

The Economic Integration of Different Ecological Zones In Southern Sumatra In the Late Colonial Period

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1. Introduction

So far, the development of southern Sumatra has been explained by its integration into the world market. This view ignores the local ecological conditions, that offer opportunities and pose constraints for the local people to react to the opportunities of the world market. This article therefore gives an overview of the local ecological situation and the changing ways the people exploited their environment.

The study covers the period circa 1890 to 1940. This paper comes to three main questions, to what extent did local ecological conditions perceive the necessity of promoting economic structure in southern Sumatra in any way significantly different emerging in other regions, particularly Java from the late nineteenth century to late colonial period? To what extent was the local ecological situations either constrained or encouraged the development of southern Sumatra economy? To what extent were the people able to adapt ecological conditions in favour their economic opportunities?

2. Land and Rivers

Southern Sumatra, as used here, comprised the four large, but under-populated, residencies in the southern part of the island of Sumatra during the colonial period; these are Jambi, Palembang, Bengkulu and Lampung residencies. It does not include the islands off the east coast and the west coast, such as Bangka, Belitung, and Enggano. These four residencies covered an area at 184,526 square kilometers, which has a range of different ecological zones.

The average temperature was 26c to 27c during the day. But in the hilly areas, the average temperature was lower. The rainy season was from November to April; November, December and January were the wettest months, and June to August were the driest months. The annual rainfall varied from less than two thousand millimeters to more than five thousands millimeters; the number of rainy days per year varied from less than one hundred to more than two hundred.

Southern Sumatra was separated from the other regions of Sumatra by natural boundaries of rivers and mountain ranges. Southern Sumatra is divided between high lying plains and low lying plains. The former comprises the western side of the island, part of the Barisan mountain range, while the latter comprises the low coastal plain of eastern Sumatra. Although there are narrow low plains along the west coast of Bengkulu Residency, most of the residency is mountainous, and occasionally volcanic. A similar feature could be seen in western Lampung and western Palembang, and in the northwest part of Jambi. However, the high plains were relatively isolated, because of the steep approaches and limited accessibility. Therefore, although some settlements were established in the mountain regions, growth was slower than along the rivers and in the western coastal plains, at least until the early twentieth century.

The second formation in southern Sumatra is the low lying plain, alluvial plains, peneplains, swampy areas and mangrove forests. These areas are less than 200 meters above sea level. Many parts of these lowlands are only 10-15 meters above sea level, or even lower. The low-

lands of southern Sumatra lie from the east of Lampung Bay to the northeastern part of Lampung Residency; the greater part of the low region was in the east coast of Palembang and Jambi Residencies.

Geographically, Bengkulu belongs to the Sumatra West Coast, Lampung has similar characteristics to both Bengkulu and Palembang. Most parts of Bengkulu and some parts of Lampung have a pronounced mountain belt with volcanic highlands, because nearly all parts of Bengkulu and the south western side of Lampung belong to the Barisan mountain ranges. The mountainous and hilly lands of Lampung and Bengkulu are situated between one hundred and more than one thousand meters above sea level, and contain many volcanoes. The lowlands of Bengkulu are located mostly along the west coast. These lowlands are 10-15 kilometres wide between Muko Muko and Ketahun, but became narrower to the south, where the mountains encroach. The north and eastern parts of Lampung are also lowland.

Soil conditions in Lampung and Bengkulu are very varied. The best soils consist of weatherable sands and fruitful silt from young volcanic lands, while the poorer soils contain miocene marl, clay stone, more acidic ejecta and older rock with richer silica material, which has been denuded of volcanic ejecta.

Southern Sumatra has many rivers, which form the main transportation network. Besides that, population density, formation of settlement, land fertility, patterns of occupation were also largely shaped by the rivers. The rivers which flow westward are mostly short and shallow; long and deep rivers flow through the eastern lowlands to the east coast. Thus almost all the rivers in Palembang, Jambi and north Lampung are long and navigable far inland; the rivers in south and west Lampung and in all parts of Bengkulu are short.

The most important river in Jambi Residency is the Batanghari River. It rises in the border with the Sumatra West Coast Residency, and flows for about eight hundred kilometers to the east

coast. Almost all the big rivers in the southern part of the region, are part of the Batanghari. Only the Tungkal River is not part of the Batanghari River, because it is in the north of the region.

The Musi River is the principal river in Palembang Residency, besides some other big rivers. It rises in the Dempo Mountains, and flows to the coast for more than five hundred kilometers, through many sub-districts, including Palembang town. As the principal river in the residency, the Musi River gave access to almost all its navigable rivers. A river transportation network was established across Palembang Residency. The economic position of the Musi River was secured by the fact that it is the only major river in Palembang Residency which has direct access to the sea. Some of the other rivers in Palembang Residency were connected to rivers in other residencies.

