IMPLEMENTING MODELLING TRANSPORTATION DUE TO LAMPUNG'S ECONOMIC MASTER PLAN

Rahayu Sulistyorini
Lecturer on Civil Engineering Department
University of Lampung
Jln. Prof. Sumantri Brojonegoro No.1,
Bandar Lampung
Telp: (021) 704947
sulistyorini_smd@yahoo.co.uk

Abstract

Rapid economic growth in Lampung needs support from adequate transport facility and development of the infrastructure project is a solution. This research aims to model the travel pattern based on potential economic due to the sunda strait bridge development plan to support KSN Sunda Strait and Economic Corridors in Lampung. Road network modeling formed for assignment stage, being utilized to predict road traffic in the future. Assignmet process using SATURN as transportation software. The scenario is a road performance analysis after 10 (ten) years using traffic growth and several assumption such as Bakauheni – Babatan – Tegineneng toll road , have functioned and can be used; Sunda Strait Bridge constructed and can be used. The bridge project would help boost the growth of strategic economic area. In order to boost economic development in Sumatera and especially Lampung , the government already has program to build toll roads. Various constraints, such as the preparation of project implementation, land as well as financing, have become barriers that make it difficult for those projects to commence in the planned.

Keywords: *Modelling Transpotation, Potential Economic, Infrastructure Development*

INTRODUCTION

Lampung Province has a strategic position because the area lies on the edge of the southern part of Sumatera Island, which is the gateway to the island of Sumatera from Jawa Island. Lampung Provinsi has become the main traffic link of Sumatera and Java and vice versa. Administratively, Lampung province is divided into 8 districts and 2 cities with the province capital is Bandar Lampung. Lampung Province has the potential of natural resources is very diverse, prospective, and reliable, ranging from agriculture, plantation, fishery, animal husbandry, mining, tourism, to forestry. (BPS, 2013)

Estate commodities are mainstay product for Indonesia export, but most of it was being export as fresh product. These facts showed that industrialization in estate crops product has not been maximized yet. Road infrastructure has important role as promoting sector for industrialization. The ability to transport good and services between two origin destination in Sumatera, or between two islands or others, known as connectivity has key point. The connectivity between potential area to the market is key point to distribute basic commodities and other products outside the island and other part in Indonesia or international area.

Poor infrastructure conditions are the main factor preventing Lampung's economy from growing at its potential rate. Lampung's ratio of road distance to square kilometre of area

is one of the lowest in Indonesia, indicating that the road system is inadequate to cover the province's area. Here is a mismatch between the distribution of roads and the concentration of economic activity. However, road development in the city has been much slower than growth in the number of cars and motorcycles. The government aims to expedite infrastructure development to promote broader economic development. These are expected

to cut intra-city transport time. cutting average transport costs, allowing the smooth distribution of goods, and facilitating economic activity.

The objective of this research is to analyze the role of estate potential economic sector and infrastructure development in Lampung Province using modelling transportation; (2) to analyze connection of infrastructure for the improvement of potential economic performance in Lampung Province and 3) to analyze infrastructure development plan to build and strengthen that connectivity according to Sunda Strait Area Development.

ECONOMIC POTENTIAL IN LAMPUNG

Lampung, which has capital of the province, Bandar Lampung, is also known as Bumi Ruwa Jurai. The province that has quite differsified natural resources and culture since prehistoric ages is bordered by Java Sea on the east, Sunda strait on the south, Indonesia Ocean on the west and South Sumatera and Bengkulu provinces on the north. The province is strategic that makes it the gate of Sumatera and a tangible hub of Java and Sumatera including the movement of population. Therefore the province becomes so pluralism and is called as the Miniature of Indonesia. Besides, Lampung province has potential resources such as agriculture, plantation, fishery, mining and mineral, forestry, and other geographic landmarks like conservation forests, volcanoes etc. Coastal areas with white sand and clean beaches highlight the potential of tourism objects and activities. The coastal areas become the center of fishermen and private business in fishery, hatchery and other marine products. In addition to Bakauheni, the bridging seaport, Lampung has Panjang seaport that is one of the famous seaports that serve many local commodities such as coffee, exported outside the province. The ports play important role in addition to the Raden Inten II airport, which serves passengers transportation. Considering the Lampung condition that becomes more interesting and promising if it managed sustainable and sinergically, the business environment will provide many investment opportunities in all sectors, which in turn, generating economic advantages for Lampung's prosperity.

