial fields in many areas, and this has created resentment among the indigenous people (Adicondro, 1986).

During the period following the financial crisis of 1997 and the collapse of the Suharto regime in 1998, Indonesia has been in a dramatic situation and has experienced economic and social change. In terms of economic change, instability has been created by an economic crisis, which has led to the loss of around 3 million jobs in urban areas and a devaluation of the currency. The currency devaluation has rendered many key imported goods very expensive (Hugo, 1999). In terms of social change, many ethnic conflicts occurred after the Suharto era (1998). In Aceh, the Acehnese separatist movement (GAM) attacked migrants and new settlers, causing thousands of migrants to move to North Sumatra or return to their home villages. In West Papua, there has been a comparable mass exodus of migrants along with reports of attacks on migration sites by the Free Papua Movement (OPM) and of migrants sheltering in the capital, Jayapura. In other areas, opposition to migrants from indigenous populations has become part of the struggle to recover cultural identity and re-establish control over resources. For example, in 1996-1997 and in early 1999, hundreds of people died in bloody clashes between the Madurese and indigenous Dayak communities in West Kalimantan. In addition, more violence was sparked in Central Kalimantan in February 2001 and hundreds were killed. This violence prompted the evacuation of 10,000 Madurese migrants. Furthermore, horizontal conflicts between Christians and Muslims occurred in Ambon and it was reported that one thousand people were killed there.

As a result of these ethnic conflicts, thousands of migrants and their families had no other choice than to abandon their migration settlements or villages. However, some indigenous people in social conflict areas moved out to other places. According to Adhiati and Bobsien (2001), approximately 6.5% of the total number of refugees from Aceh, West Kalimantan, Maluku and East Timor were migrants. The total number of refugees was 73,508 refugee families in January 2000. In November 2000, this number was increased to 240,333 refugee families, or 1 million displaced people, sheltering in 18 provinces. Among them, an estimated 120,000 refugees from East Timor were still being forced to live in refugee camps in West Timor. Moreover, the refugee numbers fluctuated according to the intensity of the Indonesian military conflict with the GAM and the number of "sweepings" conducted by the military. The number of refugees in the camps decreased from 300,000 in December 1999 to 44,000 in November 2000. There are now 215,000 refugees reported in Maluku province and 207,000 in North Maluku (equivalent to 25% of the population of the two provinces).

1.3 Literature review

Compared to many other countries around the world, Indonesia has a long history of transmigration programs, and they have been relatively successful (Smith, 1981). There are many evaluation of transmigration program from following viewpoints: 1) balance of population density, 2) economic situations of migrants (poverty), 3) local development, 4) environmental problem.

1.3.1 Balance of population density

As described in the background that the Indonesian population density between the island and the other islands are unbalanced. In addition, the density of the population among the provinces, with each province are also not balanced. This is because the uneven population distribution. The majority of Indonesia's population concentrated in Java and Madura. In fact, the area of Java and Madura only a small fraction of the total area of Indonesia. Consequently, the island of Java and Madura has a high population density compared on the other areas the population.

According to the 2010 census, roughly 20 million people migrated from the inner islands to the outer islands (Erman, 2008; Tirtosudarmo, 2001; Central Bereau of Statistic, 2010), making Indonesia’s transmigration program the largest voluntary land settlement scheme in the world (Murbyanto, 2000). According Tjiptoherijanto (2003), the transmigration program has been able to reduce the population density in Java although no significant changes. Data migration indicate that most large island is the island of Sumatra, received migrants from 1971 to the present while the largest province recipient of migrants was Lampung province, from the beginning of the transmigration until 1990. Many migrants coming into the island of Sumatra, particularly the province of Lampung, Aceh, North Sumatra and other areas. Transmigration program made population gap between Java island and others Islands like Sumatra and Kalimantan are relative shrinking (Hayashida, 2006).

1.3.2 Economic situation of migrants

Moreover, 40 years later, the transmigration program contributed to national food security and clearing new agricultural areas. The land areas that have been opened from 1905 up to 2011 through the transmigration program cover approximately 4,537,034 ha spread over 2746 migration settlement units (UPT) throughout Indonesia. In 2011, of the total land area, as much as 37%, or 1,678,702.5 ha, has been a center for food production, with rice production contributing as much as ± 8.4 million tons of paddy, or the equivalent of 5.87 million tons of rice from transmigration areas. Migrants have been successfully increasing rice production because of the technology that have been implemented in Java such as rice irrigation systems (Levang et al, 1999). A rice irrigation system was developed by migrants from Java and Bali. Migrants from Bali have the ability to develop an irrigation system called the Subak system. Subak is the name of the water management (irrigation) system for paddy fields on Bali island, Indonesia. For the Balinese, irrigation is not simply providing water for the plant's roots, but water is used to construct a complex, pulsed artificial ecosystem (Lansing, 1987).

The other farming system that used by migrants was the tree crop model to produce rubber and palm oil. Unlike the crop model settlements, however, the "tree crop migrants" were expected to pay back the investment costs for their tree crop holdings. On the island of Sumatra, oil palm is spreading over forests and displacing rubber plantations. From 1998 up to 2008, the international demand for palm oil regularly increased, leading to a rise in the crude palm oil (CPO) price, partially because of speculation on the future demand for CPO both as vegetable oil

and biofuel (FAO 2008). Palm oil has become a highly profitable source of income for migrants in all ecologically suitable areas. Many forests in transmigration areas have been planted for oil palm development, especially in Sumatra, Kalimantan (Casson, 2000) and more recently in the province of Papua (Sheil et al., 2006).

Kakisina (2010) demonstrated the average income of a household in the transmigration area of Waihatu Village, Maluku province. The highest income came from non-agricultural businesses at 10.9 million Kakisina (2010) (63.29%) and from agricultural business was 6.3 million rupiah (36.71%) highlighting that non-agricultural business income was twice that of agricultural business. With an average income as much as 10.7 million rupiah per household in a year (assuming four persons/family), the community at the Waihatu village was not classified as poor. Based on the results of the regression analysis, the level of household income is affected by eight major income sorces i.e. income from horticulture crops, civil servants, industry, trade, private employees, food crops, fisheries and livestock.

The socioeconomic status will be changed as a result of transmigration. Based on previous research, transmigration program can raise the standards of people's livelihoods. For example, the level of income within the transmigration settlements of the Sawahlunto District and the West Sumatra province has subsequently improved their quality of life (QOL). In addition, effective development programs in the settlements can improve the welfare of migrants. This is measured by the comparison between income and basic needs expenses. Hadisoegondo (1986) suggests that the business development of farming with a farm partner in the transmigration program of Tinanggea Lainea District, Southeast Sulawesi, identified that the cotton-soybean

farm partnerships undertaken by PT. KII (Plantation Company) as an agribusiness system in the transmigration areas resulted to increased average income in the area. Therefore, if the government were to decide to remove these subsidies, it would ultimately reduce the farmers' level of income and affect their livelihood. Sjamsuddin (1987) identifies the impact of resettlements, income levels and the cost of transmigration in the surrounding communities in the Kendari regency, Southeast of Sulawesi. In this case, income levels had increased after transmigration. On the contrary, before transmigration their incomes were much lower. Consequently, the settlers were in a good position to produce their own food from agriculture, which also minimized life expenses and unnecessary additional expenditures. Generally, the average income of farmers had increased after transmigration. Migrant participants, however, have not always experienced an increase in their income.

On the other hand, transmigration programs also often have a lot of obstacles in order to improve the economic migrants. Previous research has identified that income and prosperity were not always increased as a result of transmigration. Admittedly, these were due to several independent variables. For example, Nasoetion and Sitanala (1983) identified the correlation between the development of transmigration program and the welfare in the farmer transmigration areas of Batumarta and Way Abung-II Village had not significantly increased income levels. The physical conditions were (low quality of soil fertility) and suboptimal utilization of agricultural resources. These variables were the core contributing causes for poor growth.

Syafkhradi (2002) measured the growth of 20-years of transmigration in the

district of Banjar Agung Lampung. His research also compared migrants prosperity and indigenous people who lived in surrounding transmigration areas. These results ended that the average income of migrants in the study areas was below the average standard. The income of 60.64 percent of migrants in the Tunggal Warga Village was above the average standard and provided good living conditions. However, the migrants in the Dwi Tunggal Jaya Village identified that 63.68 percent had incomes below the average standard resulting to difficult living conditions. In addition, indigenous or indigenous people who have worked in the service sectors have had income levels above the average standard living requirement. The indigenous people in Tunggal Warga Village were identified as 8.9 percent below the living standards and the indigenous in Dwi Tunggal Jaya Village was reported as 5.9 percent below the average living standards.

1.3.2 Local development

Transmigration program has assisted the government to develope migrans recipient' areas. According to Data and Information Transmigration (2011), the transmigration program has created 3317 new village to be developed into centers of economic growth in rural areas. The transmigration settlements have encouraged the new formation of 360 sub district and 101 districts since independence day up to 2011. Some district like Kurotidur (in Bengkulu Province), Metro (in Lampung Province) and Sangata (in East Kalimantan province) was expressed as the agropolitan city. Agropolitan (Agro = agriculture: Politan = town) is a farming town that grew and developed that could stimulate the development of agribusiness

systems and so can serve, push, pull, drew agricultural development activities (agribusiness) in the surrounding region. Growing transmigration village became the center of economic growth is an indication of successful migrants situation. Furthermore, the growth of the rural economy is an indication for population welfare and poverty reduction. In the context of local development, migration can encourage the synergicity linkage on economic activities between migrants and indigeneous people (Hayashida, 2006). Transformation of knowledge and technology both of them encourage the creation of farming skill systems. Migrants can transfer skills to the indigeneous farmer. Sinergicity linkage can create a reciprocal relationship of mutual benefit in the trading system.

On the other hand, the transmigration program was as a trigger of social inequalities in migration areas. Therefore, participants migrants get land for free, and usually their economic situation get more than the indigenous people. It can create potentially insecure. Indigenous peoples felt jealous because did not receive some facilities with migrant from government. Indigenous felt uncomfortable in the presence of migrants. They will be a minority of their own area (Heeren, 1979).

In particular, some conflicts between migrants and indigenous people can not be avoided (Swasono; 1986). Indigenous peoples have different attitudes towards migrants, there is an attitude that happy to accept immigrants and others do not like the arrival of migrants (Heeren, 1979). Than, the existence of a land dispute between indigenous and migrants was one of the other problems that arise from migration areas (Warsito et.al, 1995).

1.3.3 Environmental problems

Some academic research suggests a link between migration and environmental changes, such as deforestation and the depletion of natural resources (Sierra, 2000). Poverty has routinely been viewed as a major cause of global environmental problems (World Commission on Environment and Development, 1987). The poor and people facing famine can over harvest or otherwise degrade their environment in order to survive. Poor farmers or fisherman are sometimes associated with environmental degradation. An impoverished transmigrant may not be able to practice sustainable resource extraction to help ensure future environmental productivity when his or her immediate consumption needs are so strong (Leonard, 1989).

The transmigration program was responsible for a large share of the deforestation in Indonesia. Many researchers claimed that the amount of deforestation attributable to regular transmigration was grossly exaggerated. Migrants settlements are often established in or near forests, and, in existing communities, by shifting cultivators. Migrants settlement can reduce the amount of land available in traditional clan rotations for shifting agriculture. Combined with increasing indigenous population pressure, this can contribute to the problems of shortened fallow periods, overuse of poor soil, and the shift to agriculture and speculative land acquisition (Sunderlin and Ida, 1996). Angelsen (1995) has also observed this tendency in Riau province in Sumatra.

Transmigration program was not just a demographic policy but was also partially used as a strategy for economic modernisation and the introduction of

subsistence agricultural patterns. For instance, the Dayaks practiced traditional swidden agriculture—this is slash-and-burn cultivation with long fallow periods to regenerate the fragile soils. The Madurese migrants cleared the land and tried to set up the sort of permanent agriculture they were used to, with little knowledge about local conditions (Tirtosudarmo, 2001). They also cleared native forests to plant cash tree crops like rubber and coconuts. Many also worked as wage-labourers for logging companies. Migrants in Kalimantan and elsewhere became a significant factor in deforestation in those areas (Sunderlin and Resosudarmo, 2001). The ongoing exploitation of natural resources in Kalimantan over the last two decades has forcibly transformed the local people into marginal peasants, estate workers and urban wage labourers (Tirtosudarmo, 2001). MacAndrews (1986) points out that many of the transmigration areas include very fragile ecosystems. Erosion control and conservation methods were not built under the transmigration program, and the negative environmental impacts of this are considerable. Many environmental issues were identified in the project appraisal: soil erosion, declining soil fertility, pests and diseases (Worlbank, 2012).

1.4 Summary of previous assessment and research purposes

1.4.1 Summary of previous assessment

Many farmers could not adapt to the new land conditions in the early stages of migration. Migrants difficulties to adapt to the land conditions in the just migration because usually farm land was still in the form of grass. Migrants should clear the land and prepare for farm land at least one year. The soil fertility in outside Java is

different from the volcanic soil of Java. Java' soil was more fertile than the land in outside Java (migration areas). Migrants must be able to withstand the initial conditions. The economic situation will gradually improve after they were able to adapt in the stage of displacement. Migrants economic situation gradually increased after they can cultivate their land into productive farmland.

The important point for the implementation of the migration program since colonial period up to present problem can encourage distribution of the population in Indonesia. Deviation of population density had been solved to some extent. Sumatra and Kalimantan get filled by migrants through migration programs. In some migration areas such as the province of Lampung, migrants from ethnic Javanese and Sundanese were the largest ethnic (71%). In Riau province (Sumatra Island) as well as with Lampung province, migrants from Java became the first major in this province as 25%. In others, provinces of Sumatra like South Sumatra and North Sumatra, migrants from Java were highest ranked of ethnic compared to indigenous people. In the other hand, migration also found some problems. The problems were natural disasters, social conflicts in conservation and ethnic conflict. The bad situation in migration areas encouraged migrant return to their original place of Java island.

In addition environmental issues such as deforestation and deterioration of the environment became serious in the migration areas. This issue is a serious problem that often accompany the transmigration program. Deforestation must be done because the government had to clear land for settlement and agriculture workers. In addition, many migrants forest capitalize on the early move because they do not have

a stable income. Migrants use the forests for firewood. Besides sometimes migrants also shifting in the woods because they occupy farmland less productive. This issue makes migration as one of the causes of deforestation in Indonesia.

There are a number of overall assessments of the evaluation, but there are few reports on the living conditions of migrants concrete. Many studies of migration were the focus on migrant prosperity at the time of study. Whereas, we should evaluate all living conditions covering on socio-economic aspects, environmental and public health. In addition, many studies focus on transmigration of farmers and business people because of many migrants participant was farmers. Few participant migrants livelihood is as fishermen. Differences livelihood between the farmers and fishermen will affect to their living conditions. In addition, the research on migrant who experienced the catastrophes and moved back on original areas were limited. This study will examine the changes living condition of migrants' with a focus on fishermen (who have limited investigated), and the migrants who experienced the catastrophes especially after ethnic conflict in outside Java.

1.4.2 The objectives and research framework

The purpose of this study consists of three parts:

1. To focus on fishermen, who have minimally been investigated, and migrants who returned back to Java as refugees.
2. To study changes in their living conditions and to assess their Quality of Life (QOL), as well as to examine the relationship between these two variables.
3. To discuss the implications of the transmigration program.

The research framework based on the changes in the living conditions of migrants before migration, just after migration up to the time of study (Figure 1.4). The changes include their socioeconomic status (SES) variables: consisting of income, education, occupation, land ownership, and ethnicity. Household income is the sum of income from all sources received by all members of the household each month. Income refers to wages, salaries, profits, rents, and any earnings received. Income can also be defined as unemployment or workers' compensation, social security, pensions, interests, government support, and family financial assistance (Sarma and Tiwari, 2010) and also as environmental quality (EQ) variables, consisting of environmental degradation and a perception of EQ. Environmental quality is a general term which can refer to varied characteristics that relate to the natural environment as well as the built environment, such as air and water purity or pollution, noise and the potential effects which such characteristics may have on physical and mental health caused by human activities (Johson et al., 1997). Community health (CH) variables, consisting of health problems, health facilities, health seeking behavior and a perception of CH. Community health (CH) concerns itself with the study and the improvement of the health characteristics of communities. The variables of socioeconomic status (SES), environmental qualities (EQ) and community health (CH) changes may affect the satisfaction of the living conditions of migrants at the time of study. There are two possibilities with their living conditions after migration, such as better and worse conditions.

Quality of Life (QOL) was used in order to assess their satisfaction. Effective development programs in the settlements can improve the QOL of migrants. Quality of life should not be confused with the concept of standard of living only, which is based primarily on income. Instead, standard indicators of the quality of life include not only wealth and employment, but also the built environment, physical and mental health, education, recreation and leisure time, and social belonging. The desire to migrate to other places was also used to assess migrant satisfaction. A dissatisfactory level in the migration area will push migrants to migrate to other areas.

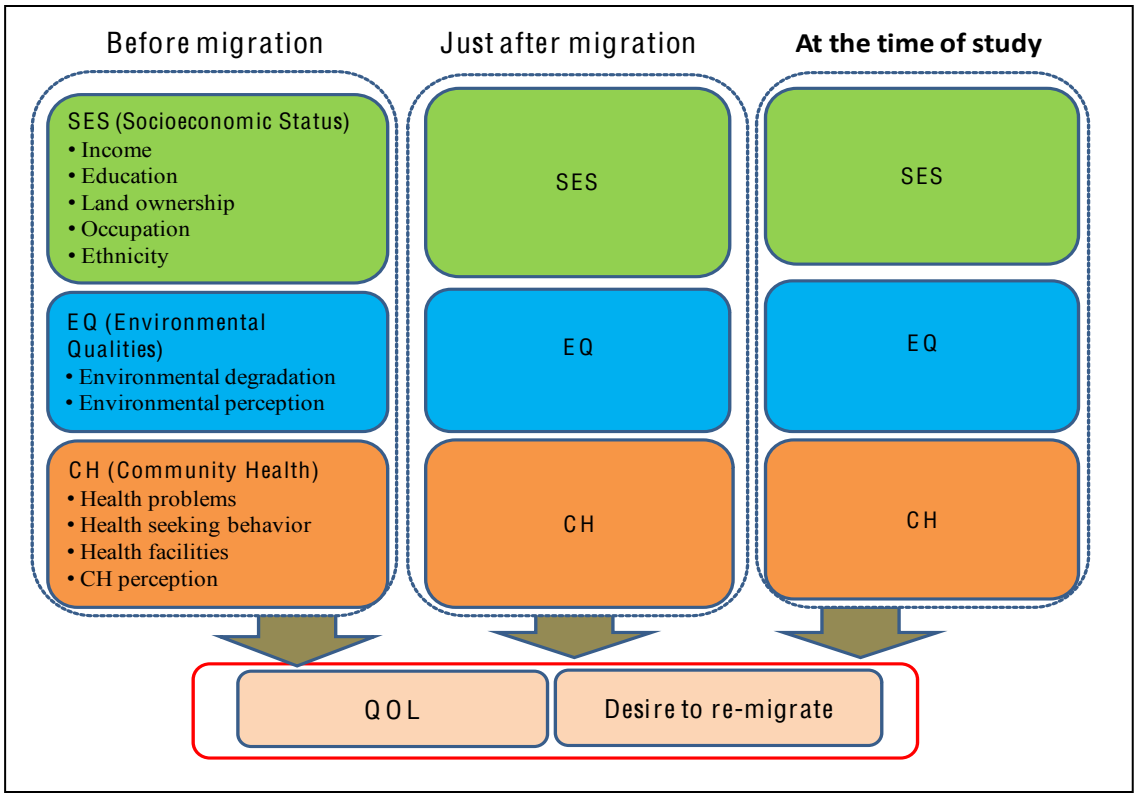


Figure 1.4 Research framework

CHAPTER II: Migrant fishermen in Lampung Timur, Sumatera Island

2.1 Previous studies of migrant fishermen

Many studies on migration in Indonesia seem to focus on farmer migrants, so much so that transmigration research on fishermen migrants is still limited. According to Kramer et al. (2002), sporadic fishermen-migrants tend to have low incomes after having migrated to Indonesia's Minahasa District on Sulawesi Island, mainly because of too many fishermen as well as sporadic foreign fishermen who come to the area. Fishermen migrants can cause problems for local fishermen in terms of unfair competition with respect to average catch, not to mention the environmental damage (Kramer et al., 2002). Fishermen migrants tend to bring about significantly negative environmental changes so that they are more likely to be found in villages with lower environmental quality (Kramer et al., 2002). The lower environment quality will affect income levels, especially for the ordinary fishermen who depend on the environment (Teh, 2011). And a struggling economy is likely to reduce their quality of life. Lampung Timur is an interesting research area for such a situation.

On the other hand, permanent migration by fishermen can have a negative effect on the environment. According to Cassel et al. (2003), migrant households are more likely to be found in villages with lower environmental quality. On a village scale, there are significant differences between villages in terms of the proportion of migrants, average household size, age, destructive gear use, boat ownership, and

hours of effort spent on fishing, to name a few. These results suggest that migrant status and the aforementioned fishing behaviors are associated with poor environmental qualities. Cassel et al. (2003) also stated that the relationship between migration and the environment is quite difficult to discern without time-series data.

Khaeron (2007) reported that a relocation program of fishermen from the Jakarta coast to Indramayu District, West Java, significantly improved fishermen migrants in view of indicators such as the viability of residential facility, residential living conditions, the availability of facilities for religious activities, frequency of religious activities, availability of security offices, awareness of environmental pollution, and fish processing technology ($p < 0.05$). However, the indicators of monthly income and job availability fared poorly ($p<0.05$). The conditions of the local population in settlements (indigenous) indicate that the program can be significantly improved ($p <0.05$) in relation to indicators such as health facilities, fishing facilities, educational facilities, and fish processing technology (Khaeron, 2007). The same location showed that a low level of education and low income resulted in a high prevalence of diseases (Sunarti et al., 2009). Fishermen who follow the migration program have seen a drop in their income after migration. They then become very susceptible to diseases because they cannot improve their housing sanitation, environmental conditions, and health care services.