The rivers in the north and the central plains area of Lampung Residency have similar features to those in Palembang Residency. They rise near the border with Palembang Residency, and flow eastward into the Java Sea. Some of these rivers could be navigated by small boat through to towns in Palembang Residency, using natural canals in both residencies. Partly for this reason, the people in the border areas of Lampung sold their goods in the trading centres in Palembang Residency, such as Lahat, Muara Dua, Lubuk Linggau and Tebing Tinggi.

The biggest river in Lampung is the Tulang Bawang River. The Tulang Bawang River flows eastward through populated areas, including the important harbour of Menggala. However, most rivers in this part of residency were navigable for no more than 30 kilometers from their mouths, while others only provided irrigation water. The Semangka River is the only major river in the southwest of the residency. It is part of river which rises in the mountain ranges of Bengkulu Residency, then flows through the fertile areas of Belalau and Liwa plateau, before emptying into Semangka Bay.

There are many rivers in Bengkulu Residency, but only the Ketahun River

can be navigated far inland. These rivers flow westward into the Indian Ocean, through mountainous and hilly areas where the current becomes rapid. Sea vessels could be sailed only into the river mouth, from where their goods and passengers had to be taken by small boat.

Until the early twentieth century, almost all primary settlements, trading centres, harbours and cultivated fields were established along the river, except in the southern part of Lampung and in Bengkulu, where the people were concentrated in the mountains and in the coastal areas. In Palembang and Jambi where rivers were very important, the regions were divided between the *uluan* (upstream) and *iliran* (downstream) areas. This division distinguished the social, cultural, economic and political aspects between the communities. The *iliran* people regarded themselves as urban society with higher social status and more sophisticated culture. In terms of economy, the people in *uluan* areas concentrated mostly on agriculture, and became the main food suppliers for *iliran* areas and of other commodities for export. The *iliran* people tended to be traders.

In a river town such as Palembang and Jambi, where the river ran through the centre, all economic activities were carried out on the river. There were *warungs*, shops and restaurants floating on the Musi and the Batang Hari rivers. Temporary markets were also established, floating on the river. Traders with small *sampan* gathered at certain sites, or they moved along the canal or between the poles of houses to meet buyers.

The river was so important in transporting people, goods and agricultural production, particularly in Palembang and Jambi, until the early twentieth century, and indeed beyond, because roads and tracks were limited to a few kilometres around the urban centres. For example, travelling from Palembang to Lahat and Tebing Tinggi in the early twentieth century, T.J. Bezemer, a Dutch officer, had to sail along the Musi River and then along the Lematang River, before he reached Lahat and then Tebing Tinggi.

The people brought their production by small *sampan* (boat) from the producing areas to local *kalangan* or *pekan* (markets), from there the goods would be transported in bigger vessels to larger trading centres and harbours, such as Palembang, Menggala, Jambi, and Muara Sabak. Some producers transported their goods directly to the bigger trading centres in order to get better prices. In Palembang and Jambi Residencies and in part of north Lampung, river transportation was extremely important for export and import, because all the big harbours were located inland on the rivers. The geographical position of these harbours gave people easy access to Singapore, the great international emporium. In some places the people first had to walk several kilometers to a trading centre or to the river, from where a small boat or bamboo raft would bring them and their produce to the market. For people in the hinterland, a voyage to a major trading centre sometimes required a whole day or more. To make things easier, the people along Lampung Bay, in Tarahan, Ratai, Perdana and Punduh, goods were transported by small *perahu*, by sea, to the market in Teluk Betung.

In sailing into and out from these harbours, however, big ships were sometimes hindered by the narrowness and the shallowness of the river mouth and river basin, particularly during the dry season from June to September. Similar difficulties occurred on the voyages from and to the producing areas, local trading centres and principal harbours during the same season. The transportation of goods from and to the frontier areas, local trading centres and main towns could be totally cut off for several weeks, except if small *sampan* or *rakit* (bamboo rafts) were used.

The expansion of certain harbour were also disadvantaged or favoured by ecological conditions. The harbour in the Ketahun River was the only important river harbour in Bengkulu Residency due to ecological situations. The other harbours in the residency, Bengkulu, Krui and Bintuhan, were sea harbours. However all the sea harbours were regularly

hit by the rough seas of the Indian Ocean, particularly during the north-west monsoon. Consequently almost all goods going into and out from this residency were first transported by road to and from the harbours in Palembang, Lampung or Sumatra West Coast. However in the north, on the border with Jambi and west Sumatra, small rivers were also important for trade. For example, traders brought coffee, tobacco and forest products to the market in Muko-Muko, down the Selagan River.