Potential plantation in Lampung among other things, coffee, pepper, clove, rubber, coconut, sugarcane, tobacco, vanilla, hybrid coconut, palm oil, tea, cotton and cocoa. See Figure 1. Lampung Province has the economic potential of a very promising from the fisheries, both inland and marine fisheries. Commodity shrimp emerged as the new flagship export to this region. Potential areas for shrimp farmers in this province is the eastern coastal region, which covers the eastern part of South Lampung regency, Middle Lampung and North Lampung. East coast of Lampung has wide marshland and suitable for the large-scale area of shrimp.

Lampung is known to have potential agribusiness that need expansion. Citing Lampung produces sugar 35 percent of the country's total requirement. Lampung is the country's 7th largest rice produce with an annual surplus of 800,000 tons, the thid largest produce of corn and the largest producer of cassava. Lampung is the country's largest exporter of canned pineapple mainly to spain averaging 167,018 tons per year, shrimps to the united states averaging 19,614 tons pe year and supplie of fresh fuit and vegetables to Jakarta averaging 1,000 tons per day.

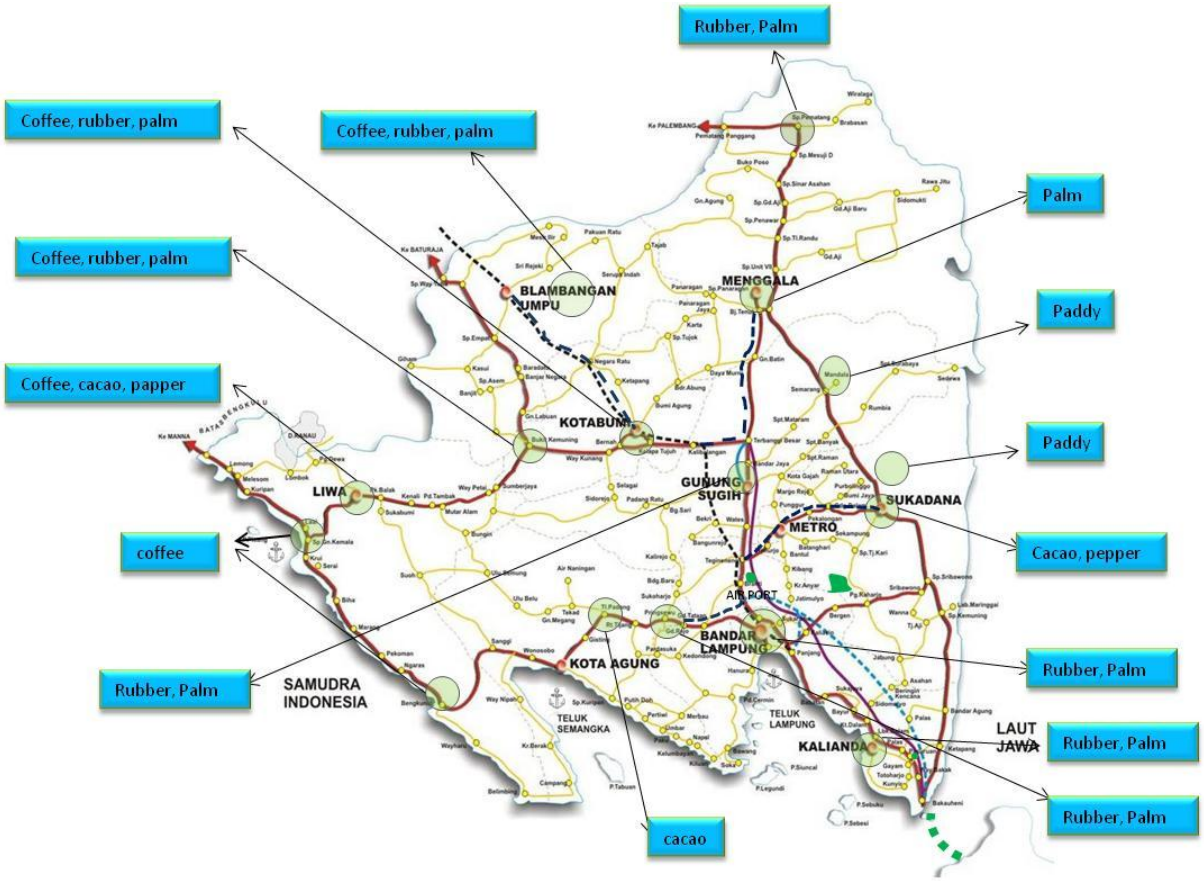

Figure 1. Potential Plantation in Lampung

The potential of forestry in Lampung quite well with its main commodity various types of wood and rattan. Production of forest products in Lampung (wood and non-timber) is as follows: round wood; resin cat's eye; resin stones, small rattan; rattan manau; large wicker; and charcoal.