Saiti and Ratana (2008) did some research on fishermen migration in Thailand. In this study, health-related quality of life among fishermen migrants from the two districts of Takuapa and Kuraburi in the Phang-Nga Province of Myanmar was explored via the Short Form Health Survey 12 item (SF 12) for their perception on their own health status.

The results showed that a third of the migrants perceived their health status as good even though nearly half of the respondents revealed that their quality of life was fair and poor. They stated that gender, migrants' status, income, marital status, education level, number of family members, and personal security were all associated with quality of life (QOL). These factors will influence a good or bad migrant QOL in a new area.

2.2 Study area of first case

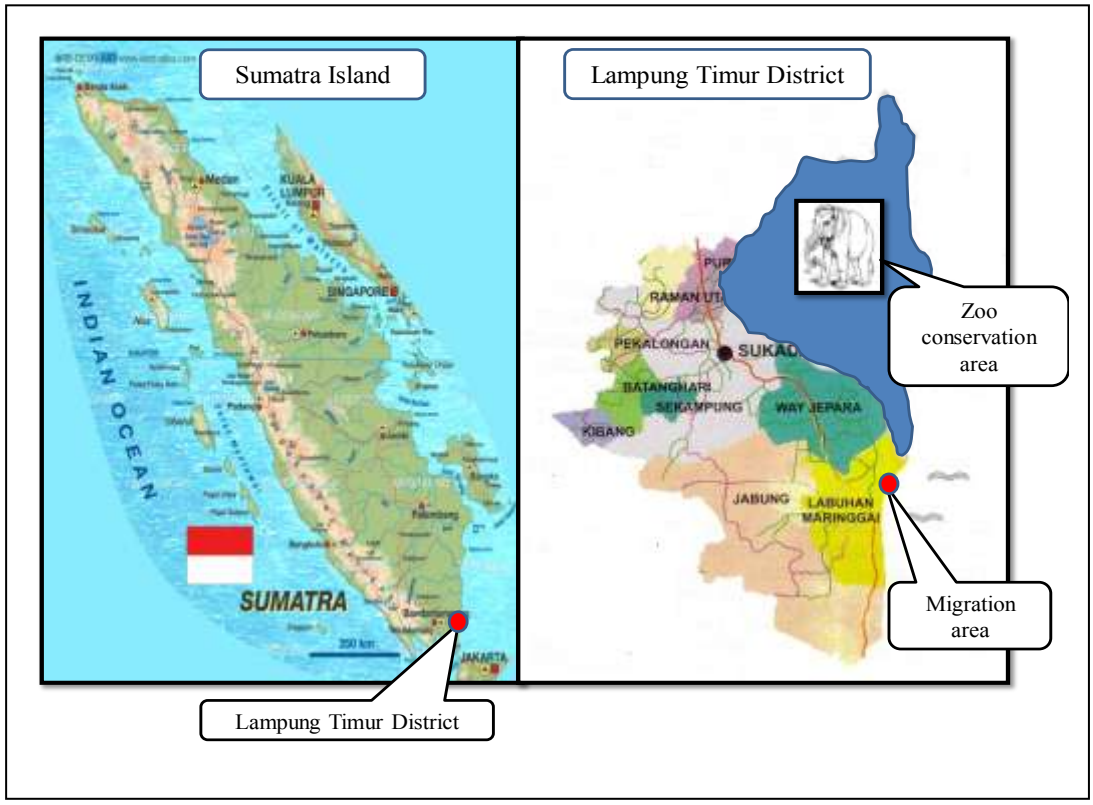


Figure 2.1 Migration area of Muara Gading Mas Village

Indonesia's Lampung Province has a long history of transmigration from the first migration in 1905, and this province has accepted the most Indonesian migrants

(Erman, 2008). Lampung Timur district is one of district in Lampung province, Indonesia. The capital of the district is located in Sukadana. The district has an area of 5300 km ² and a population of 989,639 inhabitants (census 2010). Lampung Timur district has an area of approximately 5325.03 km2 or about 15% of the total area of Lampung Province (total area of 35 376 km2 area of Lampung). Lampung Timur district has been the destination of the transmigration program since the 1970s. Research has been carried out in the transmigration area in Muara Mas Gading Village in the Lampung Timur district (Fig. 2.1). Migrants have migrated into this area from Java and Sulawesi since 1984. The most interesting thing is that the majority of migrants were fishermen.

Figure 2.2. Government support for migrants

In accordance with the guidelines for the implementation of the migration program, the government provides support to migrants when they just migration. The government gave support when they just migration in form 800 meter square of land areas included 30 meter square of house, agriculture equipment like scoop and chopper for each 5 households, monthly food for 1.5 years like 15 kg of rice, 2 litres of palmoil, 10 litres of kerosene, 2 kg of sugar, 1 kg of salt and every 20 households received 1 fishing net equipment. This support was given to help their lives before they can find a stable source of livelihood. After 1.5 years, migrants are expected to be able to source a stable life as a fisherman. Food aid directly was given to migrants through transmigration office district. In other hand, the fishing equipment was given through fishing cooperatives. This coopratives formed as a place to interact among migrant fishermen with indigenous people.

2.3 Research subject

As many as 534 migrant fishermen households (2,000 people) have migrated into this area from Java and Sulawesi since 1984. They moved to this location because of low fish harvest and over fishing in their original areas. Overfishing was one of the most common environmental problems of Java sea. Java sea become overfishing due to the exploitation of fishery resources in this area. Conditions over fishing is not only due to the potential arrest rate that exceeds sustainable fishery resources, but also due to the quality of the marine environment as a habitat for fish life or damage resulting decreased pollution and physical degradation of aquatic ecosystems as spawning, care, and feeding ground for most of the tropical marine

life. This situation made fishermen difficult to seek fish in the Java Sea. They moved to the coast of Sumatra Island which was still relatively good environment and abundant fish resources. Migrants can survive in the migration area for about 5 years and they run the daily activities as fishing.

In 1990 up to 1995, it became difficult to get fish around the transmigration area, and some migrants (84 households) moved again to the border of the Lampung National Zoo's conservation area (+10 km from their area), even though settlement was restricted (Ministry of Agriculture, 1978). Migrants had to fight with the forest police—the processes of conflict resolution started in late 2008, and the forest police ordered migrants to leave by the end of January 2009. Nevertheless, they refused to move out. After the negotiations on November 6, 2009, migrants agreed to return to the transmigration areas by November 26, 2009. More than half of the migrants have followed the agreement, but 40 households remain in the border of Lampung National Zoo's conservation area. The forest authorities burned their houses on July 15, 2010, and most of them returned to the migration area. I call them the group with social conflict experience. The second group is that without social conflict experience that continued living in the first migration area and the third group includes indigenous people. The research subject mention to three group.

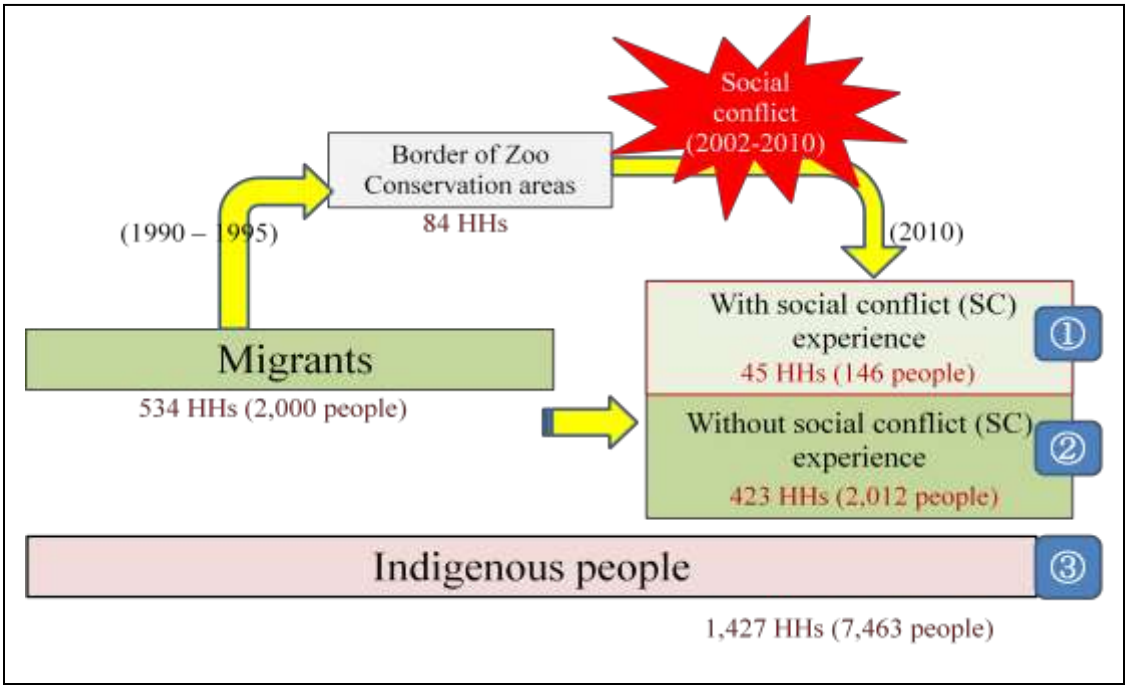


Figure 2.3. Research subject

2.4 Methods

In the early stages of the study is to conduct discussions with stakeholders. The discussion included the head of the village, village secretary and staff, indigenous stakeholders, the head of fishermen's group, midwives, and school principals to share general information about the transmigration history, public health, sanitation and environmental qualitiess before migration (at original village), just after migration (1984) and at the time of the study (2010). Participatory research discussion started with a substantial amount of time spent on creative ways to explore the participants' experiences or situations (Roberts, 1994). Pictures, maps and diagrams were used to recall old information (Chambers, 1992).

In total, 179 people (household heads or representatives, 165 males and 14 females aged 41-91 years) were interviewed August-September 2010. The research

used purposive sampling for experience with social conflict (25 from 84 households) because they were living together, as refugees tend to do. Snowball sampling was used for groups without experience with social conflict (154 from 450 households). However, snowball sampling can be vulnerable to sampling error or biases because the randomness of the selection may result in a sample that does not reflect the makeup of the population (Goodman, 2007). Only 97 migrants and 108 indigeneous were interviewed in the second research period in January 2012 because of limited time. We should choose the same sample in the first research period. The low sample number can affect the reliability and validity in QOL level. All the data were analyzed with SPSS version 17 using Anova test, Chi-square, Mc Nemar test and Principal Component Analysis (Levesque and SPSS Inc, 2007).

Table 2.1. Research methods

Variables	Before migration (1982-1983)	Just after migration -1985	At the time of study (2010 – 2012)
SES EQ CH	179 migrants	179 migrants	179 migrants
QOL	N/A	N/A	97 migrants 108 Indigenous
Desire to re-migrate	N/A	N/A	179 migrants

Questionnaires for household respondents were composed of three major questions about socioeconomic status (SES), community health and environmental

qualitiess. The socioeconomic status (SES) included household income, ethnicity groups, and experience with social conflict, education history and occupation. Household income is the sum of income from all sources received by all members of the household each month. Income refers to wages, salaries, profits, rents, and any earnings received. Income can also come as unemployment or workers compensation, social security, pensions, interests, government support, and family financial assistance (Sarma and Tiwari, 2010). Free and serial recall were used to collect information. Free recall helped participants remember information with the list data (Bower, 2000), while serial recall helps participants remember events chronologically (Henson, 1996). Specifically, the questionnaire above directed respondents to recall information before migration (in their original village), just after migration (1984) and at the time of study (2010).

Perception questions differ from other types of survey questions that measure perception because they ask respondents to provide information on how they perceive matters such as their health status, environmental qualitiess and the effectiveness of programs. The questionnaires mentioned satisfaction level measures of how people evaluate their life as a whole rather than their current feelings. Participants responded using a 3 Likert scale with a given statement (Bad perception, average, and good perception). For these questionnaires, respondents only expressed their perceptions before migration and at the time of study (2010).

To determine the level of quality of life between migrants who have experienced conflict and those who have not, we retrieved data on quality of life using the method of The World Health Organization Quality of Life BREF

(WHOQOL-BREF) in Indonesian (*Bahasa*) version (World Health Organization, 2004). WHOQOL-BREF is a multi-dimensional, multi-lingual, generic profile that is standardized for sick and well populations in diverse cultures (Skevington, 2002). It demonstrates psychometric properties of internal consistency, reliability, content validity, and discriminant validity (Skevington et al, 2004) and it is now the best instrument for cross-cultural use (Bowden and Fox-Rushby, 2003). The WHOQOL-BREF sheet is also very efficient and effective, consists of 26 items that keep respondents engaged. In this study, the WHOQOL-BREF questionnaires were used for the respondents to describe their QOL in the second point of study (2012).

To determine the level of satisfaction, we used the desire to migrate test. A growing number of migrants who want to migrate to the other shows they were not satisfied staying in the migration area. It became one of the effective parameters to determine their living condition. However, the questionnaire concern on their desire to migrate if the government provides support as transportation fee, housing and farmland. So it may be that they wish to migrate because it was not comfortable staying in this area, but they want to get more support from the government.

2.5. Results

2.5.1 Socioeconomic status of the migrants

As shown in Table 2.2, the migrants' average income (lowest column) before moving into Lampung was approximately 99,441 IDR/month, less than the minimum national standard at the time. Their income sharply increased after migration (259,776

IDR/month), since the government provided each migrant household a house (5 x 6 m^2), 800 m^2 of land, a fish pond, food for one and one-half years at the beginning of

Table 2.2 Monthly average income by socioeconomic status (SES) in each period

	Average income per month		
	Before migration	1985	2010
Education			
1. Junior High School (N2)	65,000 IDR	200,000 IDR	450,000 IDR
2. Primary School (62)	78,064 IDR	237,903 IDR	530,645 IDR
3. Illiterate (115)	111,565 IDR	270,260 IDR	569,130 IDR
Occupation			
1. Jobless	25,102 IDR (42)	-	366,666 IDR (3)
2. Fishing port worker	-	-	487,500 IDR (8)
3. Small industry owners	-	200,000 IDR (1)	672,727 IDR (11)
4. Farmer	133,333 IDR (6)	-	-
5. Transport service worker	-	-	475,000 IDR (4)
6. Fishermen	127,177 IDR (124)	258,595 IDR (178)	555,228 IDR (153)
Ethnic			
1. Sundanese (56)	97,678 IDR	258,928 IDR	555,357 IDR
2. Bugis (69)	102,898 IDR	263,768 IDR	578,985 IDR
3. Javanese (54)	96,851 IDR	255,555 IDR	522,222 IDR
With or without conflict			
1. With conflict (25)	109,600 IDR	284,000 IDR	526,000 IDR
2. Without conflict (154)	97,792 IDR	255,844 IDR	559,090 IDR
Average income	99,441 IDR	259,776 IDR	554,469 IDR
International currency (average in year)[a]	1 USD = 1025 IDR	1 USD = 1110 IDR	1 USD = 8683 IDR
Indonesian fishermen average income	200,000 IDR	225,000 IDR	550,000 IDR

[a]Note: Figure in parenthesis indicates number of subjects in the category

resettlement in 1984, and agricultural and fishing equipment for every 20 households. Twenty-five years later, their average income increased to 554,469 IDR/month. The

migrants' monthly household income average in IDR increased from year to year, but when compared to the currency exchange rate in USD, their income was classified below the standard of the Indonesian fishermen average income in before migration (BPS, 1985; Ministry of Marine and Fisheries, 2011).

When average income was classified by education, it was unexpectedly high among those without education in all three periods. However, this was because the fishermen followed their father's job without going to school. Most of them migrated into the area as fishermen, but their jobs have changed over 25 years. Eleven people who changed from fishermen to small industry owners had a higher average income than fishermen, although those migrants who became fishing port workers or transport service workers had a lower income.

Ethnic group was expected to affect their income level because fishing gear differs (therefore the catch amount varies) by ethnic groups. However, the difference in average income by ethnic group was minor. The difference in average income for those who experienced conflict and those with no experience with social conflict were small before and after transmigration. At present, the average income of the group with social conflict experience is smaller than the group without social conflict experience, probably because social conflict made their difficult economic situation after coming back to the migration area.

2.5.2 Environmental qualities

Figure 2.4 Environmental problems in migration area

In preliminary discussions, the respondents mentioned four commonly experienced environmental problems. These included; water stagnation, household garbage, abrasion and rise of sea tides (Figure 2.4). As shown in Figure 2.5, the migrants settled in places with risks of tides rise (28.5 percent), and house garbage (4.7 percent) before migration. The risk of tides rise would have happened due to the loss of mangrove trees, and house garbage could have been caused by bad human activities. After migration, environmental problems such as water stagnation (19.1 percent) and deforestation (15.1 percent) became prominent because more mangrove

trees were destroyed due to natural exhaustion and humans cutting them down for firewood and fishing gear/anchors. The loss of the mangrove trees was fatal because the transmigration area was close to the coast (50 m), and seawater could easily enter into the residential areas.

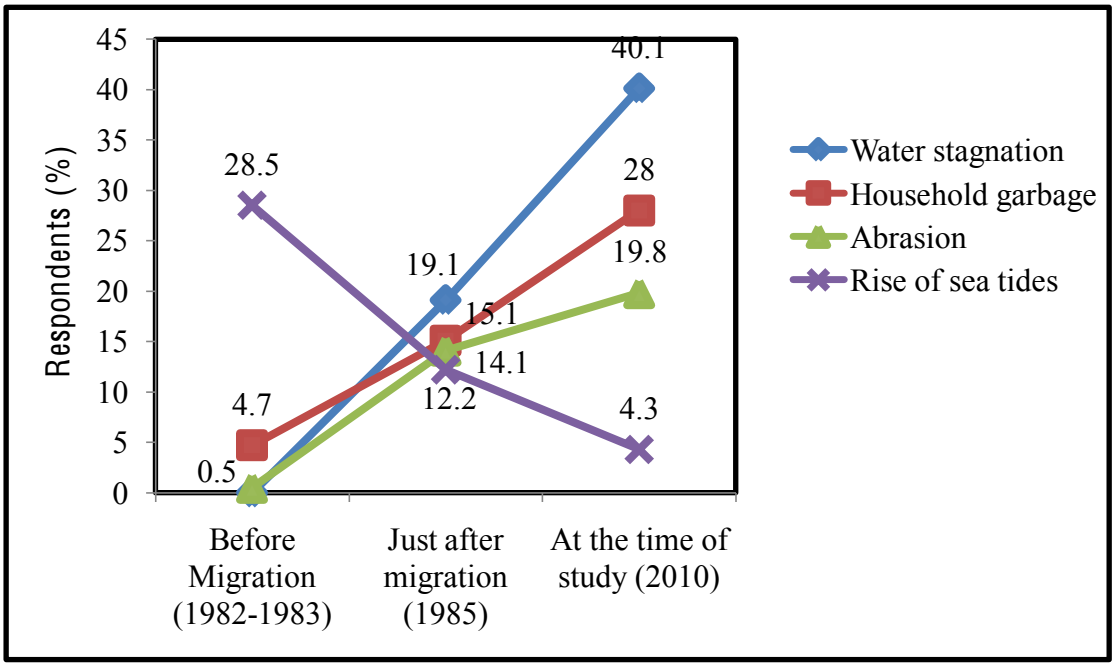


Figure 2.5 Claims for environmental condition (percent of the people per year)

In 2010, more people claimed water stagnation (40.1 percent) and coastal abrasion (19.8 percent) due to floods and clogged canals, and the village administration built artificial embankments to prevent severe abrasion. In addition, the number of migrants throwing their household garbage (28.0 percent) in the canal, yards and public places increased, since there was no garbage disposal system and

they did not care about the garbage. It is clear that household garbage can lead to a decline in water quality.

2.5.3 Community health condition

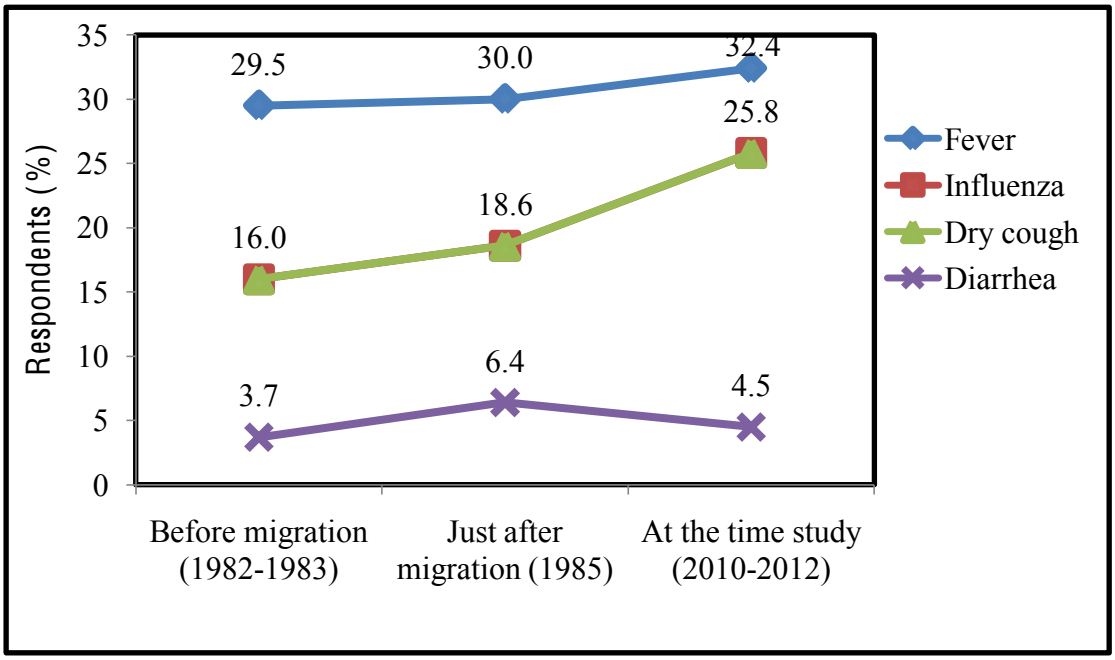


Figure 2.6. Disease events (percent of the people per year) in each period

The community health of the migrants can be seen through disease events and health seeking behavior. Disease event data was captured by asking the respondents crosscheck questions about the disease events in their household. Respondents were given a checklist of disease events that have happened in their life. The disease event list in the questionnaires used data from the sub-district hospital in the Labuhan Maringgai (Puskesmas) from 2007–2009. As shown in Figure 2.6, the communal

pattern of disease events is similar in the three periods (before migration, just after migration and the study period). The most common disease events for migrants in 2010 were fever (32.4%), dry cough and influenza (25.8%), and diarrhea (4.5%). Other disease events included asthma, scabies, etc.