Besides river road was another way of transport in southern Sumatra, but the road conditions were bad in the first decade of the twentieth century and indeed beyond. Although more roads were constructed from the beginning of twentieth century, a report in the 1920's still noted that roads in Lampung, Bengkulu, Palembang, and Jambi could hardly be used, especially during the wet season. The important role of foot-paths connected many places in southern Sumatra, however, could not be underestimated because those were the main land transport network used for economic activities.

The rivers were also important in determining the quality of the soils, which can be seen in several areas of southern Sumatra. The Rebang area of the north-west part of the Residency of Lampung was suited to agriculture because the three surrounding rivers—the Way Giham, the Way Rarem, and the Way Besar—flood it with lixivium soils from the young volcanic lands of the Tebak mountains. In contrast, the sediment rich in quartz sand brought in by the Way Seputih and the Way Sekampung rivers, create infertile soils in the lands between the rivers. The same poor land can be found in the low flats, dividing the rivers in the Rebang area. And further east, from Rebang to Tulang Bawang and up to Menggala, the rivers bring down sand and poor sediment from the mountains, which impoverish the surrounding land. In Bengkulu Residency, the Manna River has created the fertile plain of Tanjung Sakti, while the land near to Kepahiang flourished because of the rich sediment brought in from the Kaba volcano.

Thus the pattern of human settlement was also determined by the rivers. In the fertile Rebang area, dense settlement and agricultural holdings were found mostly along the rivers. In the impoverished lands around Tulang Bawang, there was no human settlement except along the rivers. Furthermore, population was scant in the lowlands along the Manna river, for the river left no rich sediment on the surrounding land. For most of the land in both residencies, the eruption of Krakatau in 1883 brought fertile ash which assisted agriculture.

Finally, the importance of ecological situations of the river for the economy of southern Sumatra can be seen from the failure of government policy in rearranging the settlement for local people in the first three decades of twentieth century. When more roads were constructed in the hinterlands, the colonial government planned to move people from their traditional settlements along the river to along the roads. When people had already moved to the new places, however, most of them soon returned to the old settlements in spite of threat from the government officials. The people action was mainly caused by the absent of natural support to their economic purposes. Previously, in the old *dusun* the people had an easy access to the land where cultivation taking place, and they could bring their product easily to the nearest market through the river. In the new settlements, besides the people might be staying outside the boundaries of their *marga* which put them being landless people, it was not rarely that they had to walk in far distance and cross the river to reach their cultivated field in the old places. Since the land around the new constructed roads were mainly *talang* land and far from the river, people were also disadvantaged by the absent of the fertile *renah* lands for the cultivation and fishing activity. Moreover, the roads where they were staying now connected not to their traditional market, where people usually marketing their products. Consequently, many people then decided return to the old settlements and left the new ones just for few people or empty. It was not until the new settle-

ment along the road in the *talang* zones able to provide substantial economic benefit in the late 1920's, there were more people begin to moving away from the river to along the roads.

3. Agricultural Environment and Subsistence

In terms of agricultural purposes, the mountainous and hilly regions of southern Sumatra were fertile, due to their volcanic soils. In addition, the ashes from the eruption of Krakatau in 1883 added fertility to the soil, especially in Lampung and Bengkulu. The lower lands of the foothills were also fertile, because of the loam soils found there. It is not surprising that both wet and dry rice cultivation were practiced in this area, while coffee, tobacco, tea and cloves were grown in the high plains. Cultivation in the high plains expanded rapidly only after the land was converted to coffee in the late nineteenth and early twentieth century. Horses and humans were the primary instruments for transporting goods. It was not until the second decade of twentieth century that roads were constructed.

In some places the high plains were not fertile, because the soils/rocks were acidic or otherwise poor. For example, the mountain area from Vlakkem Bay to Krui in Bengkulu Residency consisted of rhyolite rocks which formed pale-brown-yellow and pale red soils, rich in plastic clay. The fertility of these soils was low. These plains did not attract people for permanent agricultural settlement until the early twentieth century. Poor high plains could also be found near Tanjung Kemala, the high land between the Sekampung and the Seputih Rivers, and the high land between the Selangis and the Lematang Rivers.

Land in the low lying plains could be divided into three; these were *renah* land along the rivers; the *talang* land of the penepains; and the *rawa* land of the swampy areas. The *renah* or *nyapah* land comprises the fertile narrow levees along river banks, which are made more fertile by the sediments brought down by the river. This land forms the only dry part of

the plain. The *renah* land is sometimes covered by waters from the river, particularly during the rainy season. The best soil for cultivation in the southern Sumatra lowlands was found mainly in this type of land. However, *renah* land in several areas was covered by poor soils, because their rivers brought down poor sediments, heavy with quartzsand. This was the case in the areas along the Rebang River. Here agricultural activities were largely restricted to the less fertile *talang* land.