In the industrial sector, both based resources, including agricultural processing forest products, or manufacturing industry with commodity goods from wood, Lampung region has good potential. Other processing industries, such as sugar, tapioca, coffee, and food have more opportunity to develop industrial products. Many commodities which have been exported by Lampung, including canned pineapple, citrid acid, rattan baskets, marble, wood processing, plywood, furniture , sugar drops, "bungkil" copra, sago flour, rubber, bamboo baskets, palm oil, cassava, rice flour, soap, coffee powder, coconut milk, coconut flour, coconut shell charcoal, coconut pulp, coconut juice, wood charcoal, etc. Livestock population in this province comprises of cow, buffalo, goat, sheep, pig, chicken, poultry and rooster.

Lampung has various mineral and mining resources such as crude oil, uranium, coal, iron ore, gold and silver, marble, hot spring water and gas. In the field of mining and quarrying, Lampung region has a variety of mining and quarrying such as coal, gold and silver, particularly in the North Lampung, and South Lampung. While the Gulf region and Betung Kalianda make a lot of iron ore. Marble is produced by many Bedengbaru areas. While the results of other mining and quarrying, such as limestone, andesite, basalt, tuff, granite, quartz sand, ground sand, and pumice evenly in Lampung and the potential for expanded

production. Types of mines that have been exported by the province include pumice, coal, stone beaches, and others. See Figure 2.