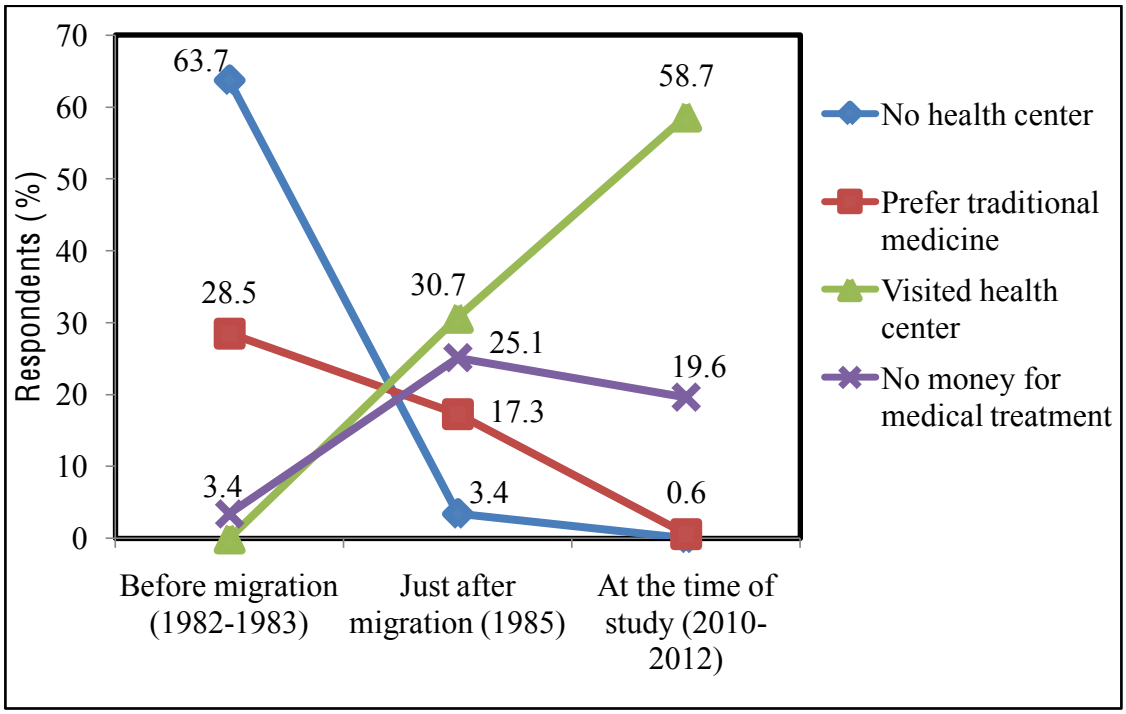


Figure 2.7. Health seeking behavior

In this research, health seeking behavior is described as the process from the recognition of symptoms with the use of particular health facilities. This method attempts to identify a logical sequence of steps and looks at social and cultural factors that affect this sequence. This is primarily an anthropological approach, with qualitative methods of investigation (Kroeger, 1983). In 1985, Figure 2.6 shows that some people complained that they still found it difficult to go to health centers (67.3

percent). Fishermen drunk traditional medicine or went to traditional birth attendants (TBA) when they had health problems. They preferred TBAs or traditional healers because they did not trust health centers (28.5 percent). Then, Health insurance systems for the poor have been running since 2004, but they could not cover all medical expenses. The number of migrants who visited the health centers exceeded 58.7 percent, and the percentage that complained about the cost of medical treatment decreased in 2010.

2.5.4 Perception of environmental qualities

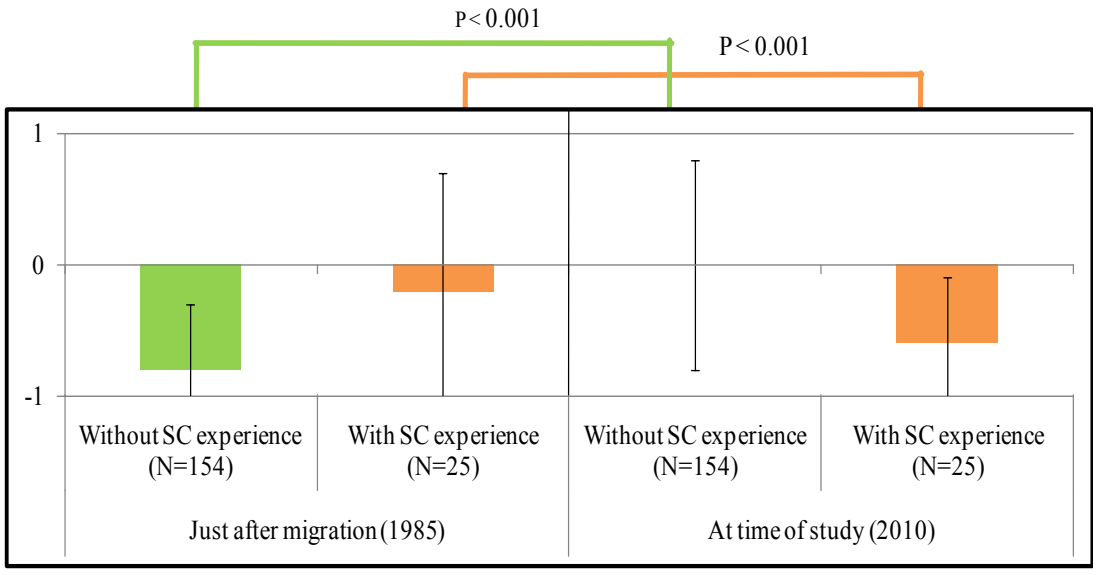
Table 2.3. Differences of environmental perception of migrants (both groups with and without conflict experience) in before migration and present time (2010)

Environmental perception of Migrants (both groups)	Paired Differences					
	Mean (Before migration)	Mean (After migration)	SD	P	95% CI	
					Lower	Upper
Time of before and present study period	-0.68	0.00	1.30	0.00*	-0.87	-0.48

*Significant different if $p < 0.05$

Note: Data calculation uses t-Test and N is 179. Likert scale: (-2) Very uncomfortable, (-1) uncomfortable, (0) not different, (1) comfortable, (2) very comfortable

The items regarding of environmental qualitiess in the questionnaire were concerned with the comfort level of environmental qualities before migration and at present. The results of the t-test (Table 2.3) show that the variance and means of environmental qualities perception of migrants (both groups) were significantly different before migration and in the present study period ($p< 0.05$).



*Significant different if p < 0.05
Note: Data calculation used Mc Nemar test of marginal homogenity and N is 179. Likert scale: (-2) Very uncomfortable, (-1) uncomfortable, (0) not different, (1) comfortable, (2)

Figure 2.8. Perception of environmental condition before and after migration by the experience of social conflict

The change of perception of environmental qualities was examined in both groups (Figure 2.8). The McNemar test of marginal homogeneity also applies to determine the differences in perception of environmental qualitiess before and after migration, similar to the perception of community health calculation. The right table shows significant differences between the present study period and before migration in the group with social conflict experience ($p<0.05$). The mean shows changes in the negative direction of the group with conflict experience. On the other hand, the perception of environmental qualitiess among those without social conflict experience (Figure 2.8, right) was significantly different before migration and at present

($p<0.05$). The mean shows the positive direction of the group without experience with social conflict.

2.5.5 Perception of community health

The perceptions of community health in the questionnaire were concerned with the level of access to health facilities and public health services before migration and at present. The data analyses were separated into groups of migrants with and without social conflict experience. The results of the t-test show that the variance and means of community health perception were significantly different in Migrants (both groups) before and after migration ($p< 0.05$, Table 2.4).

Table 2.4. Mean differences of community health perception of migrants (both groups with and without conflict experience) in before migration and present time (2010)

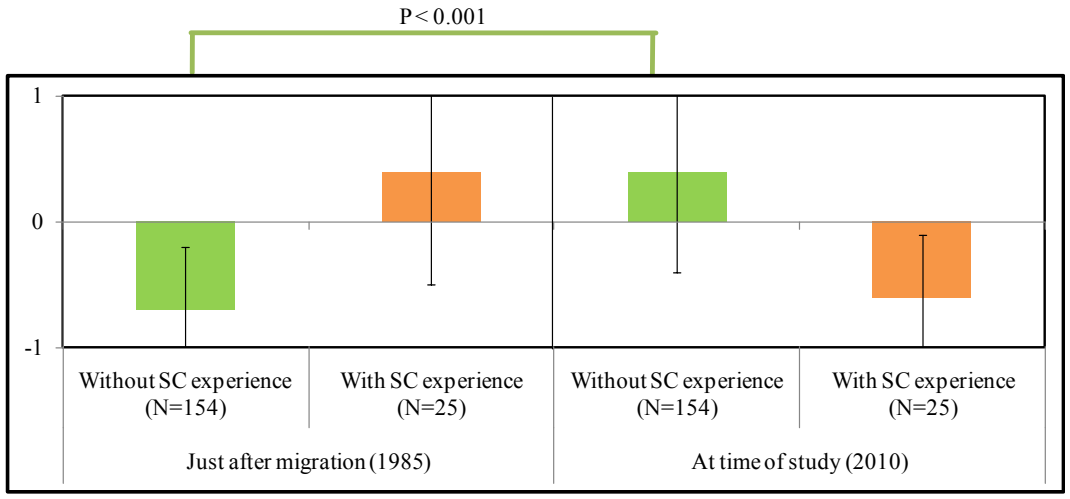
Community health perception of Migrants (both groups)	Paired Differences					
	Mean (Before migration)	Mean (After migration)	SD	P	95% CI	
					Lower	Upper
Time of before present study period	-0.68	-0.08	1.07	0.00*	-0.75	-0.43

*Significant different if $p < 0.05$

Note: Data calculation uses t-Test and N is 179. Likert scale: (-2) Very uncomfortable, (-1) uncomfortable, (0) not different, (1) comfortable, (2) very comfortable

The McNemar test of marginal homogeneity in Figure 2.9 was carried out to examine the difference between the perceptions of the groups before and after migration. There was no difference proportion in the perception of community health

in the group with social conflict experience before and after migration (p >0.05). The perception of community health in this group was better in the transmigration area. On the contrary, significant differences proportions in community health perception in the group without social conflict experience before and after migration (p <0.001). The perception of community health in this group was better in the migration area.



*Significant different if p < 0.05
Note: Data calculation used Mc Nemar test of marginal homogenity and N is 179. Likert scale: (-2) Very uncomfortable, (-1) uncomfortable, (0) not different, (1) comfortable, (2) very comfortable

Figure 2.9. Perception of community health before and after migration by the experience of social conflict

2.5.6 Comparison of QOL scores indigeneous, with and without social conflict experience

Table 2.5. **Mean differences and reliability (Cronbrach's alpha) between** the with conflict and without conflict samples by four domains of the WHOQOL-BREF

Domains	Questions items (Q)	With experience of social conflicts			Without experience of social conflicts		
		α	Md	Mean ± SD	α	Md	Mean ± SD
Physical	Pain and discomfort (Q3)	.41	2.0	1.86 ± .72	.59	2.0	1.71 ± .75
	Dependence on medication and treatments (Q4)		1.0	1.52 ± .60		1.0	1.54 ± .72
	Energy and fatigue (Q10)		2.0	2.10 ± .94		2.0	2.08 ± .65
	Mobility (Q15)		3.0	3.14 ± .72		3.0	3.21 ± .65
	Sleep and rest (Q16)		3.0	2.90 ± 1.0		3.0	2.96 ± .80
	Activities of daily living (Q17)		3.0	3.05 ± .80		3.0	2.92 ± .50
	Working capacity (Q18)		3.0	2.90 ± .70		3.5	3.38 ± .71
Physiological	Positive feelings (Q5)	.66	3.0	2.86 ± .65	.66	3.0	3.38 ± .49
	Spiritual/religion/personal beliefs (Q6)		4.0	3.62 ± .80		4.0	3.96 ± .69
	Thinking, learning, memory and concentration (Q7)		3.0	3.19 ± .40		3.0	3.38 ± .49
	Body image and appearance (Q11)		4.0	4.14 ± .94		5.0	4.46 ± .65
	Self esteem (Q19)		3.0	3.38 ± .86		3.0	3.50 ± .72
	Negative feelings (Q26)		2.0	2.38 ± .74		2.5	2.46 ± .58
Social Relationship	Personal relationship (Q20)	.68	3.0	2.76 ± .53	.66	3.5	3.38 ± .71
	Social support (Q22)		3.0	2.86 ± .65		3.0	3.38 + .49
	Sexual activity (Q21)		3.0	3.14 ± .65		3.0	3.33 ± .48
Environmental	Physical safety and security (Q8)	.78	3.0	3.05 ± .49	.69	3.0	3.33 ± .48
	Physical environment (infrastructures)(Q9)		2.0	2.19 ± .75		3.0	2.71 ± .95
	Financial resources (Q12)		2.0	2.00 ± .83		3.0	2.71 ± .69
	Oppurtunities for acquiring new information and skills (Q13)		2.0	2.00 ± .70		3.0	2.58 ± .58
	Participation and opportunities for recreation (Q14)		1.0	1.43 ± .50		2.0	1.96 ± .62
	Home environment (Q23)		2.0	2.19 ± .92		3.0	2.54 ± .77
	Health and social care, availabilty and quality (Q24)		3.0	2.90 ± .62		3.0	2.79 ± .83
	Transport (Q25)		3.0	2.57 ± .67		3.0	2.75 ± .94

Note: Md (median) and α (Cronbrach's Alpha). Reliability (< 0.6 "poor", 0.6 to < 0.8 "acceptable, > 0.8 "good")

Social conflicts should have affected the QOL of the migrants. In the second research period, households (21 with and 24 without social conflict experience) were interviewed to determine the differences in QOL between the two groups. Table 2.5 presents the results of the differences of means in each question and the reliability in four domains. The highest means of the question items in both groups are at the level of body image and appearance (Q19) and spirituality (Q6). The reliability of the physical domain is below 0.6; therefore it is poor. The low reliability may be caused by a small number of respondents (<100 respondents).

Table 2.6. Discriminant validity of the WHOQOL-BREF assessment

Domains	Indigenous people	Without SC experience	Sig.	With SC experience	Sig.
Physical	42.1 ± 7.3	38.3 ± 9.5	0.076	38.0 ± 8.8	0.807
Psychological	64.7 ± 10.4	58.7 ± 10.9	0.034*	50.7 ± 11.5	0.022*
Social	58.9 ± 10.7	59.1 ± 10.6	0.532	46.9 ± 11.5	0.001***
Environmental	49.3 ± 10.5	43.7 ± 11.3	0.041*	34.1 ± 10.7	0.006**
Items					
Overall QOL	3.1 ± 0.6	3.1 ± 0.1	0.589	2.7 ± 0.7	0.078
General health	2.9 ± 0.7	2.8 ± 0.2	0.616	2.8 ± 0.9	0.918

Siginificant direferent *<0.05, **<0.01, and ***<0.001
Note: t-Test with Welch's method

Table 2.6 presents the results of the discriminant validity analysis by t-test. Group without social conflict (SC) experience had significantly lower psychological and environmental domain scores than indigenous people. The scores in the psychological and environmental domains were influenced by without social conflict

experience and indigenous people, but areas of the physical, environmental, general health and overall quality of life (QOL) were not affected. In addition, significant mean differences were found between the group with and without experience with social conflict in the psychological, social and environmental domains. The scores in the psychological, social, and environmental domains were influenced by the group with and without social conflict experience, but areas of the physical and general health and overall QOL were not affected. The physical domain and two items of QOL were not significantly different between the groups. On the other hand, the domains of psychological health, social relationships and environment were significantly lower in the group with social conflict experience than those in the group without social conflict experience. The average of each domain was below 60 (score 0-100), and the overall items of QOL and general health were below standard (Murphy et al, 2000).

2.5.7 Corelation of QOL with SES, environmental qualities and community health.

Principal Component Analysis (PCA) showed that there are some correlation socioeconomic status, environmental qualities and community health. Rotated matrix of Principal Component Analysis with four extract and cumulative rate of 73.2%, the first component showed there was significantly correlation between environmental qualities in 2010, perception of environmental qualities and community health changes in 1985 to 2010 (Table. 2.7). The first component called as a good living condition. Then, the second component showed a strong correlation between income

in 2010, income changes before migration and in 1985 to 2010. This component was named a affluence. The third component showed that there are correlation between income before migration and income in 1985. The third component is called a poverty. The last component in this PCA shows on community health in 1985. This component was named as a community health.

Table 2.7. Principal component analysis of SES, environmental qualities and community health

Variables	PCA component			
	Good living condition	Affluence	Poverty	Community health
EH 2010	0.923	0.034	-0.069	0.104
CH 2010	0.904	0.104	0.067	0.082
EH changes (1985-2010)	0.837	-0.026	-0.041	-0.064
CH changes (1985-2010)	0.727	0.156	0.024	-0.566
Income 2010	0.061	0.943	0.304	-0.069
Income changes (before migration-1985)	-0.034	0.973	-0.056	0.043
Income changes (1985-2010)	0.155	0.913	-0.081	-0.170
Income before migration	0.133	-0.090	0.827	-0.205
Income 1985	-0.179	0.185	0.807	0.190
CH 1985	0.088	-0.096	-0.021	0.964

Principal Component Analysis with cumulative percentage is 73.2%

Correlation between quality of life (QOL) with four components showed that good living condition significantly correlated to social and environmental domains (Table.2.8). Variables of environmental qualities in 2010, perception of environmental qualities and community health changes in 1985 to 2010 influenced to social and environmental domains. Variables and QOL domain have positive correlation. The QOL will become better if they have good value of variables. Conversely, the QOL will be bad if the variables values is low.

Tabel 2.8. Correlation coefficient of migrants' QOL and PCA component

QOL	Good living condition	Affluence	Poverty	Community health
Physical	0.009	0.006	-0.015	-0.038
Psychological	0.087	-0.099	0.059	-0.185
Social	0.192*	0.004	-0.018	0.017
Environmental	0.204*	0.103	-0.052	-0.041
Overall QOL	0.108	0.084	0.018	0.021
General health	0.019	-0.017	0.020	-0.109

*Correlation coefficient

Different components factor score on good living condition occurs between groups without and with social conflict experience. Groups without social conflict experience have better living conditions than group with social conflict experience. Groups without conflict has a positive good living conditions, but group with social conflict experience have a negative living conditions. In other words, group without social conflict experience has a positive perception about environmental qualities in 2010, perception of environmental qualities and community health changes in 1985 to 2010.

Tabel 2.9. Different mean of component factor score group without and with social conflict experience

Group	Good living condition	Sig.	Affluence	Sig.	Poverty	Sig.	Community health	Sig.
Without SC experience (N=76)	0.2 $\pm$ 0.9	***	0.0 $\pm$ 0.7	ns	0.8	ns	0	ns
With SC experience (N=21)	-0.9 $\pm$ 0.5		-0.1 $\pm$ 1.1		0.3 $\pm$ 1.1		0.3 $\pm$ 1.3	

Siqnificant different ***<0.001

2.5.8 Impact of perception on the future desire

People without experience with social conflict seemed to live comfortably in the transmigration area. However, 61.7 percent of group without social conflict experience and 64.0 percent of group with social conflict had thoughts of moving to another location if they could get support from the government, e.g., adequate housing and appropriate environmental capacity to support their livelihood as fishermen, while this percentage was a little less than 84 percent (21/25) for those with experience with social conflict (Table 2.10). Group without social conflict experience

Tabel 2.10. Desire to re-migrate

Social conflict	Don't want to re-migrate	Want to re-migrate with support	Want to re-migrate even without support	Sig.
Without SC experience (N=154)	52 (33.8%)	95 (61.7%)	7 (4.5%)	0.007
With SC experience (N=25)	4 (16.0%)	16 (64.0%)	5 (20.0%)	

The Anova test in Table 2.11 is intended to examine in more detail correlation QOL and the migrants' desire to migrate (don't want to re-migrate, want to re-migrate with support, and want to re-migrate even without support). Three catagories of the desire to migrate was not affected by the QOL conditions. Only the environmental domain approached a significant value. This means that migrants wish to migrate to another area was not caused by the bad QOL. They wanted to migrate to others areas if the support from the government was available.

Tabel 2.11. Relationship between desire to re-migrate and QOL

QOL	Don't want to re-migrate (N=25)	Want to re-migrate with support (N=63)	Want to re-migrate even without support (N=9)	Sig.
Physical	39.1 ± 10.2	37.8 ± 8.3	37.1 ± 8.7	0.775
Psychological	51.1 ± 12.7	53.2 ± 11.2	50.9 ± 9.6	0.685
Social	50.7 ± 13.3	51.7 ± 12.8	46.4 ± 9.9	0.503
Environmental	34.6 ± 12.1	40.7 ± 10.7	37.7 ± 9.9	0.069
Overall QOL	3.0 ± 0.6	2.8 ± 0.6	2.8 ± 0.6	0.584
General health	2.4 ± 1.1	2.9 ± 0.8	2.9 ± 0.6	0.068

In other hand, the Anova test in Table 2.12 is intended to examine in more detail correlation a component factors score and the migrants' desire to migrate (don't want to re-migrate, want to re-migrate with support, and want to re-migrate even without support). Three catagories of the desire to migrate was not affected by the component factors score. This means that migrants wish to migrate to another area was not caused by the component factors score. They wanted to migrate to others areas if the support from the government was available.