The general fertility of *renah* land attracted people to establish permanent settlement. They used part of the *renah* land to grow rice, either in a wet or dry system, as well as other food crops, such as corn, cassava, vegetables, beans and herbs. They also cultivated bananas, coconuts, pinang palm, kapok, tobacco, cotton, gambier, benzoin, pepper, coffee and later rubber. Shifting agriculture was also practiced on *renah* land. In several places the *renah* land was reserved by *adat* mainly for rice, cotton and pepper cultivation, other crops being allowed only on a small scale. People constructed their houses on part of the *renah* land. But houses were also built along the river edge, on floating rafts or supported by poles, particularly in areas where the *renah* land was quite narrow. There the largest part of the land was used for cultivation. It was not until there were no longer reserves of *renah* land that less fertile lands were brought into cultivation on a large scale. Consequently, the biggest population concentrations were found here later.

Talang land consists of low plateau and ridge, a transition between the high lying plains of the west and the eastern lowlands. The land is covered by primary or secondary rain forest, but in some places only by bushes. Southern Sumatra still contained substantial uncultivated *talang* land by late colonial period.

When *talang* land was cultivated with rice, it produced a very good first harvest, but the yield decreased very sharply there after, because the *talang* land consisted of poor soils for cultivation, red yellow podsollic soils or oxisols. The best *talang*

land in southern Sumatra could support only two good rice harvests; the people then had to find new land for their rice fields. A further problem with the *talang* land in southern Sumatra was that, under cultivation, it was either eroded by rain water or became covered with *talang*, due to its slow regeneration.

On *talang* land the people first practiced shifting agriculture; they then established their cash crop *kebun* (field), as the *renah* land became no longer sufficient to meet the demands for land for cultivation from the beginning of twentieth century. People first grew rice on newly opened *talang* land, and then cultivated fruit trees or other crops, such as coffee or pepper. But the great expansion in the cultivation of *talang* land in southern Sumatra came with the introduction of hevea rubber, because the tree grew well on the poor *talang* land. The new settlements or *dusun* therefore were expanded to this area.

Agriculture was also practiced in the swampy areas of lowland southern Sumatra. That area lay from the narrow lowlands in the southeast of Lampung Residency through to the wide swampy zones of the eastern coast, in Palembang and Jambi Residencies. These areas were covered by water for almost the whole year. Therefore there were very few settlements here before the early twentieth century.

There are at least two types of swampy area in southern Sumatra; the peat swamp and the freshwater swamp forest. The peat swamp was generally found near to the east coast, behind the mangrove forests. The water was always deep. The peat and its drainage water were very acidic and poor in nutrients. Therefore, agriculture could not be established in this environment, as there was not the technology to convert it until late colonial period. The freshwater-swamp was built on alluvial soil, and the water level permitted the growth of vegetation. Moreover, there was periodic drying out of the land surface in some places.

Although the soil was not as fertile as the recent marine alluvium or the volcanic ashes, the freshwater-swamp was suit-

able for agriculture. This cultivable swamp was known in southern Sumatra as *lebak* or *rawa*, where people practiced wet rice cultivation. The *lebak* field could be found in the low plains behind the rivers or in the areas between the rivers and the peneplains. It was a jungle which contained rain water or river flooding, but it was usually dry in the dry season. Some of the *lebak* fields in Palembang were used for *ume salah musim* or *sonor*, where the people opened it up after harvesting the *talang* field. The *lebak* rice field became an important location for rice production in some parts of southern Sumatra, particularly in Palembang and Jambi Residencies. However, the *lebak* field was very vulnerable to the annual flood, and therefore harvest failure was common.

Fish was another important resource in the *lebak* fields, the annual auction of the *lebak* or *sewa lebak lebung* was a big occasion for the *marga* and contributed the largest part of *marga's* budget. The people also cultivated hevea rubber in the freshwater-swamp from the second decade of the twentieth century, particularly in Musi Ulu and Banyuasin sub-districts of Palembang Residency, although there were some difficulties in planting and tapping.

In terms of land ownership, traditionally, land was owned by the *marga*. The *marga's* judicial body decided land issues. When the Dutch established control, every decision by the *marga* court on land matters had to be approved by the Dutch. Hereditary individual ownership was retained. People could claim *sawah*, *kebun*, *ladang* and even individual trees as their own property. Their rights were absolute, as long as they occupied and worked the land. Abandoned land or land left uncultivated was reclaimed by the *marga*. Land could be rented out, pawned or even sold, although non-Indonesians were not allowed to buy land from the indigenous people. For people who wished to cultivate land outside the *marga*, a deposit and rent (*sewa bumi*) had to be paid.