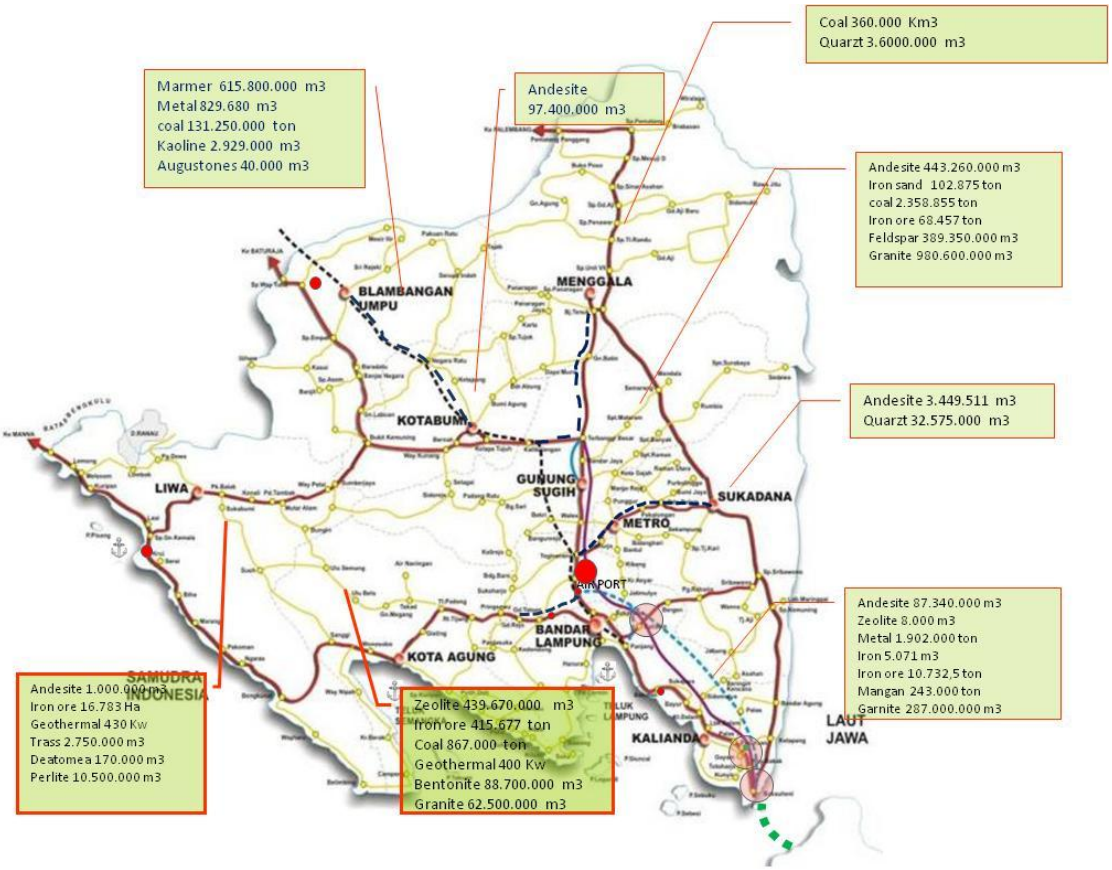

Figure 2. Potential Mining and Quarrying in Lampung

The potential of tourism resources is based on natural park and resorts such as national park with diversified flower and animals, training centre of wild elephant, rhinoceros cultivation, way kanan resort, Park Forest, islands, sulphuric hot water springs, waterfalls and beaches. Water tourism like beringin Indah Lake, reservoirs and dam, lakes, and leisure parks. Cultural tourism such as caves, traditional houses, performing arts, historical park, monasteries and ancient/kingdom cemeteries. In addition there are excellent tourist attractions scattered support throughout the district / city, including natural attractions and 177 pieces of artificial attractions including cultural attractions as many as 145 objects.

EXISTING INFRASTRUCTURE IN LAMPUNG

As an investment destination, this province also has a variety of facilities and infrastructure such as Raden Inten II Airport in Tanjung Karang and have Tulangbawang Harbor, Port Mesuji, Great Harbor City, Harbor Labuhan Maringgai, Port and Harbor Bay Special Betung Tarakan. (The Government of Lampung, 2011)

The construction of the road infrastructure manifests one of the efforts to support improvement of the economic potentials and distribution of goods in The financing of Muara Putih - Karang Anyar - Sidodadi Asri road construction has been given to support distribution of commodities, such as fisheries, plantation, and livestock farming throughout the region in South Lampung and beyond Lampung Province.

The length of the road in 2013 was 13,058.68 km covered: 296.487 km of 1,159.573 km (only 25.5%) state road in good condition, 565.17km of 1,702.81 km (only 33.19%) provincial road in good condition, and 6,081.73 km municipal road, and 488.68 km artery road.