Tabel 2.12. Relationship between desire to re-migrate and component factor score

Factors	Don't want to re-migrate (N=25)	Want to re-migrate with support(N=63)	Want to re-migrate even without support (N=9)	Sig.
Good living conditions	-0.1 ± 0.0	0.1 ± 1.0	-0.1 ± 1.0	0.752
Affluence	0.1 ± 0.7	0.0 ± 0.7	-0.1 ± 2.2	0.611
Poverty	-0.1 ± 0.9	0.0 ± 0.9	0.3 ± 1.3	0.690
Community health	0.1 ± 1.1	-0.1 ± 1.0	0.0 ± 0.6	0.804

2.6 Tentative summary

2.6. 1 Change of SES, environmental qualities and community health

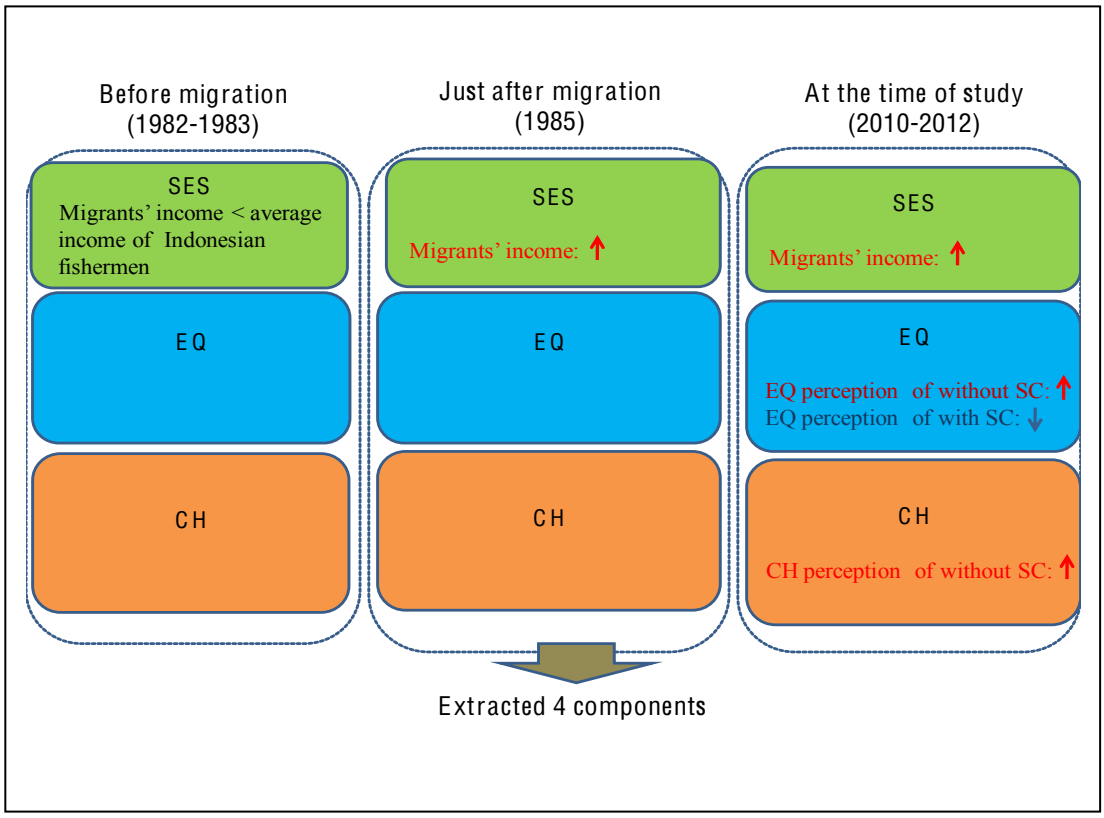


Figure 2.10. Changes on SES, environmental qualities and community health

The migrants in Sumatra—including Lampung—could raise the quality of education, level of the economy and welfare (Vidyattama, 2008). An improvement of QOL was achieved partly through government support in the transmigration area (Tirtosudarmo, 2009). An improvement in SES, especially income, is very important because it is their major concern and motivation for migration. Furthermore, their income correlates with community health and the environmental quality of the transmigration area (Brockerhoff, 1990; Harttgen and Klasen, 2009; Grossman,

1991). The economic condition of migrant fishermen before following migration was low income. Their income was below the average income of Indonesian fishermen before migration. Their income gradually improved after migrated in the migration area. At the just migration in 1985, they received support from government and encourage their income decreased. By the time of study in 2010, the income of the fishermen had increased constantly (that means the amount of fish catch increased), although it was almost same as Indonesian fishermen average income.

They realized that some environmental degradation such as water stagnation, abrasion and household garbage had become more serious. The perception of the environmental qualities was also different between those with and without experience with social conflicts. The perception of environmental qualitiess of the group with experience with conflict did not increase after migration. Group without social conflict experience have good feeling about the environmental qualitiess in 2010. The perception of environmental qualities in this group increased after migration in this area. In other hand, group with social conflict have bad feeling with the environmental qualities in 2010.

Health facilities and services improved in the transmigration area after migration. Today, a few migrants still find it difficult to go to the health center because of medical treatment fees, even though many migrants go there when they have health problems. However, for the group without experience with social conflicts, the perception of community health increased after migration in migration area. Group without social conflict experience felt better condition on community health in the time of study.

2.6.2 Impact SES, environmental qualities and community health on **transmigrant's QOL.**

The WHOQOL-BREF in both groups of migrants intended to give an overview of their QOL in the migration area. A limited number of respondents that took this test could not give the exact description of their QOL or if there was bias, but at least we can see the difference in the level of QOL between indigenous people and the groups without experience with social conflict, and also between group without and with social conflict experience. Group without social conflict experience had significantly lower psychological and environmental domain scores than indigenous people. Group with SC experience had significantly lower psychological, social and environmental domain scores than that without.

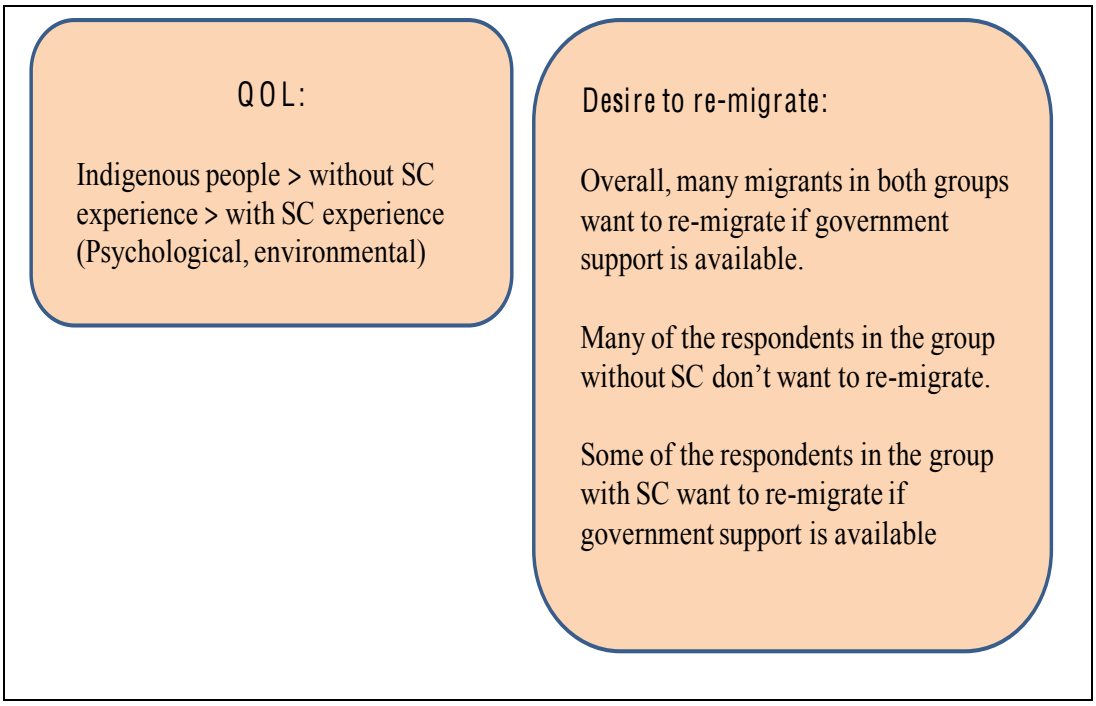


Figure 2.11. QOL and desire to re-migrate

Migrants seem to be living comfortably in the transmigration area. However, many of them would like to re-migrate if support like accommodation and appropriate environmental capacity to support their livelihood as fishermen is available from government. Residual analysis showed that many migrants in the group without social conflict do not want to re-migrate whereas many migrants in the group with social conflict want to re-migrate even without government support. It shows that group without social conflict more satisfied than group with social conflict experience.

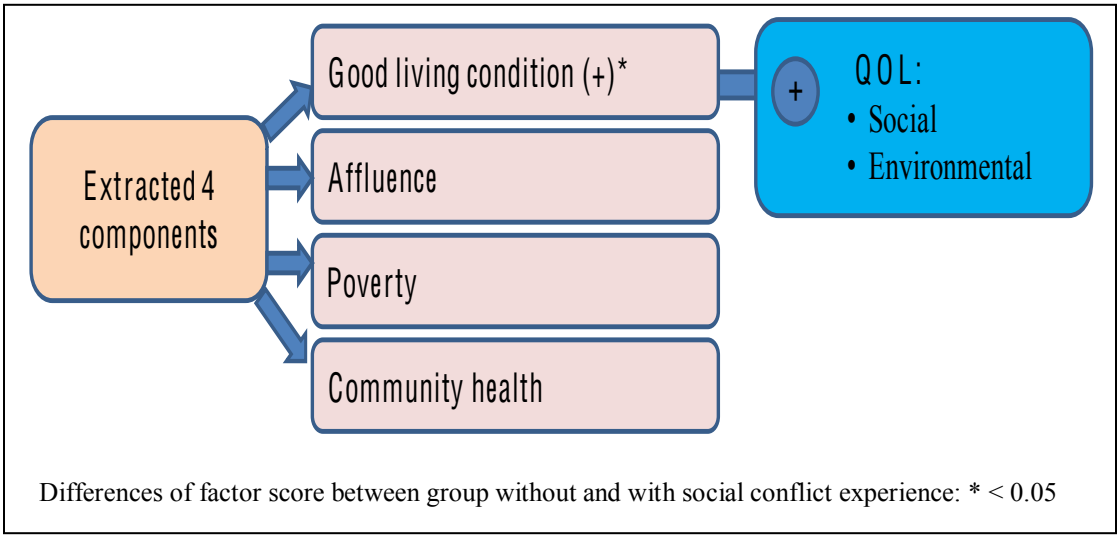


Figure 2.12. Four components and quality of life

Four components namely good living conditions, affluence, poverty and community health were extracted from SES, environmental qualities and community health. Respondents in the group without social conflict experience had better living conditions than those with social conflict experience. Group without social conflict have good living condition in environmental qualities, community health in 2010,

canges on environmental qualities and community health perception in 1985 to 2010. Good living conditions were positively correlated with social and environmental domains of QOL. Social and environmental domains of QOL if they have good living condition.

CHAPTER III. Migrants who experienced catastrophes

3.1 Catastrophes and second migration

The Indonesian government's transmigration program, which has moved many people from Java to the outer islands, began in 1905 (Raharto, 2001; Hugo, 2006; Erman, 2008) and continues today. Densely populated Java has few agricultural holdings, and growing numbers of landless people are swelling its towns and cities. At the same time, though the outer islands hold a large portion of Indonesia's natural resources, their populations are sparser and report lower incomes, on average, than Java's. The transmigration program seeks to address these population problems while also increasing socioeconomic status (SES), sustaining the environment, and improving overall quality of life (QOL) (Erman, 2008).

Figure 3.1 Secondary migration after met problems in migration areas

Some migrants were unsuccess in migration areas of outside Java islands. Migrants felt uncomfortable to stay in the migration areas due to some catastrophes such as natural disasters, social conflicts in conservation areas, and ethnic conflict. This problem made migrants lost their livelihoods and housing. Some migrants who met catastrophes returned to their hometown in Java (Figure 3.1). Others migrants move to other locations but same Island as migration areas. Hayashida (2006) reported that between 2001 and 2005, about 250,000 migrants become refugees as a result of catastrophes. Of the approximately 100,000 people that participated in the re-migration program, 17,463 moved to rural areas, 24,335 returned to their original places and 84,399 were left homeless (Table 3.1).

Tabel 3.1. Number of secondary migrants between 2001 - 2005

Year	Total no. of migrants per year	Local migration			None
		Re-migration	Move to rural areas	Return to original islands	
2001	50,615	27,067	-	5,821	17,727
2002	76,840	25,059	1,381	9,796	40,604
2003	51,728	31,767	8,147	3,418	8,396
2004	51,031	20,124	7,935	5,300	17,672
2005	17,672	N/A	N/A	N/A	N/A
Total	247,672	104,017	17,463	24,335	84,399

Source: Statistic center of Ministry of Transmigration 2005 in Hayashida, 2006

West Java has been Indonesia's most populous province since 1970. Overcrowding and population problems there have prompted the government to encourage transmigration. West Java province was Indonesia's largest source of Migrants from 1969 to 1989, sending roughly 457,979 households, or 919,483

people, to other islands during that time (Badan Pusat Statistik-Statistic Indonesia, 1995). These migrants, mostly farmers, moved to several locations on Sumatra, Kalimantan, Sulawesi, Maluku, and Papua during the migration. In general, they live well and have increased their standard of living with farming income from crops such as rice, corn, palm oil, rubber, and vegetables. However, Another 4,679 transmigrant households from West Java also returned to this province. West Java's provincial government resettled them and created a local migration resettlement unit to help solve the refugees' problems. "Local migration" usually refers to people displaced by natural disaster, social disaster, eviction, or the construction of a conservation area (Sudiati, 2008). My research is centered on migrants who returned to their original places in Java Island.

3.2 Previous studies about migrants with catastrophes experience

In other cases, suggested that migrants' socioeconomic status (SES) condition is affected by catastrophes in migratian areas. Migrants who have catastrophes experienced as natural disaster are more likely to be a risk of heightened loss and damage. They will become as a vulnerability of migrants that are limited access to power structure, resources, political, economic system and social access (IOM, 2007). Resettlement migrants after catastrophes can affect to their sosial and economic condition. Resettlement in nearby areas which was often unsatisfactory because of the poor quality of the land, often on steep upland slopes and already significant population pressure. Resettlement in more distant areas where population pressure is

less but where there are problems of clashes with local people, lack of local agricultural knowledge and limited support networks (IOM, 2007).

The return migration has some implication for their resettlement. Many sporadic migrants between 1963 to 1965 failed because there was not any preparation or planning for resettling these people (Raharto, 2000). Many migrants are said to have move back to original place or looking for a new settlement in others areas. Therefore, it is very important to understand what programs are most suitable for them. They probably should be placed in the areas with similar characteristic and with similar economic activities to their previous residences. The sporadic migrants also can create potential conflicts. These conflicts can occur, not as the results of socio-cultures differences, but mainly because of economic reasons. When the migrants become more wealthy and prosperous, because they are known as hard working people, it can create jealousy among the indigeneous people.

Murtiningsih (2011) conducted a study on the socio-economic conditions of local Migrants in Cianjur District, West Java province. This object studies was migrants who met catastrophes in outside Java islands and move back to West Java province. Based on the analysis suggests several conclusions, among local migrants in Cianjur district have low welfare. It was seen through several aspects: education, income and health. Some factors can influence migrant to improve their welfare such as farmland ownership, health seeking behavior (health threatment ability), and ownership of living facilities. Qualification of education effected on income, ownership of living facilities and health seeking behavior. Then part time job effect on income, health seeking behavior and ownership of living facilities.

In other studies from Yulinisiah (1996), that conducted in the migration area of Margasakti village, Bengkulu province, Sumatra island shows the importance of land ownership for migrants. Migration programs in this area started in 1977. The government provided support for migrant in the from of farmland. Each households received 2 ha of farm land. However, many migrant sold their farmland due to population pressure or economic reasons. Their farmland become narrow after 20 years. Narrow land ownership also affected on their . Farmland ownership is an important point to improver migrant' income. The more extensive of farmland size will improve their the level of income. Narrow farm land size also affects on their lower quality of life (QOL. A total of 57% of migrants still have lower quality of life.

3.3 Study area

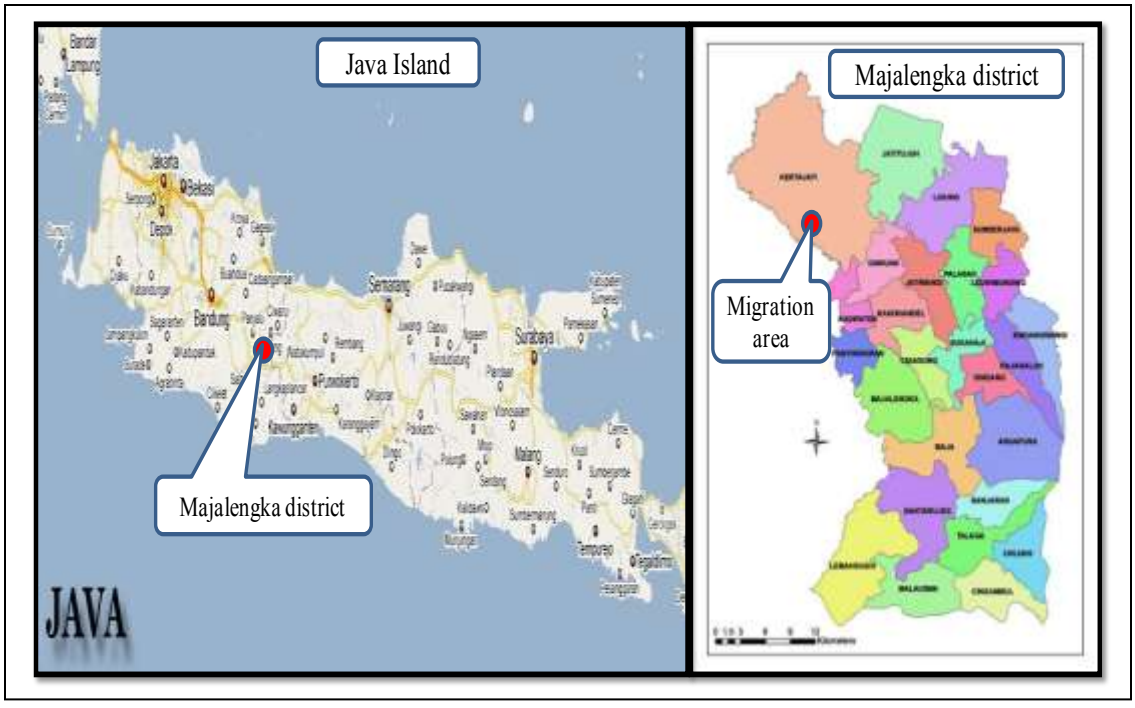


Figure 3.2 Migration area of Mekarjaya Village

Research was conducted at the transmigration unit in Mekarjaya, a village in the Majalengka district, because it is still largely inhabited by migrants—more so than the 13 other units (Figure 3.2). The village's total population in 2010 was 3,018. At the beginning of the placement in 2002 there were 150 migrant families and a total of 595 people in the village. The transmigration unit was separated from the rest of the population by about 5 km. Almost 90% of the migrants came from the first transmigration areas of Aceh and Kalimantan.

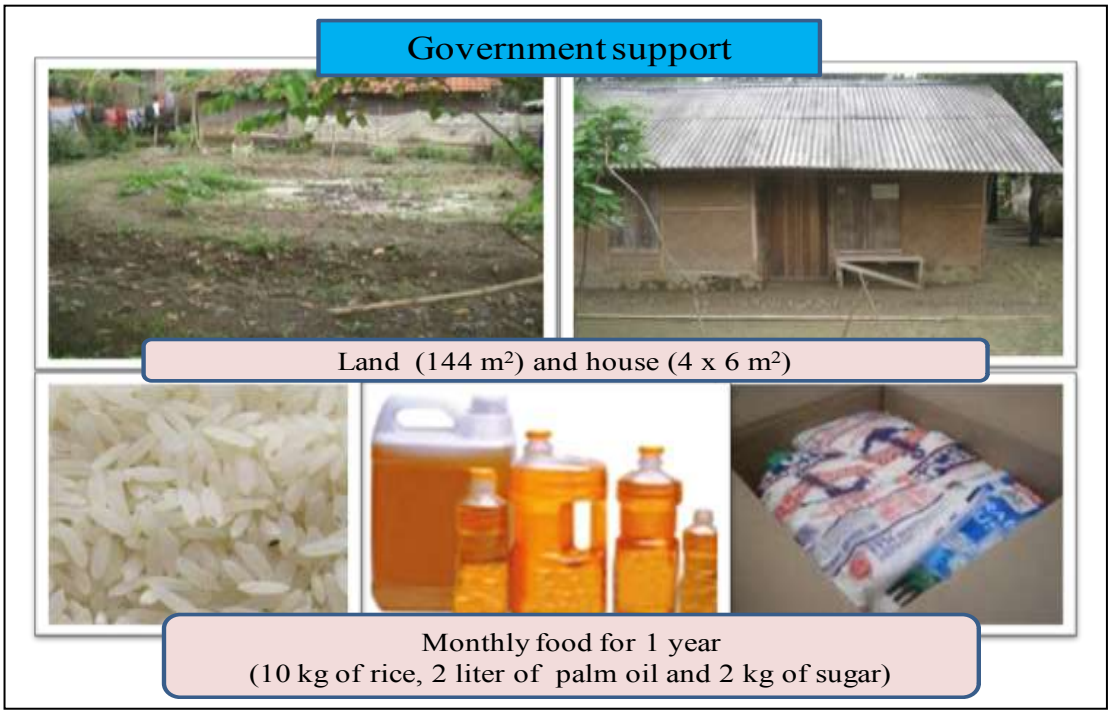


Figure 3.3 Government support for migrant

The government gave support when they just migration in form 144 meter square of land areas included 24 meter square of house, monthly food for 1 year like 10 kg of rice, 2 litres of palmoil, and 2 kg of sugar (Figure 3.3). This support was

given to help their lives before they can find a stable source of livelihood. After 1 years, migrants are expected to be able to source a stable life as a farmer. Food aid directly was given to migrants through village office. Unlike during the first transmigration, local governments could not provide large agricultural holdings to secondary migrants. Economic problems and the area's isolation encouraged some to move again, and others left because they felt uncomfortable in the migration areas.