Finally, in terms of subsistence agriculture, the low rice production, the rice

shortages, and the increasing of rice import in Palembang, Jambi, Lampung, and Bengkulu in the early twentieth century when there was great increase in rice demand might be explained in terms of ecological constraints rather than the failure of local people to produce sufficient rice for local consumption. The *talang* land could never produce sufficient rice to meet the demand of communities outside the rice cultivators themselves. Although more *ladang* rice fields were opened as people expanded their cultivation of rubber, pepper, and coffee, because people planted those crops at the same time as rice from the first year, it would not be able to provide local market sufficiently.

The harvest failure was a common feature in the rice cultivation in those residencies. There was always failure on native rice cultivation owing to flood, drought and pest. The rice stocks of the people in Kumang and Jujuhan were destroyed by the failure of their dry rice fields in 1916; a similar failure occurred in Muara Sabak in 1934. Native rice production in Ogan Ilir fell due to a long drought, and people in other parts of Palembang failed in 1919 to harvest their rice from their *renah* and *lebak* fields because of flood. All rice fields on the *renah* land of Marga Lubuk Keliat and Muara Kuang were destroyed by flood in 1920. And a similar disaster occurred on most *renah* lands in Muara Tembesi in 1931. It was reported that 25% of *lebak* fields in Palembang failed to produce rice in 1936.

Local rice production had never been sufficient to meet all demands in these residencies. To import rice was not new. By the early twentieth century, for example, Palembang imported more than 10 tons and Jambi 2 tons in 1910 and again in 1911. Good wet rice fields were rarely found in all four residencies, because the soil and water system were not suitable for rice. Good wet rice fields were mainly found in upper Palembang, Jambi, and in the special developed areas for colonists from Java. Therefore local rice production was dependent on rice fields in the fragile and difficult environment of *renah* and *lebak* land. Dry *ladang* fields promised little for large scale rice production. In the

early 1920's, the Dutch government attempted to create huge wet rice fields in Palembang, the Selatjaran rice project. This ambitious rice project took millions of guilders in the purchase of modern equipment, the building of modern facilities, the construction of good irrigation and the employment of rice experts and irrigation technicians. However, it failed only three years. According to the official report, the failure was caused mainly by pests, unsuitable soils and flood.

4. Ecological Zones and Cash Crops

The world market offers opportunities for cash crop production in Southern Sumatra. According to available information, people of this area had already involved in production of large scale several export crops from late nineteenth century. Among different commercialised crops, coffee and pepper were two main important cash crops produced by local people in Southern Sumatra in nineteenth century until the introduction of hevea rubber cultivation found a new profitable economic activities among the smallholders. However, it depends of course on the matter whether local ecological conditions permit the cultivation of the cash crop concerned.

People in the several parts of east coast of Lampung where the land was not suitable for the cultivation of pepper, for example, the people moved far away from their houses to the areas such as Sukadana and Kota Bumi just for establishing their pepper holdings. In the Ranau, Rebang, and several parts of Rejang areas, people cultivated tobacco as their main cash crops, while people in coastal area depended on coconut. In several areas such as Perdada and Punduh on the west coast of Lampung, the cultivation of coconut trees was the main economic sources besides fishing. The people sent their copra to Teluk Betung as far as Batavia. A similar pattern could also be seen in the mountainous areas of Kerinci and Pasemah in Jambi and Palembang, where people of those areas tended to cultivate coffee, tobacco, pepper, or other suitable crops.

The lands in Lampung and Bengkulu were thus of a diverse quality. Many crops could grow satisfactorily in these residencies, but coffee and pepper were particularly adaptive. When coffee cultivation was introduced into Bengkulu and Lampung in the 1830's, the local people found it very suitable. Because of soil and climatic conditions, most of the available land in the high plains of Lampung and Bengkulu was cultivated with coffee, while pepper was cultivated in the lowlands. In the lower lands, especially in Lampung, the people had grown pepper in very favourable conditions.

The cultivation of coffee and pepper were still expanding by people of southern Sumatra in the first decade of twentieth century, when hevea rubber was firstly introduced into this region. Not too long, hevea rubber appeared as the primary cash crops for many people in southern Sumatra. Besides the integration of southern Sumatra with world market, ecologically most rubber producing areas accommodated the expansion of small scale rubber cultivation in southern Sumatra. Therefore, when people of Jambi imported rubber seeds and plants to the value of 29,000 guilders between 1907 and 1911 it must be seen as reaction toward their favourable ecological conditions for growing rubber rather than just an attempt to imitate what people had already doing in Malay Peninsula at that time. Many people considered the cultivation of rubber in their used *ladang* as better alternative cash crops after previous cash crops failed to yield a better cash. The economic expectation was higher whenever people also realised that hevea rubber was growing well and produce normal latex in less fertile abundant *talang* land, a place where people had no big interest to exploit for building their economic capacities before the first decade of twentieth century, except for gathering forest goods and hunting fields.