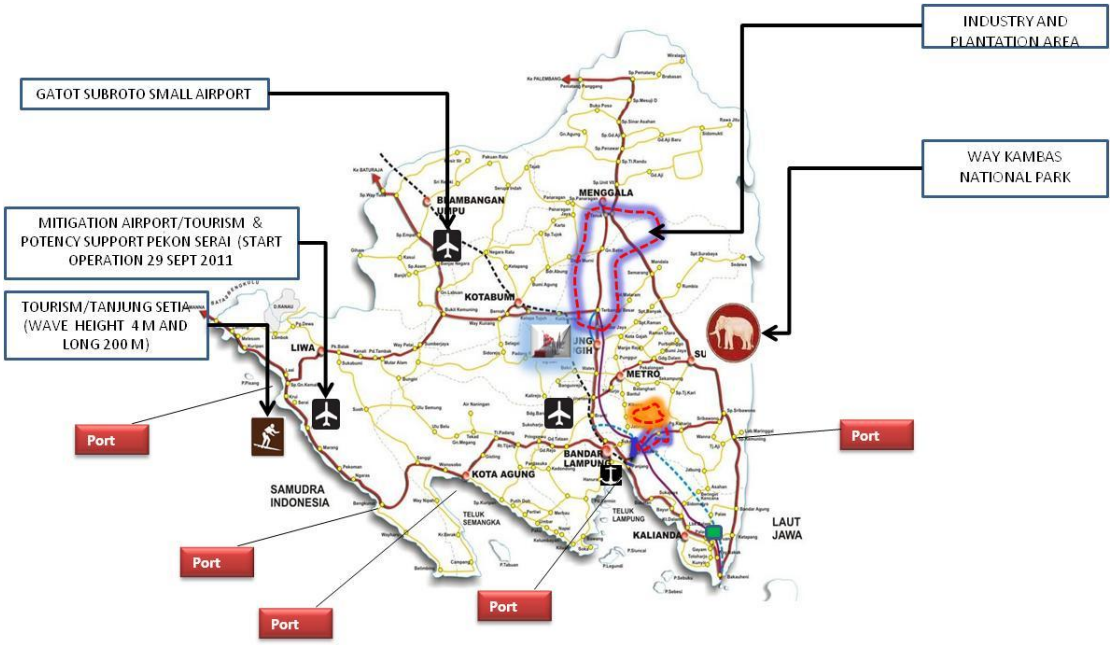

Figure 3. Existing Infrastructure in Lampung

METHODOLOGY

Research Method as shown in Figure 4 show us that we use modelling transportation to know travel pattern according to economic potential area and market connectivity.

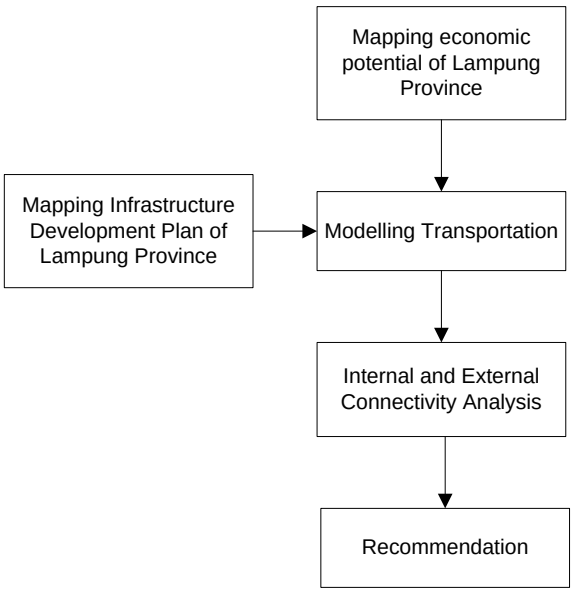

Figure 4. Research Method

MODELLING TRANSPORTATION

One strand follows the development of transportation models from the early 4-step models to the advanced traffic volume-based. The second strand follows the connectivity of infrastructure development plan in Lampung and potential economic area. The road network is a set of roads and intersection which is the one that is created in the hierarchical relation. To encourage national development vision, besides planning development documents also supported by the acceleration and expansion of Lampung Economic Development (MP3EL). MP3EL was held based on the centre of economic growth development approach both existing and new area. This approach is essentially of sectoral approach and regional integration. Overall, economic growth centers and connectivity create corridor the Lampung economy coridor. Then the government prepares infrastucture development plan, e.g toll sumatera. (Sulistyorini, 2012). The idea of building a bridge spanning the sea between Java and Sumatera has for decades remained in the pipeline.

Analysis has done by using four stages transportation modeling. Study Forecasting includes the following stages:

1. Estimated trip generation and attraction from specific land use, in pcu/day unit.
2. Estimated trip distribution, the trip origin and destination number between land use (zone)
3. Assign origin and destination matrices to road network system to see the effects of land use changes in the area of study to performance of road network system

Built Process of Road Network, covering road network existing identification such as width, length, geometric, free flow speed, road capacity, node and centroid numbering or codification. Road network modeling formed for assignment stage, being utilized to predict road traffic in the future. Assignmet process using SATURN as transportation software, where each link was completed by several attributes, such as: link code (consisting the starting point and the end), length, capacity, free-flow speed and functions of relations between speed and traffic flow. All attributes regarding to an operational road condition calculated based on IHCM (Indonesian Highway Capacity Manual) 1997 and secondary data base is reach from previous study ‘Tatralok Lampung Selatan 2011 ‘.