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3.4 Research subject

West Java has a long history of sending settlers to other islands, beginning with the start of the transmigration program and continuing today. The second migration was started by a group of farmers who moved out of West Java province (Java Island) through the transmigration program and stayed in Aceh (Sumatra Island) and Kalimantan Island in 1985. Between 2000 and 2001, there were serious social conflicts in many migration areas outside Java Island especially in Aceh (Sumatra Island) and Kalimantan Island. 150 migrants returned back to their original province of West Java but they did not have housing and land areas. West Java province government made them part of the local transmigration program of Mekarjaya Village. The first group in second case consists of migrants and the second group consists of indigenous people (Figure 3.4).

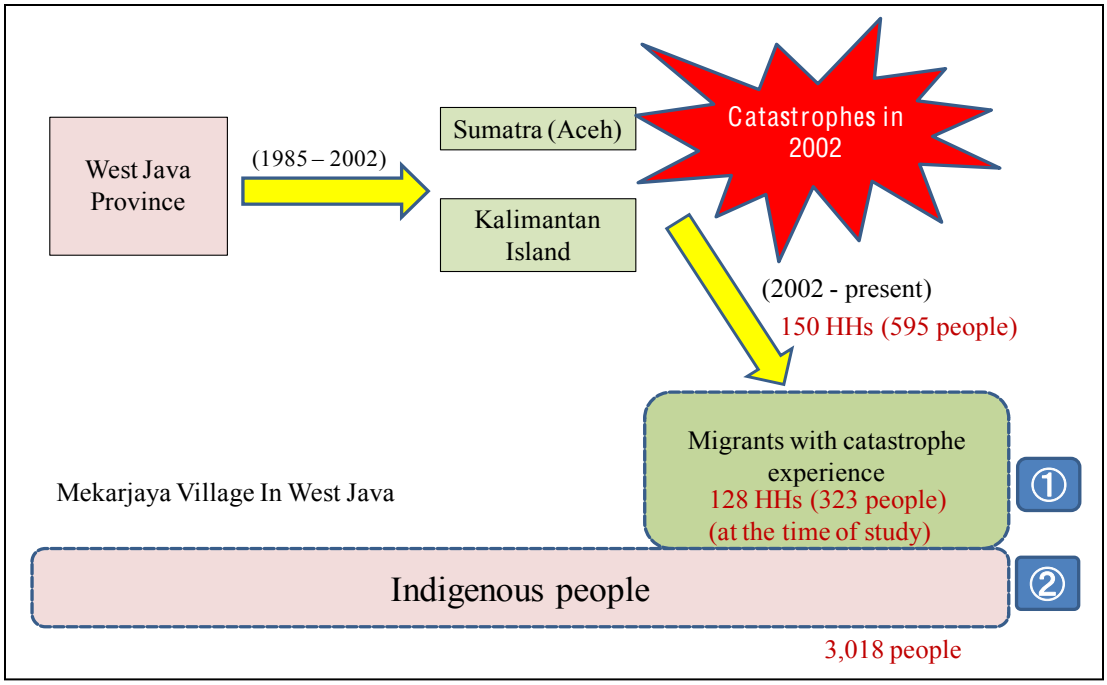

Figure 3.3 Research subject

3.5 Methods

Discussion was carried out with the head of the village, village staff, indigenous stakeholders, midwives, school principals, and the head of the farmers' group to obtain general information about transmigration history, socioeconomic status (SES), and environmental qualitiess. Heads of households were interviewed using a questionnaire in the local language (Bahasa) composed of 3 major questions about SES, environmental qualitiess, and QOL. The authors and 2 assistants (locals) conducted these interviews.

A total of 92 migrants (54 males and 38 females aged 37–65) were interviewed in the initial research during March and April of 2011. A second study in December 2011 collected data from 104 migrants and 112 indigenous people (161 males and 55 females aged 28–66). Sixty-one of the 104 migrants had been

interviewed during the initial research, and we repeated the same questions about SES and environmental qualitiess in the second study. The data used in our final calculations are thus those of 104 migrants and 112 indigenous people. Purposive sampling was used for transmigrant respondents, whereas snowball sampling was used for indigenous people due to time constraints and dispersed respondents. The method of free recall was used to minimize bias and because respondents found it easy to remember past events. For free recall, participants were shown a list of items that then had to be recalled in any order (Kahana et al., 2002).

Table 3.2. Research methods

Variables	Before migration (2000-2002)	Just after migration 2002	At the time of study 2011
SES EQ CH	104 migrants 112 Indigenous	104 migrants 112 Indigenous	104 migrants 112 Indigenous
QOL	N/A	N/A	104 migrants 112 Indigenous
Desire to re-migrate	N/A	N/A	104 migrants

A family's SES is based on family income, parental education level, parental occupation, and social status in the community (Demarest et al., 1993). The SES parameters used in the present research were income, ethnic group, age, education, migration history, occupation, and land ownership. Income was defined as the sum of all wages, salaries, profits, interest payments, rents, and other earnings received in

a given period of time (Case and Fair, 2007); in this study, household income was calculated per month. Data on SES were collected for 3 points in time: before migration, just after migration (2002), and at the time of research (2010 and 2011).

Measured perception asked respondents how they perceived environmental qualitiess. Questionnaires mentioned satisfaction levels and measured how people evaluated environmental qualitiess in the past and present. Participants responded to questions with a 3-point Likert scale, from –1 (bad conditions), 0 (average/stable conditions), to 1 (good conditions). The questionnaires measured perceptions only with respect to the latter two points in time being studied: just after migration and the present (in 2011).

An abbreviated Indonesian (Bahasa) version of WHOQOL-BREF questionnaires was used to assess participants' QOL (World Health Organization, 2004). Social scientists have long measured QOL by investigating how well-being can be affected by society, environment, work environment, family, personal lifestyle, economic circumstances, and health (Campbell et al., 1976; Andrews and Withey, 1976). Skevington et al. (2004) found high reliability and usefulness for the WHOQOL-BREF in international field studies. It contains 26 items, each rated on a scale of 1–5, with higher scores indicating better QOL (Murphy et al, 2000). Scores range from 0 to 100. To determine the level of satisfaction, we used the desire to migrate test. A growing number of migrants who want to migrate to the other shows they were not satisfied staying in the migration area. It became one of the effective parameters to determine their living condition. All data were analyzed with SPSS version 17 (Levesque, 2007).

3.6 Results

3.6.1 Socio-economic status of the migrants and indigenous people

As shown in Table 3.1, the average income of migrants (upper panel) during the first transmigration to Aceh and Kalimantan was around 1,454,347 IDR per month in 2000 (before migration). Migrant improved their income levels through utilizing the farm land. They use farmland to grow rubber and palm oil and can get results after a period of 3 up to5 years. The rubber and palm oil production have high price compared to other crops production, so that migrants also get a high income. On the other hand, the indigenous people income was significant lower than migrant in 2000. Conditions changed after the secondary migration in 2002, however, and average monthly income decreased to 377,717 IDR, though by 2011 it had risen again to 506,521 IDR. Migrants did not have farm land in 2002, so the their income decreased. Migrant income was lower than indigenous income in 2002 and 2011.

The other factors than can described their condition like education level. Migrants have low education level. Many migrant did not go to school and just finished primary school. Most migrant respondents were erderly and did not go to school in the migration areas of outside Java. 100 percent of migrants' ethnicity are Sundanese and almost 100 percent of indigenous people are Sundanese. There was not any ethnic conflict in second migration area because of similar ethnic between migrants and indigenous people. They same character and culture. Migrants and locals can live peacefully in this village.

Table 3.3. Monthly average income by socio-economic status (SES) in each period

SES (Migrants)	Monthly average income		
	First migration	2002	2011
Sex			
Male (78)	1,443,243 IDR	382,236 IDR	509,589 IDR
Female (26)	1,332,000 IDR	368,000 IDR	496,153 IDR
Education			
Junior High School (9)	1,300,000 IDR	350,000 IDR	425,000 IDR
Primary School (62)	1,541,379 IDR	381,896 IDR	524,137 IDR
Illiterate (33)	1,307,692 IDR	376,923 IDR	492,307 IDR
First transmigration location			
Aceh (53)	1,446,938 IDR	366,326 IDR	477,551 IDR
Kalimantan (51)	1,462,790 IDR	390,697 IDR	539,534 IDR
Occupation			
Jobless	766,666 IDR (5)	460,000 IDR (8)	450,000 IDR (10)
Labour	1,328,571 IDR (8)	352,941 IDR (17)	496,000 IDR (25)
Business	-	-	500,000 IDR (2)
Farmer	1,471,604 IDR (89)	379,113 IDR (79)	515,151 IDR (66)
Ethnic			
Sundanese (104)	1,454,347 IDR	377,717 IDR	506,521 IDR
Average income	1,454,347 IDR**	377,717 IDR	506,521 IDR**
SES (Indigenous people)	Monthly average income		
	Before 2002	2002	2011
Sex			
Male (83)	271,341 IDR	557,926 IDR	909,756 IDR
Female (29)	214,814 IDR	466,666 IDR	688,888 IDR
Education			
Senior high school (14)	250,000 IDR	450,000 IDR	814,285 IDR
Junior High School (19)	300,000 IDR	597,368 IDR	1,200,000 IDR
Primary School (54)	233,333 IDR	517,592 IDR	746,296 IDR
Illiterate (25)	271,739 IDR	554,347 IDR	834,782 IDR
Occupation			
Jobless	66,666 IDR (9)	0 IDR (1)	0 IDR (1)
Labour	234,615 IDR (13)	421,428 IDR (14)	585,714 IDR (14)
Business	216,666 IDR (3)	550,000 IDR (4)	800,000 IDR (6)
Farmer	268,987 IDR (79)	534,302 IDR (86)	857,500 IDR (81)
Service	400,000 IDR (6)	700,000 IDR (6)	1,262,500 (8)
Government employee	500,000 IDR (1)	1,000,000 IDR (1)	1,500,000 IDR (1)
Ethnic			
Sundanese (104)	264,356 IDR	544,059 IDR	877,227 IDR
Javanese (4)	137,500 IDR	375,000 IDR	575,000 IDR
Sumatra (2)	150,000 IDR	500,000 IDR	600,000 IDR
Sulawesi (2)	250,000 IDR	450,000 IDR	550,000 IDR
Average income	255,803 IDR**	529,017 IDR	717,600 IDR**

*figure in parenthesis indicates number of subjects in the category
** Significantly different both of groups ($P < 0.05$) (Anova test)

Indigenous people reported an average monthly income before 2002 of 255,803 IDR-lower than migrant income at the time. The majority of their income also came from farming. Their incomes grew slowly, averaging 557,926 IDR per month in 2002 and 717,600 IDR per month at the time of the study. In 2002, indigenous people had higher incomes than migrants on average, and their education levels also tended to be higher, though neither group had more than an elementary education. Average monthly household income was compared to the standard of the average income of Indonesia farmers (Figure 3.5).

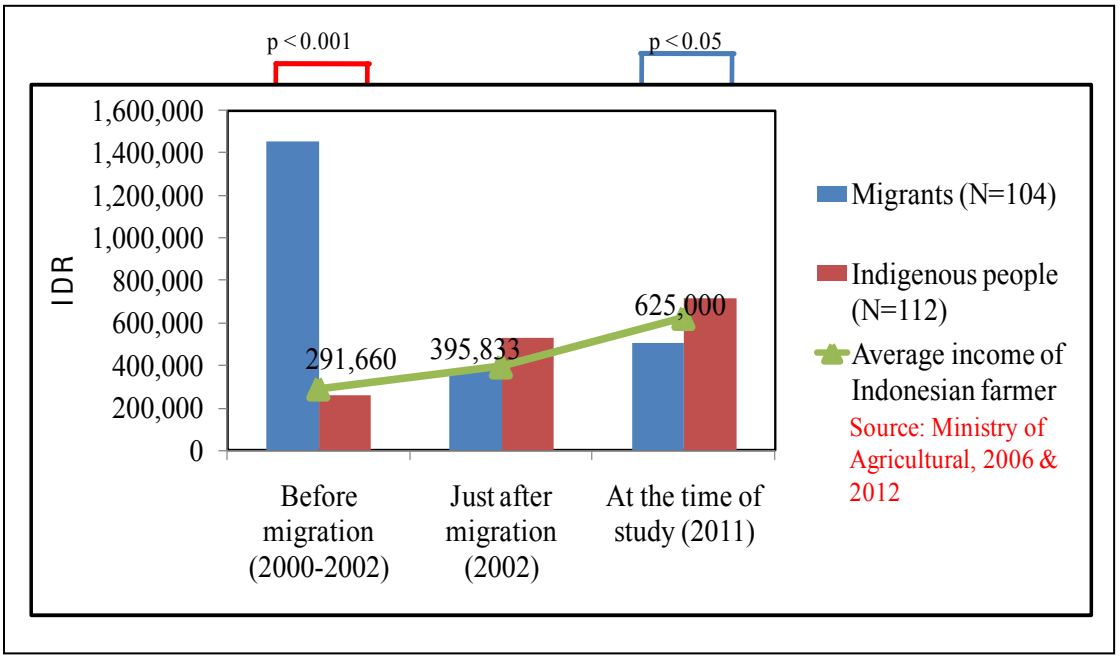

Figure 3.5. A comparison between migrants **and indigenous people's income**

3.6.2 Environmental qualitiess

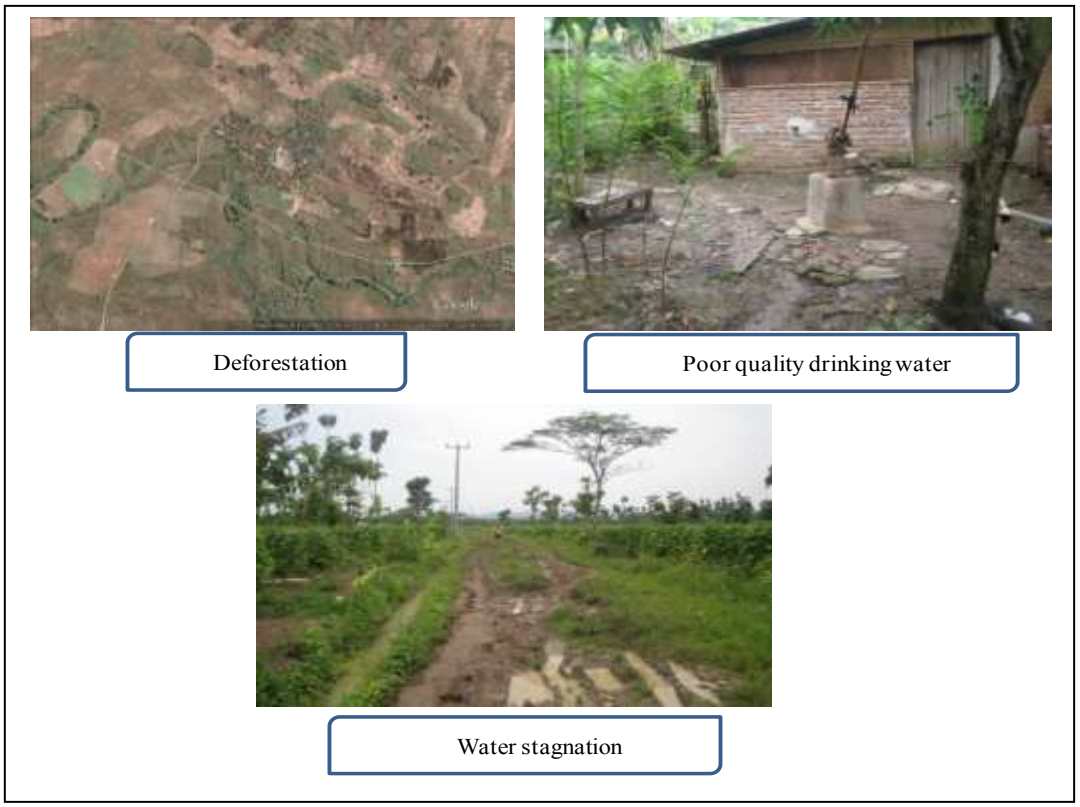

Figure 3.6 Environmental problems in migration area

In preliminary discussions, the respondents mentioned four commonly experienced environmental problems. These included; deforestation, poor quality drinking water and water stagnation (Figure 3.7). Results of the first study, summarized in Figure 3.6, suggest that transmigrant settlement areas exhibit environmental hazards, i.e., poor quality drinking water (40.6%), water stagnation (23.4%) and deforestation (20.4%) in before migration (2000-2002). After migration in 2002, environmental problems such as poor quality drinking water (84.6%), deforestation (46.2%) and deforestation (38.3%) became prominent. Migrants found

it difficult to obtain clean water when they moved in 2002, and the situation was no better in 2011. Deforestation (97%) and water stagnation (51.9%) increased in 2011. Moreover, it was not possible to dig wells because of swampy soil conditions, and though the government constructed public water facilities in 2005, these have since been damaged. Water stagnation became more prevalent after migration in 2011. Respondents assumed that environmental degradation was caused by a lack of adequate facilities, inadequate support from the government, and unplanned resettlement.

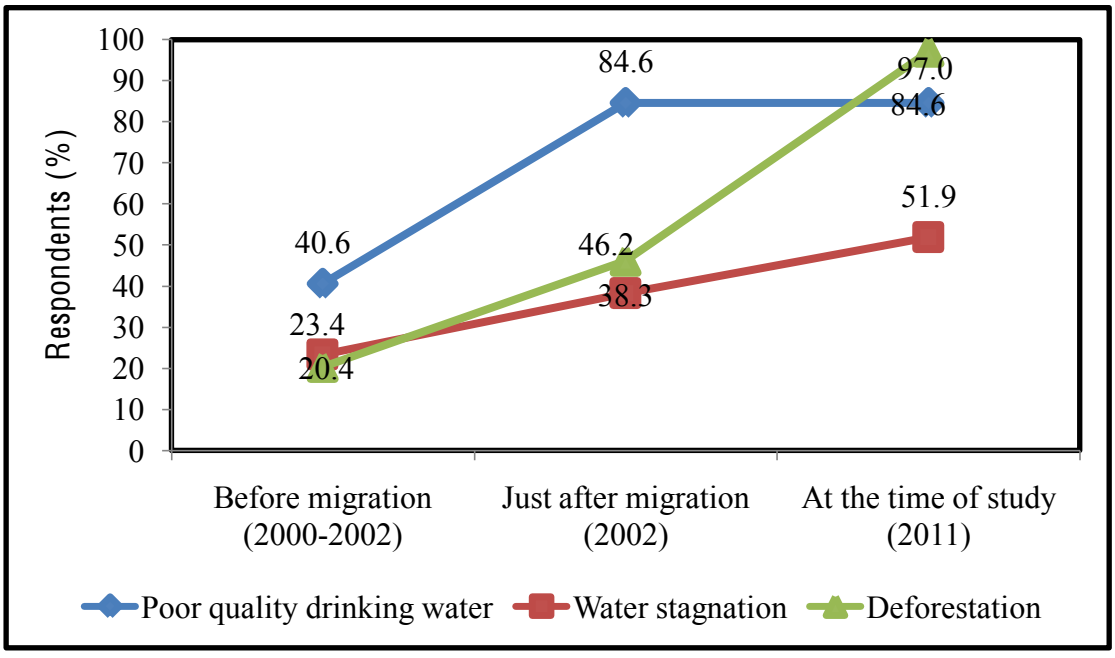

Figure 3.7 Claims for environmental condition (percent of the people per year)

3.6.3 Community health conditions

The disease event list in the questionnaires used data from the sub-village health center in the Mekarjaya Village from 2008-2009. As shown in Figure 3.8, the communal pattern of disease events is similar in the three periods (before migration, just after migration and the study period). The most common disease events for migrants in 2010 were common cold or influenza (33.1%), and pertussis (allergy, common cough, dry cough) (31.9%) and diarrhea (17.5%). Other disease events included asthma, gastritis, hepatitis, etc.

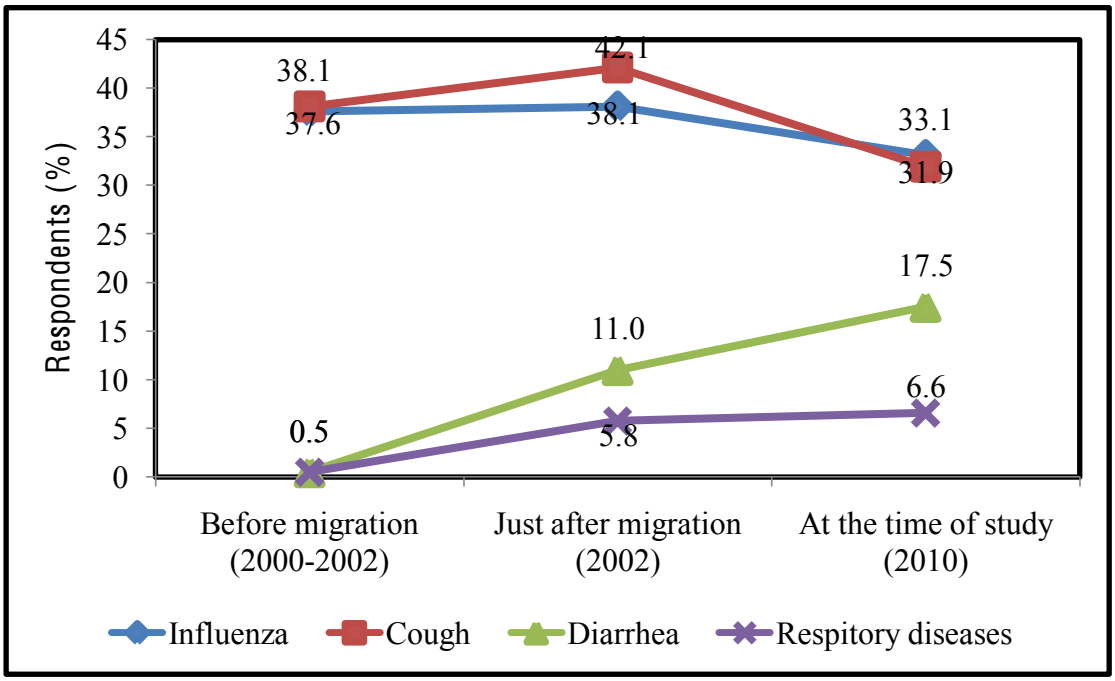

Figure 3.8. Disease events (percent of the people per year) in each period

In this research, health seeking behavior is described as the process from the recognition of symptoms to the use of particular health facilities. This method

attempts to identify a logical sequence of steps and looks at social and cultural factors that affect this sequence. This is primarily an anthropological approach, with qualitative methods of investigation (Kroeger, 1983). Figure 3.9 shows that they drunk traditional medicine (23.4%) or went to orderly or traditional birth attendants (TBA) when they had health problems. They preferred went to orderly or traditional healers because they was difficulty to go to health centers (40.6%). After secondary migration in 2002, some people complained that they still found it difficult to go to health centers because they did not have enough money to pay for medical treatment after migration (25.1%). Health insurance systems for the poor have been running since 2004, but they could not cover all medical expenses. The number of migrants who visited the health centers exceeded 30.7 percent in 2002 and 28.7 percent in 2012, but the percentage that complained about the cost of medical treatment increased in 2002 and 2010 compared than in the first migration areas.