How far ecological conditions did shape the expansion of the small scale rubber production is exemplified by the clear cut between rubber and non-rubber producing areas. People knew the place where they might plant rubber and where

for other cash crops. Although hevea rubber was cultivated in most parts of Palembang and Jambi, in parts of those residencies there was area where little or no cultivation of rubber taken place. In Serampas, Proatin Tuo and Sungai Tenang the people were more interested in coffee and cinnamon, because soil and climate were more suitable for those crops. The people in other parts of Sungai Tenang and in Pangkalan Jambu tended to plant rice. In some parts of Sarolangun, one of main rubber areas in Jambi, rubber was the second crop, behind rice. And in Muara Sabak, Tungkal, and Banyuasin, the people more interested in coconut and fishing. In the swampy area of Tungkal there were about 600 Banjar people who had planted around 200,000 coconut trees by the mid 1910's.

The people in Kerinci, and in many places in upper Palembang such as Semendo and Pasemah, grew coffee; wet rice was also important in these areas. In Tebing Tinggi, for example, where land was suitable for coffee cultivation, there were only about six thousand native rubber trees recorded by the Dutch government in 1925. In Lematang Ulu, Palembang Residency, the people in non-rubber *marga*, such as Pagar Gunung and Gumai Ulu, planted coffee as their main cash crop, because these *marga* were located in the high plains. Some people in the Ranau high plains attempted to plant rubber, but the trees did not grow well and produced less latex. The people in these areas were dependent mainly on tobacco, coffee and rice cultivation, and the people in lower Ranau planted pepper. In Kerinci and several parts of Bangko, the average temperature was too low for growing rubber; the people planted mainly coffee. Besides coffee and rice, the people in Kerinci also cultivated more tobacco. Although native cotton production in Palembang was diminished by low demand and low prices, people in some areas still preferred to cultivate cotton rather than rubber; or the local authorities allowed the people to cultivate only cotton or food crops, particularly on the *renah* land. In Marga Proatin Lima at Musi Ulu, one of the lead-

ing native rubber producing areas in Palembang Residency, the people in *dusun* Tanah Periuik, Taba Pingin and Taba Jemeluk, cultivated mainly tobacco on their abandoned *ladang*; they cultivated coffee not rubber in other nearby *dusun*.

The limited response of people in Lampung and Bengkulu to the cultivation of hevea rubber as their main export crop is another example how ecological conditions shaped the economic patterns or builded the economic capacity of every regions. Small hevea rubber holding was exclusively expanded in Lampung and Bengkulu in the border areas with Palembang Residency. Besides there was traditional economic links between those border areas with Palembang, the cultivation of hevea rubber was taken place mainly because people realized that land and climate was as suitable as the land and climate in Palembang for the cultivation of hevea rubber.

The hilly character of most of Bengkulu and parts of Lampung was more suitable for crops other than hevea. The temperature in the lowlands was around 25-27c, but in the mountainous and hilly areas, the temperature was down to at least 17c, which is more favourable for coffee cultivation. The level of rainfall in some places was ideal for hevea and there were no strong winds to threaten the trees; but in the highlands there was too much rain for the cultivation of hevea rubber. In Bengkulu, particularly, in most areas the average rainfall was more than 2,500 mm. per year, while there were more than 150 rainy days a year. The small commitment to hevea rubber among most people in Lampung and Bengkulu could be assessed to the availability of valuable alternative cash crops which were more suitable for the land and climate of most areas in those residencies than other economic factors. The people in Lampung and Bengkulu tended to grow pepper and coffee on their abandoned *ladang* fields, rather than replace those crops with the unsuitable hevea.

This means that the cultivation of hevea rubber was not popular in Lampung and Bengkulu. The land suitable for

rubber cultivation was limited in these residencies, because there was little virgin forest and the undergrowth was scant. Moreover the available land in some places was reserved mainly for food cultivation and cattle breeding. Although there were uncultivated lands in the high plains and in the coastal lowlands between Vlakkem Bay and Krui in Bengkulu Residency, the soils there were poor, and there were almost no inhabitants. On the suitable lands in Tanjung Sakti around the Dempo mountain of Manna, the local people grew pepper, while rice was the primary crop in the fertile and populous lands near Muara Aman. Furthermore, in spite of abundant lands being available in the south and southwest parts of the Tanggamus mountain region near to Kota Agung in Lampung, the soil was more suitable for paddy, and there was scant population. In Gedong Tataan, where there were young soils and the best agricultural lands, the local people cultivated rice, while the Dutch Government reserved land for Javanese migrants also to grow rice. And on the slopes of the Rajabasa volcano, where crumbly, brownish red lixivium soils made the land suitable for agriculture, the native population grew paddy and pepper. On uncultivated lands near to Pekon Balak, Mutar Alam, Ulu Semung and Ulu Belu in the southeast part of the Ranau Lake, where young, brown, mountain lixivium fertile soils were found, coffee and tea were cultivated.