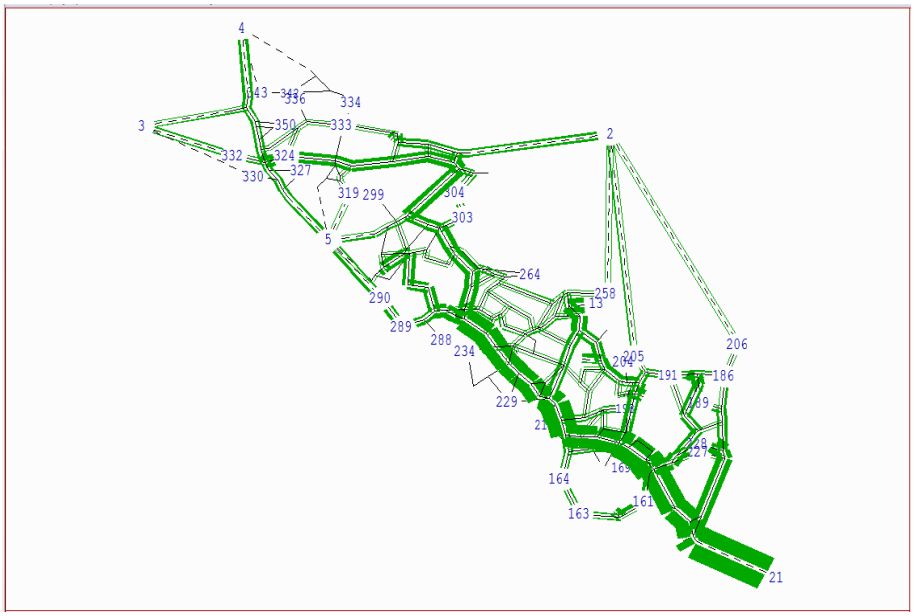

Figure 5. Result of Assignment in 2014

This model is build synergy with the RJPMD (the medium term development plan) and roles of stakeholders.The potentials could be developed and expanded with the support of adequate infrastructure. Lampung has strategically located industrial estates such as the 300 hectare Lampung Industrial Estate (KAIL). Tenggamus maritime industrial estates to be built over a 2,000 hectare plot of land and lampung selatan industrial estates to be built over 15,000 hectares plot of land in the sub districts of Ketibung-Ketapang. (Bappeda, 2010)

Required fruits and vegetables for Capital city of Indonesia (Daerah Khusus Ibukota Jakarta) and some other cities in Java, particularly Banten and West Java Province, is derived from Lampung Province and South Sumatera region.