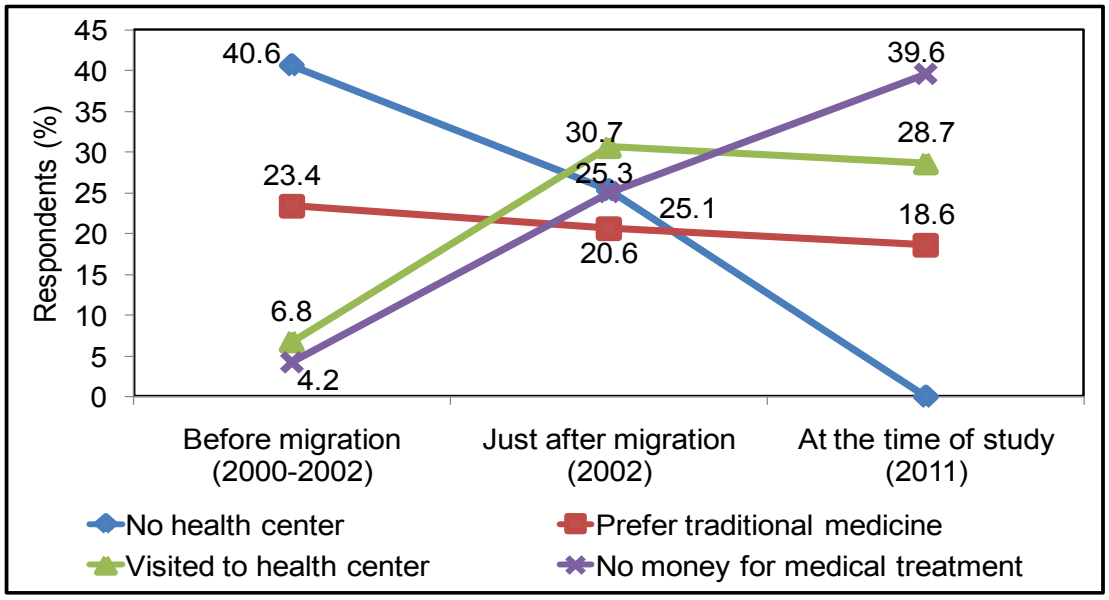

Figure 3.9. Health seeking behavior

3.6.4 Changes in perception of environmental qualities

Table 3.4 uses the Kappa statistic method to illustrate differences in perceptions of three environmental factors (deforestation, water stagnation, and poor water resources) among migrants and indigenous people. The Kappa value for migrants revealed "poor agreement." This suggests worsening perceptions of environmental qualitiess from 2002 to 2011. Indigenous people also exhibited worsening perceptions of their environment's condition, but with a Kappa value of "fair agreement." Overall, migrants' assessments of the situation were dimmer than those of indigenous people.

Table 3.4. Changes in perception environmental conditions

Groups	Year	Deforestation 2011			Kappa	Water stagnation 2011		Kappa	Poor quality drinking water 2011		Kappa
			-1	0		-1	0		-1	0	
Migrants (N=104)	Just after migration (2002)	-1	9.6%	0	0.09	11.5%	0	0.06	15.4%	0	0.19
		0	61.5%	28.9%		69.2%	19.3%		48.1%	36.5%	
Indigenous people (N=112)		-1	25.0%	0	0.27	18.7%	0	0.23	21.4%	0	0.32
		0	42.8%	32.2%		45.5%	35.8%		37.5%	41.1%	

*Scale degradation: -1) bad perception condition, 0) average/stable, 1) good perception condition
**Kappa value interpretation: Poor agreement = < 0.20, Fair agreement = 0.20 to 0.40, Moderate agreement = 0.40 to 0.60, Good agreement = 0.60 to 0.80 and Very good agreement = 0.80 to 1.00 (Altman, 1999)

3.6.5 Perception of community health of migrant and indigenous people

In the questionnaire, the perceptions of community health were concerned with the level of access to health facilities and public health services before migration

and at present (2011 in the study). The data analyses were separated into Migrants and indigenous people (indigenous people). The results of the Fisher exact test showed that the changes in community-health perception before 2002 and after migration in 2011 were significantly different between Migrants and indigenous people ($p<0.01$, Table 3.10). The average community-health perception of migrants after a secondary migration was varied little from the perception before migration in 2002. In contrast, the community-health perception of indigenous people was better in 2011 than prior to 2002 ($p<0.01$, Table 3.10).

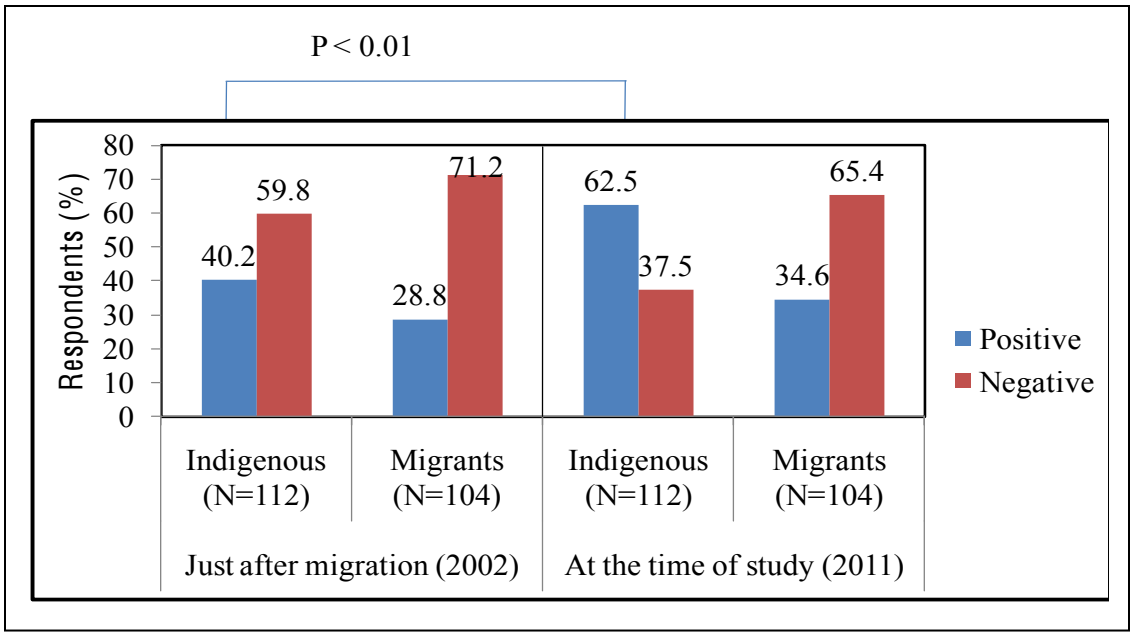

Figure 3.10. Perception of community health before and after migration by the experience of social conflict

3.6.6 Comparison of QOL between migrants and indigenous people

Table 3.5. **Item mean differences and reliability (Cronbrach's alpha) between the** migrants and indigenous people samples by four domains of the WHOQOL-BREF

Domains	Questions items (Q)	Migrants			Indigenous people		
		α	Mean ± SD		α	Mean ± SD	
Physical	Pain and discomfort (Q3)	.74	4.55	.65	.70	4.54	.59
	Dependence on medication and treatments (Q4)		4.55	.63		4.61	.59
	Energy and fatigue (Q10)		4.03	.76		3.94	.55
	Mobility (Q15)		3.15	.77		3.23	.68
	Sleep and rest (Q16)		3.03	.98		2.90	.82
	Activities of daily living (Q17)		2.88	.72		2.88	.54
	Working capacity (Q18)		2.88	.66		3.07	.64
Physiological	Positive feelings (Q5)	.66	2.97	.78	.74	3.38	.77
	Spiritual/religion/personal beliefs (Q6)		3.40	.78		3.53	.75
	Thinking, learning, memory and concentration (Q7)		3.10	.45		3.34	.56
	Body image and appearance (Q11)		4.16	.82		4.29	.76
	Self esteem (Q19)		3.18	.58		3.33	.56
	Negative feelings (Q26)		3.65	.63		3.61	.63
Social Relationship	Personal relationship (Q20)	.63	3.13	.86	.69	3.22	.75
	Social support (Q22)		3.13	.54		3.11	.49
	Sexual activity (Q21)		3.04	.78		3.26	.68
Environmental	Physical safety and security (Q8)	.80	3.17	.42	.74	3.33	.49
	Physical environment (infrastructures)(Q9)		1.88	.74		2.53	.89
	Financial resources (Q12)		2.12	.70		2.56	.62
	Oppurtunities for acquiring new information and skills (Q13)		2.01	.69		2.42	.68
	Participation and opportunities for recreation (Q14)		1.31	.48		1.72	.76
	Home environment (Q23)		2.16	.87		2.45	.78
	Health and social care, availabilty and quality (Q24)		2.45	.84		2.71	.69
	Transport (Q25)		1.97	.95		2.33	.85

*Md (median), α (Cronbrach's Alpha), SD (Standard deviation)
** Reliability (< 0.6 "poor", 0.6 to < 0.8 "acceptable, > 0.8 "good")

Table 3.5 shows differences in means for each question and reliability in four domains. The highest means for migrants were pain and discomfort (Q3) and

dependence on medication (Q4), while the highest mean for indigenous people was dependence on medication (Q4). The reliability of the physical, psychological, and social relationship domains for both groups and of the environmental domain for indigenous people ranges from 0.6 to 0.8, which is satisfactory. The highest reliability was found in the environmental domain for migrants (> 0.8, good).

Table 3.6 presents the results of the discriminant validity analysis by t test. Significant mean differences were found between migrants and indigenous people in the psychological and environmental domains. The physical domain and two QOL items did not differ significantly between the groups, but overall QOL and general health did.

Table 3.6. Discriminant validity of the WHOQOL-BREF Assessment

Domains	Transmigration (mean ± SD)	Indigenous people (mean ± SD)	T value	Sig (2 tailed)
Physical	41.94 ± 8.80	42.08 ± 6.77	0.220	0.898
Psychological	55.05 ± 10.69	59.40 ± 11.28	2.625	0.004**
Social relationship	51.99 ± 15.32	54.91 ± 13.06	1.539	0.135
Environment	30.63 ± 10.78	39.28 ± 11.99	5.273	0.000***
Items				
Overall QOL	2.63 ± .64	2.86 ± .78	-2.11	0.018*
General health	2.77 ± .85	3.03 ± .83	-2.12	0.026*

Significantly different both of groups *<0.05,**<0.01,***<0.001 (t Test with Welch's method)

3.6.7 Correlation of migrants' QOL with SES, environmental qualities and community health.

Principal Component Analysis (PCA) showed that there are some correlation socioeconomic status, environmental qualities and community health (Table 3.7).

Rotated matrix of Principal Component Analysis (PCA) with four extract and cumulative rate of 72%, the first component showed there was significantly correlation between income before migration (2000-2001), land before migration and income changes in 2000 up to 2002. The first component called as a affluence. Then, the second component showed a strong correlation between income 2010, income changes in 2002 up to 2010 and land ownership in 2010. This component was named a living condition. The third component showed that there are correlations between poor quality drinking water in 2002 and 2011, and also water stagnation 2002. The third component is called a poor environmental condition. The last component in this PCA shows the correlation between community health in 2002 and 2011. This component was named as community health.

Table 3.7 Principal component analysis of SES, environmental qualities and community health

Variables	Component			
	Affluence	Living conditions	Poor environmental conditions	Community health
Income before 2002	0.934	-0.043	-0.005	-0.049
Income changes (2000-2002)	-0.931	0.087	-0.011	0.104
Land before 2002	0.889	-0.127	0.021	-0.082
Income 2010	-0.085	0.927	-0.005	0.050
Income changes (2002-2010)	0.066	0.923	-0.039	-0.017
Land ownership 2010	-0.262	0.722	-0.019	-0.118
Poor quality drinking water 2002	0.058	-0.067	0.784	-0.102
Poor quality drinking water 2011	-0.103	-0.064	0.782	-0.077
Water stagnation 2002	0.180	0.134	0.709	0.071
Deforestation 2011	-0.076	-0.049	0.646	0.091
CH 2002	-0.035	-0.027	-0.013	0.864
CH 2011	-0.149	-0.038	0.009	0.843

Principal Component Analysis with cumulative percentage is 72%

Relationship between quality of life (QOL) outcomes and fourth component of Principal Component Analysis (PCA) indicated that these component directly affected ot Migrants' QOL. Component analysis showed that 4 factors were closely related to variables like income and land possession. The first factor, affluence, described their income between 2000 and 2002. The second component, living conditions, described their income condition just after migration till now. Poor environmental conditions expressed their poor environmental qualities and the fourth component showed community health changes in the migration area (Table. 3.8).

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Tabel 3.8. Correlation coefficient of QOL and PCA component

QOL	Affluence	Living conditions	Poor environmental conditions	Community health
Overall QOL	-0.149*	-0.072	0.023	-0.078
General health	-0.120	-0.025	0.064	-0.058
Physical	-0.042	-0.080	0.091	-0.032
Psychological	-0.181**	0.028	0.127	0.061
Social	-0.070	-0.033	0.014	-0.115
Environmental	-0.304**	0.004	0.162*	0.044

*&** correlation coefficient

Correlation coefficient between QOL and good living conditions, affluence, poverty and community health showed that there was a negative relationship between affluence and overall QOL, physical as well as environmental domains of QOL. In addition, there was correlation between poor environmental conditions and the environmental domain.

Tabel 3.9. Different mean of component factor score group without and with social conflict experience

Group	Affluence	Sig.	Living condition	Sig.	Poor environmental condition	Sig.	Community health	Sig.
Migrants (N=104)	0.8 ± 0.1	***	-0.2 ± 0.5	**	0.1 ± 0.9	ns	-0.2 ± 0.9	*
Indigenous people (N=112)	-0.7 ± 0.2		0.2 ± 1.3		-0.1 ± 1.1		0.1 ± 1.1	

Siqnificant different * < 0.05, **< 0.01, *** < 0.001

3.6.8 Impact of perception on the future desire

Trasnmigrants who have catastrophes experience live with vulnerability condition because no choice to move to others places. Therefore, 61 of out 104 households' migrants (59.6 percent) had thoughts of moving to another location if they could get support from the government, e.g., adequate housing and appropriate environmental capacity to support their livelihood as farmer (Table. 3.10). They were willing to re-migrate again to improve their living standard with transmigration or resettlement program.

Tabel 3.10. Desire to re-migrate

Don't want to re-migrate	Want to re-migrate with support	Want to re-migrate even without support
38 (36.5%)	61 (59.6%)	5 (3.8%)

The Anova test in Table 3.11 is intended to examine in more detail correlation QOL and the migrants' desire to migrate (don't want to re-migrate, want to re-migrate with support, and want to re-migrate even without support). Three catagories of the desire to migrate was not affected by the QOL conditions. Only the environmental domain approached a significant value. This means that migrants wish

to migrate to another area was not caused by the bad QOL. They wanted to migrate to others areas if the support from the government was available.

Tabel 3.11. Relationship between desire to re-migrate and QOL

QOL	Don't want to re-migrate (N=38)	Want to re-migrate with support (N=61)	Want to re-migrate even without support (N=5)	Sig.
Physical	42.3 ± 9.2	41.9 ± 8.8	39.0 ± 5.4	0.73
Psychological	56.3 ± 10.1	54.6 ± 10.9	51.4 ± 13.8	0.90
Social	51.4 ± 16.1	52.1 ± 15.1	54.8 ± 15.6	0.50
Environmental	31.8 ± 12.2	30.1 ± 9.9	27.6 ± 10.4	0.61
Overall QOL	2.5 ± 0.6	2.7 ± 0.6	2.4 ± 0.5	0.29

In other hand, the Anova test in Table 3.12 is intended to examine in more detail correlation a component factors score and the migrants' desire to migrate (don't want to re-migrate, want to re-migrate with support, and want to re-migrate even without support). Three catagories of the desire to migrate was not affected by the component factors score. This means that migrants wish to migrate to another area was not caused by the component factors score. They wanted to migrate to others areas if the support from the government was available.

Tabel 3.12. Relationship between desire to re-migrate and component factor score

Factors	Don't want to re-migrate (N=38)	Want to re-migrate with support (N=61)	Want to re-migrate even without support (N=5)	Sig.
Affluence	0.7 ± 0.9	0.8 ± 0.8	1.0 ± 0.7	0.71
Living conditions	-0.2 ± 0.4	-0.3 ± 0.6	-0.2 ± 0.3	0.74
Poor environmental conditions	0.2 ± 0.9	-0.2 ± 1.0	0.6 ± 0.5	0.08
Community health	-0.2 ± 0.8	-0.1 ± 0.9	-0.2 ± 1.0	0.94

3.7 Tentative summary

3.7.1 Changes in SES of migrant farmers after a catastrophe

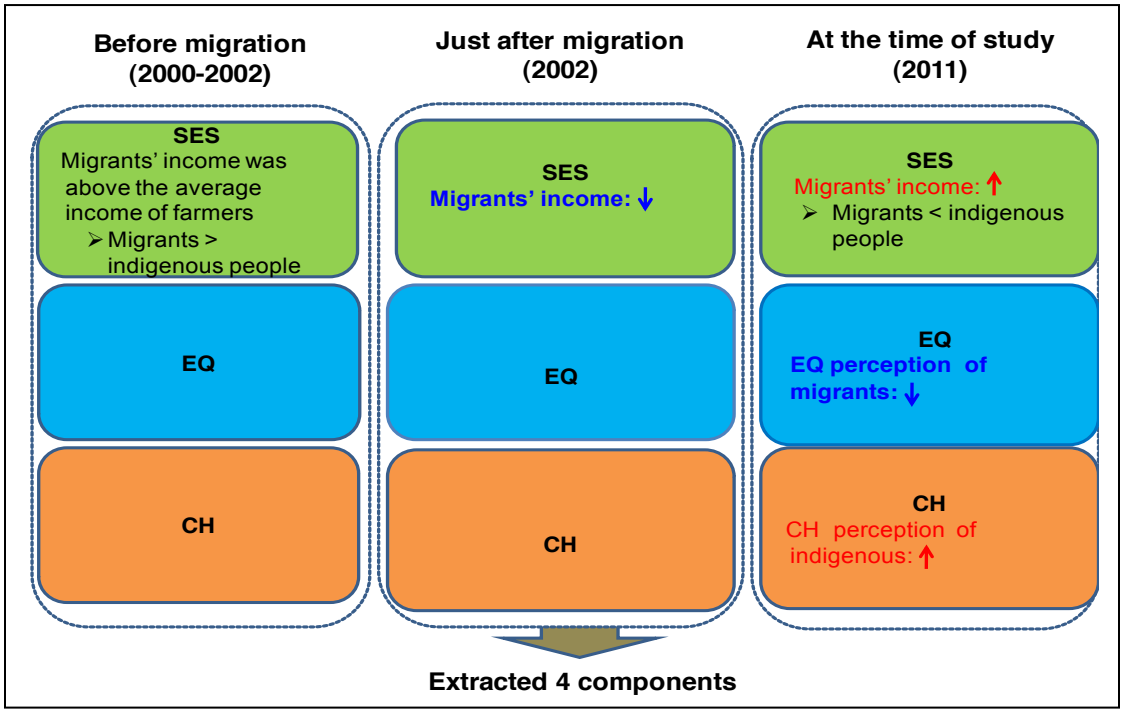

Figure 3.11. Changes on SES, environmental qualities and community health

Two production models were used for the first migration settlements in Seberida (Sumatra) and many other places: the food crop model and the rubber tree crop model. In the first, transmigrant households were given a home garden (0.25 ha) and an area (1–2 ha) for producing food crops for cash. In the other model, each transmigrant household received a 0.4 ha home garden area, a 0.6 ha food crop area, and a 2.0 ha rubber tree garden area (Holden et al., 1995; Levang et al., 1999). They planted rice, palm oil, rubber trees, and vegetables in first transmigration areas (Ketterings et al., 1999). Migrants in east Kalimantan who planted tree crops (e.g. rubber and palm oil) had high incomes. In 1993, migrants incomes in the Sumatra

Islands were found to be above poverty level, in some cases significantly so, and higher than expected at project appraisal (The World Bank Group, 1993). Economic conditions, especially annual household incomes of migrants in Mekarjaya, were good when compared to average income of farmers (Figure 3.11). In general, migrants can improve their economic situation outside of Java.

The transmigration program's in Mekarjaya, after a catastrophe, was very different from its first. The problem was that they received only a home garden of 0.01 ha in 2002, with no areas for food crop production (Figure 3.10). This relative lack of agricultural land made it difficult to make a living. In the early migration of 2002, the number of farmer migrants decreased compared to when they were outside of Java. The economic and social development of a migrant community will fail without suitable natural resources (Hoppe and Faust, 2004). Migrants income decreased again in 2011. The situation is different for indigenous people who have been born or lived in this village. Their higher average land ownership—0.22 ha in 2002 and 0.21 ha in 2011—gives them higher incomes than migrants.

Failures in project planning, implementation, and maintenance, as well as a lack of political and administrative integration (i.e., systems integration), will have negative impacts on sustainable resource use (Hoppe and Faust, 2004). Environmental degradation in migration areas is generally linked to economic growth, poverty, population pressure, and political conflict (Richmond, 1993). Figure 3.10 show that the main environmental problems in Mekarjaya's transmigration area, such as water stagnation and poor water resources, existed due to a lack of infrastructure (inadequate public water, road conditions, public toilets, and drainage).