The plain to the west of the railway, in the hilly lands near to Way Seputih and Way Sekampung was cultivated with hevea. The trees appeared healthy, but growth was slow, and the yield poor. An increased output might be obtained through the use of fertilizer, which caused higher cost of production compared to the value of the product. A similar situation arose in Way Lima, where hevea rubber was cultivated by the local people but in fact coffee grew better. In short, the hilly character of most parts of Bengkulu and part of Lampung was more suitable for coffee than hevea; people therefore cultivated coffee or other suitable crops for that environment, but not hevea. In the *talang* land where hevea could grow sat-

isfactorily, as in Palembang and Jambi, the people in Lampung preferred cultivating pepper.

Although there was interest of the local people of Lampung and Bengkulu in hevea rubber, especially during the 1930's, it could not easily be realized because most of the suitable land was required by foreign estates. By the last decade of the nineteenth century, the rest of the region was open for the expansion of foreign estates, in which ficus and then hevea rubber grew, together with pepper, coffee, chinchona, tea, palm oil and cocoa. It was during the rubber boom of 1910-1914 that a great number of land concessions was granted to non Indonesian planters, particularly for the cultivation of coffee, oil palm and the felling of timber. Land concessions were again granted during the rubber boom of the 1920's. Furthermore, the large gold mining industry in Rejang and Lebong in Bengkulu, and several small gold and iron mines in Lampung, required more land. From the maps of the region published between the 1910's and the late 1930's, it can be seen that most of Bengkulu and Lampung had been divided into estates and mining concessions owned by non Indonesians. For example, the area around Bukit Kaba in Bengkulu and Teluk Betung and Wai Lima in Lampung were fully occupied by foreign plantations by the 1920's. This does not mean that there was no empty land in these residencies. In Lampung, for example, the swampy area to the north and east of the residency was still uncultivated; but the people did not wish to open up that area for cultivation, due to the poor soils and poor transportation network.

In Lampung and Bengkulu population was concentrated in the coffee and pepper areas. The concentration of population in the areas of coffee and pepper cultivation also limited cultivation of hevea rubber in both residencies, at least as long as coffee and pepper prices stayed firm. Apart from the highly populated areas along the road from Bengkulu town to Ketahun, for example, the people in this residency built their settlements mainly in the coffee producing regions

around Krui, Kaur, Muara Aman, Manna and Kepahiang. In Lampung the people occupied the several fertile plains near to the Semangka River, such as Liwa and Kota Agung in the southwest of the residency, and around Teluk Betung in the central plains, where pepper was cultivated. In the southeast part of Lampung, the people were concentrated around the pepper producing areas along the Sekampung River up to Jabung; upstream of the Tulang Bawang and the Mesuji Rivers were the main areas of settlement in the north and east of the residency.

5. Conclusion

In short, the establishment different agrarian communities in southern Sumatra from the late nineteenth century was definitely shaped by ecological situations of the region, and these different ecological zones were able to integrate southern Sumatra as a unit economically. There is a strong evidence, therefore, that people in this areas tended to adjust with the ecological conditions on expanding the export commodities as well as protecting their subsistence agriculture. The changing attitude of local people toward certain commodity was not just influenced by market, but it was certainly encouraged by the availability of suitable ecological conditions. People would not cultivate rubber in the area where coffee growing well, although they were watching the rising prosperity of the neighbours who were rubber cultivators. People chose rubber not coffee or pepper because they know that rubber was suitable to ecological situation besides its integration into the world market. Finally, the economic level of every region and its economic strength were greatly influenced by what crop could grow well in such ecological zone.

Bibliography

- A. Documents
 ANRI, *MVO Bengkulu* O. L. Helfrich, 1912.
 ANRI, *MVO Bengkulu* L. Knappert, 1916.
 ANRI, *MVO Djambi* A. L. Kamerling, 1916.
 ARA, *MVO Bangko* R. H. Reys, 1934.

- ARA, *MvO Lematang Ulu H.J. Wijnmaalen*, 1936.
- ARA, *MvO Moeara Boengo A.L. Sampson*, 1916.
- ARA, *MvO Ogan Ilir Th.O.B. Gunther*, 1925.
- ARA, *MvO Sarolangun Th.B. Aalst*, 1929.
- ARA, *MvO Sarolangun E.E. van der Kam*, 1931.
- ARA, *Nederlandsch Handel Maatschappij*, vol.9132 & 9133, 1902-1910.
- B. Published Materials and Thesis
- Abdullah, M., et al., *Sistem Ekonomi Tradisional Sebagai Perwujudan Tanggapan Masyarakat Terhadap Lingkungan Daerah Sumatera Selatan*, Palembang: IDKD, 1983.
- Bezemer, T.J., *Door Nederlandsch Oost-Indie, schetsen van land en volk*, Groningen: J.B. Wolters, 1906.
- Broersma, R., *De Lampoengsche Districten*, Batavia: Javasche Boekhandel & Drukkerij, 1916.
- Broersma, R., *Palembangsche verkeningen*, 1921.
- Buddhingh, S.A., *Nederlands-Oost-Indie, reizen 1852-1857*, vol.3, Rotterdam: M. Wijt & Zonen, 1866.
- Coomans, A., "De economische ontwikkeling der Residentie Lampoengsché Districten", *TBB*, 48, 1915.
- Cramer, P.J.S., *De groote landbouw in Zuid Sumatra*, 1917.
- Cumming, T.J., *Rapport on Visit to the Residency of Djambi*, Kuala Lumpur: F.M.S. Government Press, 1924.
- De Indische Mercur*, 10 September 1920.
- Great Britain Naval Intelligence Division, *Netherlands Indies*, vol.1, 1944.
- Haan, J. van Breda de, "De rijstteelt in de laaglanden der Residentie Djambi", *TBB*, 51, 1916.
- Hens, A.M., *Het grondbezit in Zuid Sumatra*, 1910.
- Hoedt, Th.G.E., *Mededeling over het boekvraagstuk in Zuid Sumatra*, Batavia: Ruygrok, 1929.
- Kathirithamby-Wells, J., "Hulu-hilir and Conflict Malay Statecraft in East Sumatra before the Mid-Nineteenth Century", *Archipel*, 45, 1993.
- Koloniaal Verslag*, 1900-1929.
- Kroon, A.H.J., "Landbouw in Palembang", *ALNI*, June 1925.
- , "Landbouw in Palembang", *ALNI*, July 1928.
- Mohr, E.C.J., *Tropical Soil Forming Processes and the Development of Tropical Soils, with Special Reference to Java and Sumatra*, English translation, Laguna: The College of Agriculture University of the Philippines, 1930.
- "Palembang en landbouw", *ALNI*, May 1929.
- Pelzer, K.J., *Pioneer Settlement in the Asiatic Tropics. Studies in Land Utilization and Agricultural Colonization in Southeastern Asia*, New York: AGS, 1945.
- Pertja Selatan*, 1926-1940
- Probonegoro, A.A., *Lampoeng Tanah lan Tjampangun*, (Batavia: Bale Poestaka, 1940.
- Purwanto, Bambang, "From Dusun to the Market: Native Rubber Cultivation in Southern Sumatra, 1890-1940", Unpublished dissertation, SOAS-University of London, 1992.
- , "The Economy of the Native Population in Southern Sumatra between 1850-1910", *RIMA*, 27, 1993.
- Richter, J.F.P., "Economische geographie van Zuid Sumatra", *TEG*, 12, 1911.
- Scholz, U., "Resource Use of Frontier Pioneer Settlements in Southern Sumatra", in W.W. Manshard & W.B. Morgan, eds., *Agricultural Expansion and Pioneer Settlements in the Humid Tropics*, Tokyo: United Nations University, 1988.
- Setten, D.J.G. van, *De beteekenis en de vooruitzichten van den Inlandschen landbouw in de Residentie Palembang*, 1917.
- Staatsblaad*, No 45, 1885.
- Staatsblaad*, No 353, 1925
- Staatsblaad*, No.193, 1927.
- Taylor, V.A. & J. Stephen, *Native Rubber Cultivation in the Dutch East Indies*, London: The Rubber Growers Association, 1929.
- Velders, A.F., "Aantekeningen betreffende het grondbezit in de Boven Tembesi (Djambi)", *TBB*, 30, 1906.
- Verstappen, H.Th., *A Geomorphological Reconnaissance of Sumatra and Adjacent Islands (Indonesia)*, Groningen: Walters Noorhoff Publishing, 1973.
- Vonk, H., et al., "De lebakrijstcultuur in Palembang", *Landbouw*, 13, 1937.
- Wellan, J.W.J., *Zuid Sumatra economische overzicht van de gewesten Djambi, Palembang, de Lampoengsche Districten en Benkoelen*, Wageningen: H. Veenman & Zonen, 1932.
- Withen, A.J., et al., *The Ecology of Sumatra*, Yogyakarta: Gadjah Mada University Press, 1979.