The previous study showed that deforestation cannot usually be separated from aspects of transmigration like land clearing and subsistence activities (Ascher, 1993; Angelsen, 1995; Fearnside, 1997). The unavailability of agricultural land forced many migrants to exploit the forest. The poor and hungry migrants often over-harvest and degrade their surrounding environment in order to survive. An impoverished migrant may not be able to practice sustainable resource extraction in order to ensure future environmental productivity when immediate consumption needs are so strong (Broad 1994).

The researchers propose that population migration is one factor in the assessment of environmental changes (Bilsborrow and Ogendo, 1992). This study emphasizes perceptions of environmental qualitiess from 2002 to 2011. Changes in migrants' perceptions of their environment are related to deforestation, stagnant water, and poor water resources (Table 3.7). Perceptions can become "good" or "bad" in comparison to the indigenous people (Cassels et al., 2005). Migrant perceptions of environmental changes were worse in 2011. Indigenous people were able to adapt to and organize their environment.

Health facilities and services improved in the migration area after migration. But, many migrants still find it difficult to go to the health center because of medical treatment fees. The results showed that the changes in community-health perception of migrants after a secondary migration was varied little from the perception before migration in 2002. In contrast, the community-health perception of indigenous people was better in 2011 than prior to 2002. Indigenous people can go to health center

because the health center location closed to their settlements. They have more medical treatment fee than migrants.

3.7.2 **Impact SES, environmental qualities and community health on migrant's QOL**

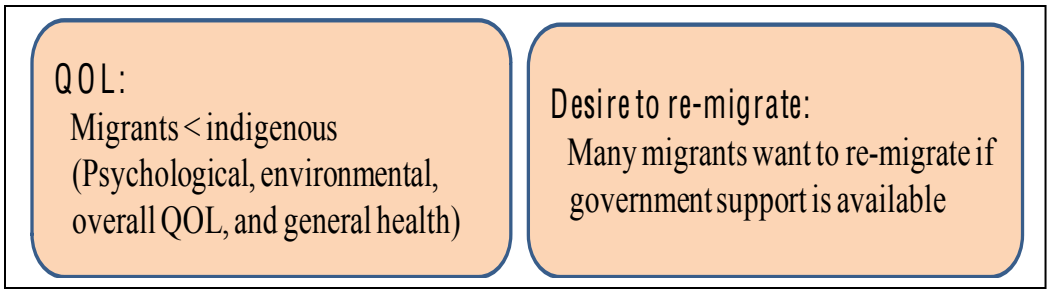

Figure 3.12 QOL and desire to re-migrate

Quality of life (QOL) is an "individuals' perception of their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns" (WHOQOL Group, 1994). It is a broad and wide-ranging concept affected in a complex way by physical health, psychological state, level of independence, social relationships, and relationships to salient features of the environment (WHOQOL Group, 1994). Migration was often associated with a series of stressful life events and poor mental health outcomes (Ekblad et al., 1999). Migrants often perceived or experienced a great deal of discrimination because of their SES, language, or ethnicity (Li et al., 2006). Migrants' desires to improve their QOL in a new area cannot be achieved because they cannot enhance their economic status (Kebschull, 1986).

Discriminant validity showed that all items of QOL for migrants was lower than that of indigenous people in psychological and environmental domains as well as overall QOL and general health. Many migrants mentioned that they wanted to re-migrate if government support was available (Figure 3.12). Four components namely good living conditions, affluence, poverty and community health were extracted from SES, environmental qualities and community health (Figure 3.13). Affluence negatively correlated with overall QOL, psychological and environmental domains whereas poor environmental conditions positively correlated with environmental conditions. Before migration, migrants were more affluent than indigenous people. Migrants had poorer living conditions and worse community health than indigenous people.

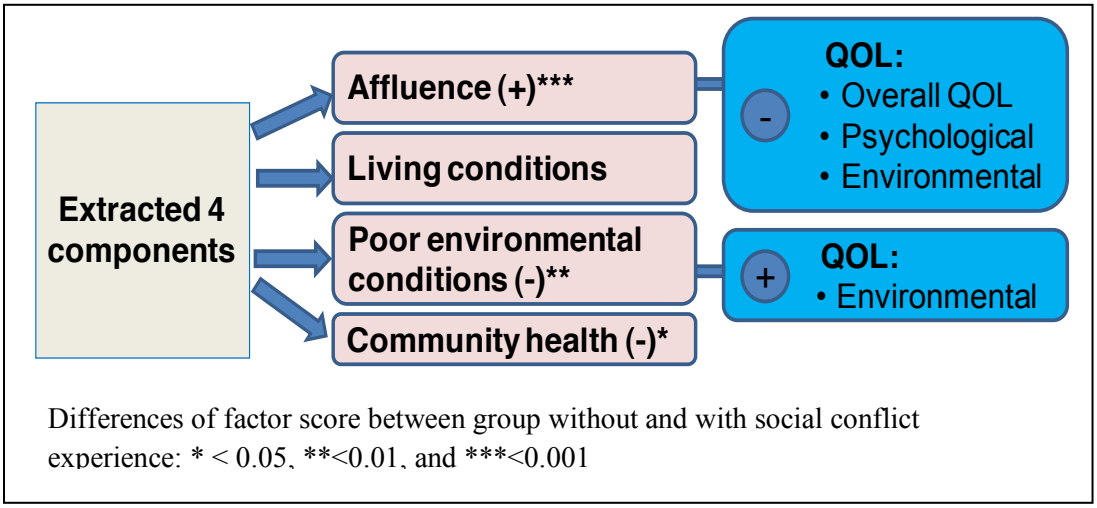

Figure 3.13 Four components and quality of life

CHAPTER IV. GENERAL DISCUSSION

4.1 Changes in variables and living conditions of migrant fishermen

This study reported that the fishermen transmigration program can improve fishermen's income. Kramer et al. (2002), reported that sporadic migrant's income significantly decreased after migration. The transmigrantion program at least contributed to improvements in the fishermen's income. There was little competition for income because of lack of population pressure. There was no population pressure due to fewer sporadic migrants (newcomers); in addition, some of the migrants also re-migrated to other areas. The respondents had support in terms of fishing equipment; this was supplied by the government through the fishermen cooperatives. The fishermen cooperative system was established just after migration. It organizes fishing activities with indigenous people. However, evaluation of the fishermen migrants' income cannot only by viewed in terms of significant increases, but should be compared to other Indonesian fishermen's income as a whole.

Poor migrants are likely remarkably closely correlated with environmental degradation. Poor fishermen use harmful activities to catch fish like bombing (Cassel et al., 2003). Migrants without social conflict experience have been able to improve the environmental quality. No harmful fishing activities were being used because of an agreement among fishermen concerning fishing activities--thus the high perception of environmental quality. Migrants without social conflict experience felt relieved when the government built a seawall in 2009. The seawall helped to reduce environmental degradation. In contract, migrants with social conflict experience

experienced worse environmental conditions at the time of study. Migrants with social conflict experience felt unsatisfied due to difficulties catching fish that they have faced since 1990. They felt environmental quality has been degraded since 1990.

Migrant health condition looked good in the group without conflict experience. Migrants without conflict experience perceive good health despite having a low educational background. The group without social conflict experience had better perception because the government built a health center in the migrants' settlement area. This made access to health services easier and cheaper. These results contrast with the research of Sunarti (2009), which states that migrants with low education and income background will be susceptible to disease and have poor health conditions. Meanwhile, groups with social conflict experience did not feel any significant change in community health. They felt that the community's health condition just after migration was the same as at the time of the study.

Overall, many migrants in both groups want to re-migrate if government support is available: 61.7 percent of the group without social conflict experience and 64 percent of the group with social conflict experience had thoughts of moving to another location if they could get support from the government, e.g., adequate housing and appropriate environmental capacity to support their livelihood as fishermen. They were willing to move again to find a comfortable place to live and find a job or a place with large of fish stocks, and to improve their living standard. Many migrants in both groups think that through re-migration, they will be able to receive benefits like new houses and land from the government. Especially, the group

without social conflict experience does not want to re-migrate. This group felt a high degree of satisfaction that was a result of their gradual increase in income. On the other hand, the group with social conflict experience wants to re-migrate even without support. Many migrants in the group sold their houses before migrating to the Zoo conservation area. They did not have houses when they migrated to the migration area after the social conflict happened. This made it difficult for them to settle in the migration area. They had to stay at their neighbor's house or return to their families.

Quality of life (QOL) comes from an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, values and concerns incorporating physical health, psychological state, level of independence, social relations, personal beliefs and their relationship to salient features of the environment. Quality of life refers to a subjective evaluation which is embedded in a cultural, social and environmental context (WHOQOL Group, 1995). Many factors influence quality of life, i.e., physical, spiritual and health state, independence level, social economic in relationship with the environment and others (Ruzevicius, 2006; Shin, 1979; Bagdoniene, 2000).

The dream of migrants when following transmigration is to improve their quality of life. Nevertheless, they may not necessarily improve their quality of life through the transmigration program. The migrants fishermen indicate that QOL condition they are still not entirely good compare than indigeneous people, especially for fishermen who experience conflict. The QOL level of migrants group without SC experience felt comfortable than group without social conflict experience because

they had less psychological stress. In addition, it was easy for them to catch fish due to good quality sea environment. In other hand, group with social conflict experience were bad QOL, especially on environmental, psychological and social domains. The quality of the natural environment is directly related to people's quality of life. Unfavorable environmental conditions that make them vulnerable to decreased quality of life, physical conditions and discomfort to the environmental. Low psychologically and socially are as a result of the social conflict . They did not have accommodation and land. This made them feel like they were of low social status.

Component analysis of socioeconomic status (SES), environmental qualities (EQ) and community health (CH) variables are good living condition, affluence, poverty and community health. Good living conditions only influenced social and environmental domains. Good living condition was formed from factors of environmental qualities in 2010, community health perception in 2010, changes on environmental qualities and community health during at just migration up to at the time of study. Good living conditions after migration resulted in increased income and this in turn improved their social status. They were also able to improve their environmental quality. Group without social conflict experience have better good living condition than group with social conflict experience. Group with social conflict (SC) experience was more concerned with getting decent income and housing rather than thinking about the environment and health.

4.2 Changes in variables and living conditions of migrants who experience catastrophes.

Socioeconomic status (SES) of migrants who have experience catastrophes significantly decrease after secondary migration to West Java province in 2002. This situation same with Raharto's research. Sporadic migrant' income decreased because of no settling preparation (Raharto edited by Abe and Ishii, 2000). They lost their capital and property before moved to a second location. Migrants had to adapt again in a second location, and the adaptation process greatly affected their success in raising their standard of living (Riady, 1994). The problem was that they received only a home garden of 0.01 ha in 2002, with no areas for food crop production. Secondary migration has not given effect to increase their income. They become difficult to improve their income since the government did not give agriculture land support. These migrants are mostly of the farmer who need agriculture land area for develop livelihood. Ownership of agricultural land is essential factors for the improvement of the condition of their SES. The minimum amount of agricultural land needed to generate a good income for farmers in West Java province is 1 ha (Sumarno and Kartasasmita, 2010). However, migrant incomes slowly improved in the time of study (2011). Migrants worked as laborers on indigenous people's farms although they did have not farm land. Overall, migrant income was smaller than the income of indigeneous people. Migrants found it difficult to find other jobs because of low education level. While, indigeneous people have a better education than migrants. Indigeneous people have also more farmland than migrants and indigeneous people did not need to adapt to the environment situation. It made them

felt comfortable stayed in their place.

The decrease in income levels of migrants who have experienced catastrophes during transmigration has a linear link to their environmental qualities and community health. The vulnerability of migrants who have experienced catastrophes is the result of limited resources, a poor economy and fragile physical environments (IOM, 2007). Migrants felt uncomfortable about their environment because they were unable to improve their environmental conditions due to insufficient income, lack of infrastructure (inadequate public water, bad road conditions, lack of public toilets and drainage). There was also limited agricultural land which forced migrants to exploit forests.

They were also unhappy with health facilities in their community. The health seeking behavior of local migrants in West Java was poor due to the lack of land (Murtiningsih, 2011). The poor economy also made them particularly vulnerable to diseases. The community health perception of migrants did not improve after their migration. The migrants did not have any land so they were unable to increase their income. They also do not have enough money for medical treatment. In addition, their low income made it difficult for them to improve their housing conditions and sanitation.

Similar to fishermen migrants, 63.5 percentage of households migrants who experience conflict also expressed their desire to move to others area if the support from the government is available. Decreasing their income from 2002 to 2011 and narrow land ownership encourage them to desire to move again. Land areas that given by government around 144 m2 are not sufficient to meet the needs of farmers.

This land areas just fulfill for housing. An important note that unavailability farming land area will make their income gradually become low (Sjamsuddin, 1987; Nasoetion and Sitanala, 1983 and Kakisina, 2010). Most transmigrant in this second areas are sharecroppers, the farmers work in the other land area ownership to plant paddy. Surely, the amount of salary is determined by the ability of land owners. This condition makes migrants are powerless to get a decent income. The minimal standard land areas in West Java in order to improve farmer' income is 2 ha per household (Department of Agriculture, 2010). The other migration reason was many migrants think that through re-migration, they will be able to receive benefits like new houses and land from the government.

The migrants who experience catastrophes indicate that QOL conditions are still not entirely good compared to indigenous people, especially with psychological, environmental, general health and overall QOL. Migrants have psychological stress due to such catastrophic experiences. Limited land and low income made it difficult for them to improve their environmental conditions. Migrants did not also have enough money for medical treatment and improvement of sanitation in their communities.

Component analysis of socioeconomic status (SES), environmental qualities (EQ) and community health (CH) variables are affluence, living conditions, poor environmental conditions and community health. Affluence negatively influenced their overall QOL, psychological and environmental domains. Affluence was formed through some variables of income before 2002, income changes in 2000 up to 2002, and land ownership before 2002. Migrants felt more affluence before migration due

to the possession of big pieces of land, as well as high income, so this has affected their current QOL. They feel that what they possessed previously is better than what they have currently. This condition is indicated in Yulinisiah's (1996) research that stated that migrant farmers who had land had a positive correlation with QOL. Poor environmental conditions influenced their environmental domain. Poor environmental conditions were formed through some variables of poor quality drinking water in 2002 and 2011, water stagnation in 2002 and deforestation in 2012. Poor sanitation (water stagnation and poor quality drinking water) resulted in poor environmental conditions. Migrant affluence before migration was better than indigenous people in the same time. Migrants had bigger pieces of agricultural land than indigenous people, which made it easier for them to get money in comparison to indigenous people Migrants did not have enough money to improve their living and housing conditions, as well as drinking water quality and sanitation. Migrants' living condition and community health was worse than indigenous people. Migrants did not have enough money to improve their living and housing conditions, as well as drinking water quality and sanitation.

CHAPTER V: CONCLUSION

To conclude this study, we found first, that migrant fishermen have been able to improve their living conditions (socioeconomic status, environmental qualities and community health) during their 25 years in migration areas. By the time of study in 2010, the income of the fishermen had consistently increased (along with the amount of fish caught). They are, however, still susceptible to decline in living conditions, especially for the group with SC experience. It is difficult for them to rapidly increase their income while relying on small-scale fishing. Their parents fished as an occupation and that is all this next generation has done since they were children, so they had little chance to get an education before they migrated. Low education made it difficult for the fishermen who migrated to look for new occupations, although some of them became small business owners and earned more money than as fishermen. In addition, a few migrants find it difficult to go to the health center because of medical treatment fees, even though many migrants still go there when they have health problems. They realized environmental degradation such as water stagnation, abrasion, and household garbage had become more serious. The group's perception of deteriorating environmental qualities did not increase conflict experiences after migration.

Second, the living conditions (socioeconomic status, environmental qualities and community health) of migrants with catastrophic experiences have worsened throughout the years, even though they have been living in the migration areas for 9 years. The transmigration program's second migration in Mekarjaya, after

a catastrophe, was very different from its first. Migrants had to adapt again in a second location and the adaptation process greatly affected success in raising their standard of living. When they relocated in 2002, they only received a home garden of 0.01 ha, with no areas for food crop production. This relative lack of agricultural land made it difficult for them to make a living. In this earlier migration, the number of farmer migrants decreased as compared to when they were outside of Java. Naturally, the economic and social development of a transmigrant community will fail without suitable natural resources. In addition, low levels of education prevent migrants from finding better jobs. Nevertheless, their income, even though still lower than that of indigenous people at the time of study, has improved.

Third, transmigration does not seem to improve migrants' QOL since migrants' QOL did not become better with migration. The transmigration program did not have positive implications to improve migrants' QOL for both migrant cases. QOL both of cases was lower than indigeneous people. The generally low QOL score of each domain may reflect the characteristics of migrants such as low education level, low income and perception of environmental degradation. Income is most important for fishermen migrants to make good QOL condition.

Fourth, migrants' degree of satisfaction in migration areas was low due to social conflict experience hence the desire to re-migrate if government support is available. However, many migrants had thoughts of moving to another location if they could get support from the government, e.g., adequate housing and appropriate environmental capacity to support their livelihood as fishermen and farmers. They

were willing to move again to improve their living standard with migration or resettlement program.

Fifth, migrants need continuous support and guidance from the government especially in terms of preparing farming land areas for farmers and subsidies like insurance and capital for fishermen in order to upgrade their living conditions and QOL. Sufficient farmland is a major prerequisite for the migrant farmers to seek livelihood. Migrant farmers can increase their income if they have large farmland. But their income will decrease and below the average income of farmers if they did not have farmland. For migrant fishermen, assistance by the government in early migration in the migration area was not enough to raise a decent income for migrants. They still need assistance, aid sufficient capital to expand capacity and also insurance due to they have a high risk job.

REFERENCES

Adhiati, M., S.A. Adriani., A. Bobsien (2001) Indonesia's transmigration programme – An update: A report prepared for down to earth. *International Campaign for Ecological Justice in Indonesia*. [http://www.downtoearth-indonesia.org].

Adicondro, G.J., 1986. *Datang Dengan Kapal, Tidur Di Pasar, Buang Air Di Kali, Pulang Naik Pesawat* (Arrive by Boat, Sleep in the Market, Urinate in the River, Return Home in an Aeroplane). *Yayasan Pengembangan Masyarakat Desa Irian Jaya*. Jayapura.

Agusril (1994) Evaluation study on socioeconomic and psychological aspects of Migrants community in HTI-Trans program (*Studi evaluasi aspek sosial ekonomi dan psikologi masyarakat transmigrasi peserta program HTI-Trans*). Thesis. Bogor: Bogor Agriculture University. (In Indonesian).

Anata, A (2003). The Indonesian Crisis: A Human Development Perspective. *Institute of Southeast Asian Studies*. pp. 229–230.

Andrews, F.M., S.B. Withey (1976) *Social Indicators of Wellbeing: Americans' Perceptions of Life Quality*. New York: Plenum Press.

Angelsen, A, (1995), 'Shifting cultivation and "deforestation": a study from Indonesia', *World Development* 23(10):1713-1729.

Altman, D.G. (1991) *Practical statistics for medical research*. London: Chapman and Hall.

Almubarok, I.Z (2006). *Ditargetkan Transmigrasi 20.500 Keluarga* (Target of 25,000 Families set for Transmigration). *Berita Ketransmigration (Transmigration News). Departeman Tenaga Kerja dan Transmigrasi* (Department of Manpower and Transmigration). (Indonesian)

Bank Indonesia (2012) *Exchanges rates of bank notes*. [http://www.bi.go.id/web/en/Moneter].

Badan Pusat Statistik-Statistic Indonesia (1995) *Estimates of fertility, mortality and migration: Results of the 2000 Population Census*. Jakarta: Bada Pusat Statistik press. (In Indonesian).

BBC News (2005) Asia-Pacific-Indonesia quake toll jumps again. Retrived 2012

Bilsborrow., R.E., H.W.O.O. Ogendo (1992) Population-driven changes in land use in developing countries. *Allen Press on behalf of Royal Swedish Academy of Sciences*, 37-45.

Bower, G.H (2000) *A Brief History of Memory Research*. In E. Tulving and F. I. M. Craik (eds.) The Oxford Handbook of Memory. Oxford University press; pp: 3-32

Bowden A and J.A Fox-Rushby (2003) A systematic and critical review of the process of translation and adaptation of generic health-related quality of life measures in Africa, Asia, Eastern Europe, the Middle East, South America, *Soc. Sci. Med*; 57 (7): 1289-1306.

Broad, R. (1994) The poor and the environment: Friend of foes?. *World Development* 22(6): 811-812.

Brockerhoff M (1990) Rural to urban migration and child survival in Senegal. *J. Demography*; 27: 601-616.

Campbell, A., P.E. Converse., W.L. Rodgers., (1976) *The quality of American life: Perceptions, evaluations and satisfactions*. New York: Publications of Russell Sage Foundation.

Case, K., R. Fair (2007). *Principles of economics*. Upper Saddle River, NJ: Pearson International Education Publishing.

Casson A (2000) The hesitant boom: Indonesian's oil palm sub-sector in an era of economic crisis and political change. CIFOR, Bogor, Indonesia.

Cassels, S., S.R. Curran., R. Kramer (2003) Do migrants degrade coastal environments? Migration, natural resource extraction and poverty in North Sulawesi, Indonesia. *Human Ecology* 33(3): 329-363.

Central Bureau of Statistic (2010). Indonesian population report in 1981, 1988, 1993, 1999 and 2010. Central Bereau of Statistic, Jakarta. (in Indonesia)

Chambers, R (1992) Rural Appraisal: Rapid, Relaxed and Participatory. Institute of Development Studies, Brighton; pp: 90

Demarest, E.J., E.R. Reisner., L.M. Anderson., D.C. Humphrey., E. Farquhar., S.E. Stein (1993) *Review of research on achieving the nation's readiness goal.* Washington DC:

Donner W (1987) *Land use and Environment in Indonesia*. University of Hawai Press. Honolulu. U.S. Department of Education press.

Erman, S. (2008) New paradigm of transmigration: Toward the people prosperity (*Paradigma baru transmigrasi: menuju kemakmuran rakyat*). Jakarta: Ministry of Manpower and Transmigration (in Indonesian)

Fernea, E.W., and R.A. Fernea (1991) *Nubian Ethnographies*. Prospect Heights, IL: Waveland Press.

Fearnside, P.M. (1997) Transmigration in Indonesia: Lessons from its environmental and social impacts. National Institute for Research in the Amazon. *Environmental Management* 21(4): 553-570.

Frey, B.S., & Stutzer, A. (2002). *Happines and Economics*. Princeton, NJ: Princeton University

Gardiner P (1992) Development, human settlement and pressure on forest resources in the Indonesian frontier. Proceedings of the Seminar on Population and Deforestation in the Humid Tropic, November 30-December 3, Brazil.

Goldman, M (2006). *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*. Yale University Press. p. 299.

Goodman, L.A (1961) Snowball sampling. Annals of Mathematical Statistics 1961; 32, (1): 148–170.

Goss, J.D (1992) Transmigration in Maluku: Notes of present condition and future prospects. *Cakalele*; 3: 87-98.

Grossman, G.M., A.B. Krueger (1991) Environmental impacts of a North-American free trade agreement. National Bureau of Economic Research, NBER Working Paper No. 3914.

Hadisoegondo, S.W (1986) *Pengembangan usahatani melalui pola PIR di daerah transmigrasi Kecamatan Lainea dan Tinanggea, Sulawesi Tenggara* (Development Agribusiness through PIR system in transmigration area of Lainea and Tinanggea, Sulawesi Tenggara). Thesis. IPB

Hardjono, J. M. (1997) *Transmigration in Indonesia*. Kuala Lumpur: Oxford University Press.

Harttgen K and Klasen S (2009) A human development index by internal migration status. Human Development Research Paper No. 54, *United Nations Development Programme, Human Development Report Reseach Paper*, New York.

Hayashida (2006) Transmigration policy and regional development in Indonesia-Evolution since the Midle of 1979s-. *Journal of The Social Sciences*. Bulletin of University. 76: 23-47.

Helmy, D (2000) *Penyakit Cacing di Unit Permukiman Transmigrasi Propinsi Bengkulu pada Anak Sekolah Dasar*. Center for Research and Development of Health Ecology, NIHRD.

Henson, R (1996) Short-term memory for serial order. Dissertation for PhD of Philosophy. St. John's College, University of Cambridge.

Heeren, H. J. 1979. *Transmigrate In Indonesia*. Jakarta. Gramedia.

Hugo, G. (2006) Forced migration in Indonesia: Historical perspectives. *J Asia and Pacific Migration* 15(1): 53-92.

Holden, S., H. Hvoslef (1995) Transmigration settlements in Seberida, Sumatra: Deterioration of farming systems in a rain forest environment. *Agriculture System* 49(3): 237 – 258

Hoppe, M., H. Faust (2002) *Transmigration and integration in Indonesia - Impacts on resource use in the Napu Valley, Central-Sulawesi*. Project Report. Gotingen: University of Gottingen press.

Indonesian government (1958). Indonesian government act no. 58/1958 concern on transmigration in Indonesia. Jakarta (in Indonesia)

Joreskog, K.G., D. Sorbom (1999) *LISREL 8: User's Reference Guide*. Lincolnwood, IL: Scientific Software International, Inc.

Johnson, D.L., S.H. Ambrose, T.J. Bassett, M.L. Bowen, D.E. Crummey, J.S. Isaacson, D.N. Johnson, P. Lamb, M. Saul, and A.E. Winter-Nelson (1997). "Meanings of environmental terms." *Journal of Environmental Quality.* 26: 581-589.

Kahana, M. J., M.W. Howard, F. Zaromb, A. Wingfield (2002). Age dissociates recency and lag recency effects in free recall. *Journal of Experimental Psychology*: Learning, Memory, & Cognition 28:530-540.

Kahneman, D., Krueger, A.B., Schkade, D., Schwarz, N., & Stone., A. (2004). Toward National Well-being accounts. *AEA Papers and Proceedings*, 99:2, 429-434

Kakisina, L.O (2010) The Analysis of Household Income and Poverty in the Transmigration Area (A Case in Waihatu Village, Kairatu Subdistrict, West

Seram District, Maluku Province). *Jurnal Budidaya Pertanian (Agriculture Journal)* 7: 65-71.

Kebschul, D. (1983) *Transmigration in Indonesia: An empirical analysis of motivavion, expectations and experiences*. Hamburg: Publication of HWWA-Institut for Wirtschaftforschung.

Ketterings, Q.M., T.T. Wibowo, M. Van Noordwijk, M. Penot (1999) Farmers' perspective on slash-and-burn as a land clearing method for small-scale rubber producers in Sepunggur, Jambi Province, Sumatra, Indonesia. *Forest Ecology and Management* 120: 157-169.

Khaeron, H (2007) *Evaluasi Dampak Relokasi Nelayan Kali Adem Terhadap Masyarakat Desa Karang Song Indramayu* (Evaluation of fishermen relocation effect in Karang Song village, Indramayu). Thesis. IPB (Indonesian)

Kingsbury, D (2003). *Autonomy and Disintegration in Indonesia*. Routledge. p. 131. ISBN 0-415-29737-0.

Kramer R.A., S.H.M Simanjuntak and C. Liese (2002) Migration and fishing in Indonesian coastal villages. *Ambio*; 31, 367-371.

Kroeger A (1983) Anthropological and Socio-medical health care research in developing countries. *Soc Sci Med*; 17, (3), 147-161.

Kuniyasu M and Tetsuya S (2002) Environments and people of sumatran peat swamp forests I: Distribution and typology of vegetation. Southeast Asian Stud; 40: 74-86

Lansing, J.S (1987). "Balinese "Water Temples" and the Management of Irrigation". *American Anthropologist* 89 (2): 326–341.

Lehanne, L., M.J. Ditton (2012) Social determinants of health, coping and quality of life in migrants from Burma in Sangkhlaburi District, Thailand. [http://asiapacific.anu.edu.au]

Leonard, H.J (1989). Environment and the poor: Development strategies for a common agenda. 89. New Brunswick, NJ, Transaction Books for the Overseas Development Council.

Lersner, U.V., U. Wiens., T. Elbert., F. Neuner (2008) Mental health of returnees: refugees in Germany prior to their state-sponsored repatriation. *BMC International Health and Human Rights* 8: 8.

Levesque and SPSS Inc (2007) *Programming and data management for SPSS statistic 17.0*. SPSS Inc.

Levang, P., B.K. Yoza., D. Etty., H. Etty (1999) *Not every cloud has a silver lining: crop farmers in transmigration areas*. ACIAR Indonesian research project. Working paper 99: 16.

Lewis, M.P (2009). "Ethnologue: Languages of the World, Sixteenth edition.". SIL International. Retrieved 2009-11-17.

Li, X., B. Stanton., X. Fang., D. Lin (2006) Social stigma and mental health among rural-to-urban migrants in China: A conceptual framework and future research needs. *World Health & Population* 8(3): 14–31.

Logan, J.R (1850). "The Ethnology of the Indian Archipelago: Embracing Enquiries into the Continental Relations of the Indo-Pacific Islanders".*Journal of the Indian Archipelago and Eastern Asia (JIAEA)*: 4:252–347.

Nasikun (1996) *Urbanisasi dan Kemiskinan di Dunia Ketiga* (Urbanization and Poverty in Third World. PT. Tiara Wacana. Yogyakarta

National Development Planning Agency (2011) Evaluation on agricultural revitalization to improve farmer prosperity. Info Kajian BAPPENAS; 8(2): 40-45 (in Indonesia)

Nawi N.G., M. Hakimi, P. Byass., S. Wilopo., S. Wall (2010) Health and quality of life among older rural people in Purworejo District, Indonesia. *INDEPTH WHO Sage Suplement*.

Meiyanti., J.V., J.I. Kalumpia., J.I. Mulia (2009) Anemia decreases quality of life of the elderly in Jakarta. *Universa Medinica* (28): 3

Merdekawaty, E. (2006). ""Bahasa Indonesia and languages of Indonesia"(PDF). *UNIBZ – Introduction to Linguistics*. Free University of Bozen.

Ministy of Agriculture (1978) Decree of the Minister of Agriculture, 429/Kpts-II, Ministry of Agriculture.Jakarta. (in Indonesia)

Mubyarto (2000) *Economic system development*. BPFE Press, Yogyakarta (in Indonesia)

Murphy, B., H. Helen., H, Graeme., P. Tony., E. Helen., (2000) *Australian WHOQOL-100, WHOQOL-BREF and CA-WHOQOL Intruments: User's Manual and Interpretation Guide*. University of Melbourne press

PACIFIC Exchange Rate Service (2009) *Foreign currency units per 1 USD, 1948 – 2009*. [http://fx.sauder.ubc.ca/etc/USDpages.pdf].

Raharto, A. (2001) *The impact of rural to rural migration on destination areas: the Indonesia experience*. Jakarta: Center for population and manpower studies press

Rattner, H (1988) The Colonization and Occupation of Brazilian Amazonia" In Agricultural Expansion and Pioneer Settlements in the Humid Tropics, eds. W. Manshard and W. B. Morgan. Tokyo: United Nations University Press, 1988. http://www.unu.edu/unupress/unubooks/80636EOO.htm

Riady, M.G. (1993) Adaptation of the Migrants and some of factors influence it : case study in a residential area of East Kalimantan Province) (*Adaptasi Masyarakat Transmigran dan Beberapa Faktor yang mempengaruhinya : studi kasus di daerah pemukiman transmigrasi kota Bangun Propinsi Kalimantan Timur*). Indonesian University press (In Indonesia)

Richmond, A. (1993) The environment and refugees: theoretical and policy issues. *Revised version of a paper presented at the meetings of the International Union for the Scientific Study of Population*.

Ricklefs M.C (1981) *A History of Modern Indonesia Since 1200*. Stanford University press, California 1981.

Roberts, D (1994) Participatory models of evaluation. Proceedings of the International Conference on Australasian Evaluation Society, 'Evaluation: Making Performance Count', Australasian Evaluation Society on December 1994, Canberra.

Setiati, S., K. Harimurti., E. Dewiasty., R. Istanti (2011) Predictors and scoring system for health-related quality of life in an Indonesian community - dwelling elderly population. *Acta Med Indonesia-Indonesia J Intern Med* (43): 4

Sheil, D., Puri, R., M., Basuki, I., van Heist, M., Liswanti, N., Rukmiyanti, Rachmatika, I and Samsoedin, I (2006) Recognizing local people's priorities for tropical forest biodiversity. *Ambio* 35: 17-24

Sierra, R. (2001) The role of domestic timber markets in tropical deforestation and forest degradation in Ecuador: Implications for conservation planning and policy. *Ecological Economics* 36 (2001) 327–340

Silva, J., F. de Keulenaer., N. Johnstone (2012) *Environmental quality and life satisfaction: evidence based on micro-data*. OECD Environment Working Papers, No. 44. OECD Publishing

Sharma, K and P.S.N Tiwari (2010) A psychological study of socio-economic status and well-being. *Int. J. Educ. Allied Sci*; 2: 201-207.

Sjamsudiin, P.H (1987) *Evaluasi Dampak Transmigrasi Terhadap Peningkatan Pendapatan Dan Pola Pengeluaran Warga Transmigrasi Dan Masyarakat Sekitarnya Di Kabupaten Kendari, Sulawesi Tenggara (*Evaluation on Transmigration Impact of imcome and expenditure in Kendari, Sulawesi Tenggara). Thesis. Bogor Agricultural University (Indonesian)

Skevington, S.M (2002) Advancing cross-cultural research on quality of life: Observations drawn from the WHOQOL development. Quality Life Res; 11: 135–144.

Skevington SM, M. Lotfy., K.A. O'Connell (2004) The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial, A report from the WHOQOL Group, Qual Life Res (13), 299–310

Smith, N (1981) Colonization Lessons from a Tropical Forest. *Science 214*, no. 4522 755-761.

Sudiati (2008) Indonesia's empowerment program in theory and practice a case study of Koleberes West Java. Flinders University press

Suhrke, A. (1981) Global Refugee Movements and Strategies, An Overview", Paper presented to the Wingspread Workshop on Immigration and Refugees. Sponsored by The Rockefeller, Ford and Johnson Foundations.

Sumarno., U.G., Kartasasmita (2010) Poor small farmer under increasing rice productivity (*Kemelaratan bagi petani kecil di balik kenaikan produktivitas padi*). *Sinar tani paper* (3335): 18 (In Indonesian)

Sunarti (2009) *Indikator Kerentanan Keluarga Petani dan Nelayan* (Vulnerbility Indicators of Farmers and Fishermen). LPPM IPB. Bogor (In Indonesian)

Sunderlin, W.D. (1999) *The effects of economic crisis and political change on Indonesia's forestry sector*. Programme on the underlying causes of deforestation. Centre for International Forestry Research press

Sunderlin, W.D., and Ida A.P (1996) Rates and Causes of Deforestation in Indonesia: Towards a Resolution of the Ambiguities. Centre for International Forestry Research. Bogor

Sunderlin, W. D. and I. A. P. Resosudarmo (2001). Rate and Causes of Deforestation in Indonesia: Towards a Resolution of the Ambiguities, 11 November 2001, www.cifor.org/publications/html/occpaper9/

Supadrdjo, S.D 1985. *Transmigrasi nelayan di Indonesia (Fishermen migration in Indonesia)*. Yogyakarta: Faculty of Agricultural, Gajah Mada University.

Suratman and Guiness P (1977) The changing focus of transmigration. *Bull. Indonesian Econ. Stud*; 13: 78-101.

Syafkhradi, (2002) Kesejahteraan penduduk desa transmigrasi di kecamatan Banjar Agung (Transmigran welfare in Banjar Agung Sub-district). Thesis. UI

Teh LSL, Teh LCL and Sumaila UR (2011) Quantifying the overlooked socio-economic contribution of small-scale fisheries in Sabah, Malaysia. *Fish. Res*; 110: 450– 458.

The World Bank Group (1992) Indonesia transmigration program: a review of five bank-suported projects [http://lnweb90.worldbank.org/oed/oeddoclib.nsf/DocUNIDViewForJavaSearch/777331DDD0B6239C852567F5005CE5E2]. Washinton.

The World Bank Group (2011) Transmigration in Indonesia. [http://lnweb90.worldbank.org/oed/oeddoclib.nsf/DocUNIDViewForJavaSearch/4B8B0E01445D8351852567F5005D87B8]. Washinton

Tirtosudarmo R (2001). Demography and Security: The Transmigration Policy in Indonesia. In: Demography and National Security, Weiner, M. and S. Stanton (Eds.). Berghahn Books, Boston; pp: 199-227

Tirtosudarmo R (2009) Mobility and human development in Indonesia. Human Development Research Paper, 19, United Nations Development Programme, Human Development report office, New York

Tjiptoherijanto P (2003) Relationship between transmigration, urbanization and poverty alleviation in Indonesia. *Indonesia's Economic and Moneter*, (7): 1.

UNDP (2009) Human mobility and development. United Nations Development Programme-Human Development Index report office, New York.

Vidyattama, Y (2008) Patterns of provincial economic growth in Indonesia. Ph.D. Thesis, Australian National University, Canberra.

Warsito, R et al (1995) *Transmigrasi Dari Daerah Asal Sampai Benturtan Budaya di Tempat Pemukiman* (Transmigration from original areas and culture impact in migration areas). Raja Grafindo Pusaka: Jakarta

WHOQOL Group (1994). Development of the WHOQOL: Rationale and current status. *International Journal of Mental Health*, 23(3): 24–56.

World Bank. Indonesia: The Transmigration Program in Perspective. World Bank, Washinton DC 1988.

World Bank (2012) GNI per capita, Atlas method (current US$). Washinton 2012. http://data.worldbank.org/indicator/NY.GNP.PCAP.CD/countries?page=5&display=default

World Commission on Environment and Development. 1987. *From One Earth to One World: An Overview.* Oxford: Oxford University Press.

World Health Organization (2004) *The World Health Organization Quality of Life (WHOQOL)-BREF*. Publications of the World Health Organization

Worldwide Inflation (2012) *History CPI inflation Indonesia: yearly basis*. [http://www.inflation.eu].

Zaman, M.Q (1982) Crisis in Chittagong Hill Tracts: Ethnicity and Integration. *Economic and Political Weekly 17, no. 3* : 75-80.

APPENDIX: Questionairres

1. Stakeholders discussion

The participant targets of discussion are district transmigration officer, head of villages, traditional leader, head of farmer group, education officer, and health center officer.

No	Categories	Question	Before migration	Just after migration	At the time of study
1.	Villages history	Can you tell me of village history?			
2.	Socio-economic problems	Can you describe the socio-economic problems related to transmigration program? - Education problems. - Poverty problems. - Gender problems. - Overpopulation problems. - Conflict. How did you solve these problems?			
3.	Environmental qualities	Can you describe the ecological problems related to transmigration program? - Pollution problem (ground water pollution, air pollution, industry pollution, etc). - Deforestation problem. - Carrying capacity problem (food availability, sanitation, water supply, and living			

		space). - Loss biodiversity. - Destroy ecosystem. How did you solve these problems			
4.	Community health	Can you describe the community health related to transmigration program? - Diseases event (Malaria, cancer, diabetes, abortion, common cold, diarrhea, influenza, respiratory diseases, etc). - Health services and facilities condition. - Village sanitation problems			

2. Households respondents

A. Socio-Economic Status Survey and satisfaction level					
No	Categories	Question	Answer		
1.	Individual identity	Name Sex Age Present address: Ethnic: Long stay at this area:			
2.	Education	What's your education background?	Illiterate, primary school, junior high school and senior high school.		
			Before Migration	Just after migration	Time of study
3.	Population	Total of household members?			

4.	Job	What is your job? (Jobless., Labour, Business, Cultivation/Farmer, Service, Fishermen, Government employee, Etc). What reason did you choose this job?			
5.	Subsistence activities	What types of subsistence activities did you do? (Gathering, hunting, animal husbandry,fishing, agriculture). Can you explain details about your subsistence activities? (Process) How is your method each activity? Do you use technology? Do you have knowledge about these activities?			
6.	Monthly Income	Agriculture product: Business income: Service income: Land tenure: Government salary: Other salary income: Livestock income: Fisheries income: Temporary work: Others	IDR	IDR	IDR
7.	Asset	Do you have asset? What kind asset do you have? (Land areas size)			
8.	Transmigration history	Can you tell me about transmigration history in this area? (Condition/situation) How can you adaptation with local people and environment?			

9.	Government support	Did you get training, capital, facilities and service from government? Can you tell me?			
10.	Transmigration empowerment	Does the government give you empowerment program? Do they give a money loan for agriculture/fisheries?			
11.	Individual facilities	Do you have transportation facilities? (Bicycle, car, motorcycle, ship, etc).			
12.	Institutional	Did you involve to community activities or institutional in transmigration area? (Cooperatives, sport, religious, art, etc).			
13.	General facilities	How many schools, central market, mosque/church in this village? Are there oil/gas stations?			
14.	Dream	What are your and family dream in the future? (Better education, income, house, etc) Do you want re-migrate to others areas if government support is available? (Yes or no)			
15.	Social conflict	Have you ever experienced a social conflict with other migrants or indigenous people, government authorities and company? Why did this conflict happened? How did the conflict resolution/solved?			

B. Environmental Qualities					
1.	Environmental qualities	Can you describe environment condition in this area? (Deforestation, flood, water stagnation, poor quality drinking water, abration, garbage, others). Why environment changes were happened? (clearing forest, not good government policy, industry, bad activities, overpopulation, etc) Can you explain in detail why these factors can affect the environmental damage?			
2.	Perception	Can you described the environmental qualities according to your perception? (-1 . Bad condition, 0. Average/stable, 1. Good condition)			
C. Community health					
1.	Diseases events	What kind of health problems? (Malaria, cancer, diabetes, abortion, common cold, diarrhea, influenza, respiratory diseases, etc)			
2.	Health service	How are health facilities and service in this area? How many hospital and doctor do the villages have?			

3.	Health seeking behavior	How are your health treatment capabilities? - No health center - Prefer use traditional medicine - Visited health center - No money for medical treatment - Others			
4.	Perception	Can you described the environmental qualities according to your perception? (-1 . Bad condition, 0. Average/stable, 1. Good condition)			

3. Quality of Life (WHO-BREF Questionairess)

The following questions ask how you feel about your quality of life, health, or other areas of your life. I will read out each question to you, along with the response options. Please choose the answer that appears most appropriate. If you are unsure about which response to give to a question, the first response you think of is often the best one. Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last four weeks.

No	Question	Very poor	Poor	Neither poor nor good	Good	Very good
1.	How would you rate your quality of life?	1	2	3	4	5

No	Question	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2.	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about how much you have experienced certain things in the last four weeks.

No	Question	Not at all	A little	A moderate amount	Very much	An extreme amount
3.	To what extent do you feel that physical pain prevents you from doing what you need to do?	5	4	3	2	1
4.	How much do you need any medical treatment to function in your daily life?	5	4	3	2	1
5.	How much do you enjoy life?	1	2	3	4	5
6.	To what extent do you feel your life to be meaningful?	1	2	3	4	5
7.	How well are you able to concentrate?	1	2	3	4	5
8.	How safe do you feel in your daily life?	1	2	3	4	5
9.	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

No	Question	Not at all	A little	Moderate	Mostly	Completely
10.	Do you have enough energy for everyday life?	1	2	3	4	5
11.	Are you able to accept your bodily appearance?	1	2	3	4	5
12.	Have you enough money to meet your needs?	1	2	3	4	5
13.	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14.	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

No	Question	Very poor	Poor	Neither poor nor good	Good	Very good
15.	How well are you able to get around?	1	2	3	4	5

No	Question	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16.	How satisfied are you with your sleep?	1	2	3	4	5
17.	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18.	How satisfied are you with your capacity for work?	1	2	3	4	5
19.	How satisfied are you with yourself?	1	2	3	4	5
20.	How satisfied are you with your personal relationships?	1	2	3	4	5
21.	How satisfied are you with your sex life?	1	2	3	4	5
22.	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23.	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24.	How satisfied are you with your access to health services?	1	2	3	4	5
25.	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in the last four weeks.

No	Question	Never	Seldom	Quite often	Very often	Always
26.	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

Do you have any comments about the assessment?

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