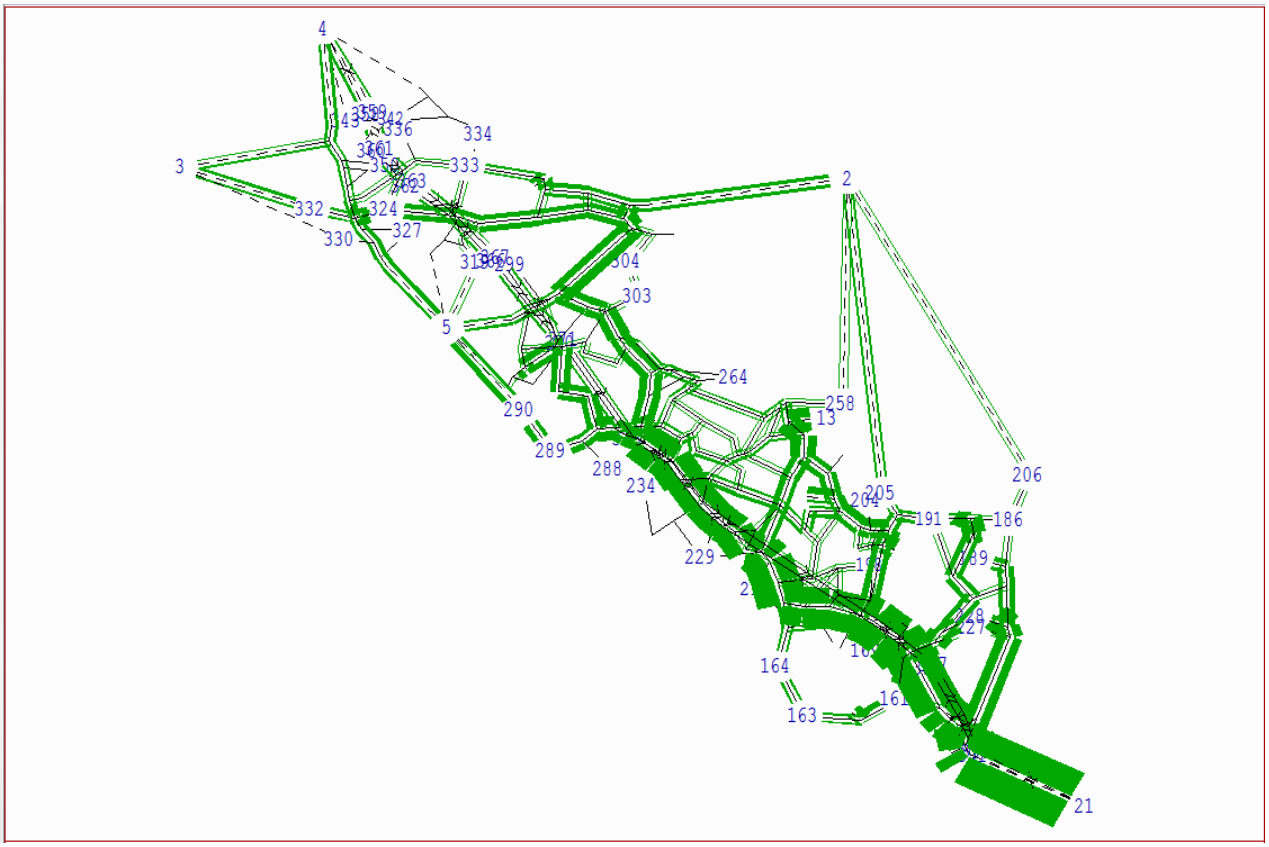

Figure 6. Result of Assignment in 2024

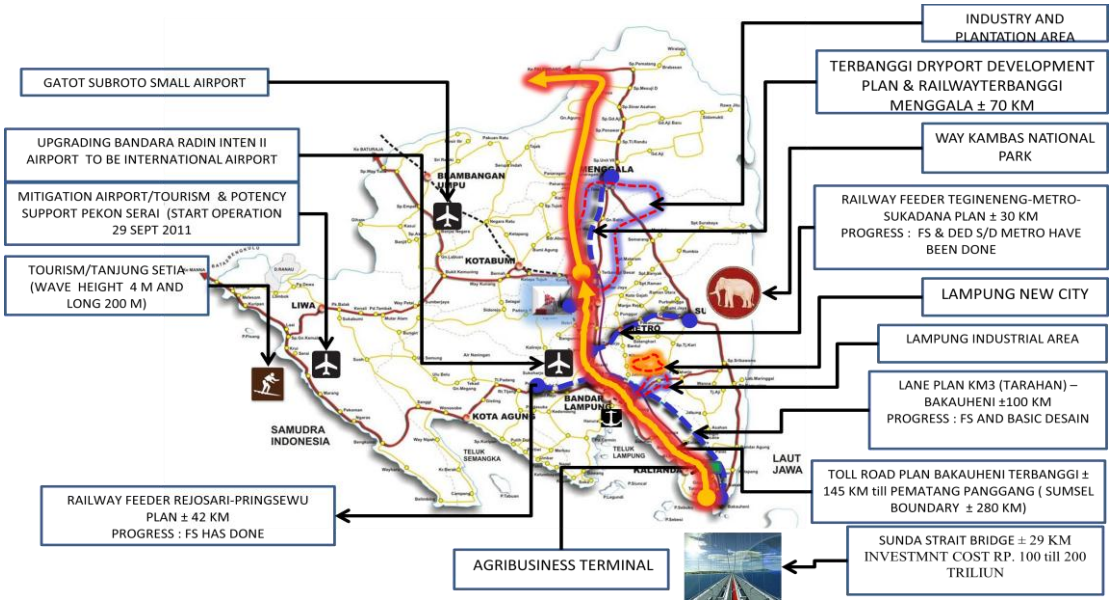

Figure 7. Infrastructure Development Plan in Lampung (Source: Bappeda, 2012)

Fruit and vegetable commodity was shipped to the Java island every day through land transportation and ferried through Bakauheni ferry port in South Lampung regency to the port of Merak in Banten Province.

All the activities above can be done in the presence of fruit and vegetable terminal or terminals of agribusiness at the site before the port of Bakauheni and South Lampung Regency is a strategic place to build the terminal agribusiness. In this terminal in addition to commodities bananas, other commodities also can do the same thing are selection, washing and packaging. The purpose built terminal agribusiness is to improve the quality of fruit and vegetable commodities and meet the requirements of the recipient not to send junk along with the delivery of bananas or other commodities. With the increasing quality of the commodity will increase prices and will impact on living standards increased fruit and vegetable farmers in Lampung and surrounding areas. The aim of the terminal agribusiness built is fruit and vegetable farmers and increase local revenues. Expected by the terminal agribusiness then commodity prices will be higher than the selling of commodities without selection. Addition of commodity levy can increase revenue.

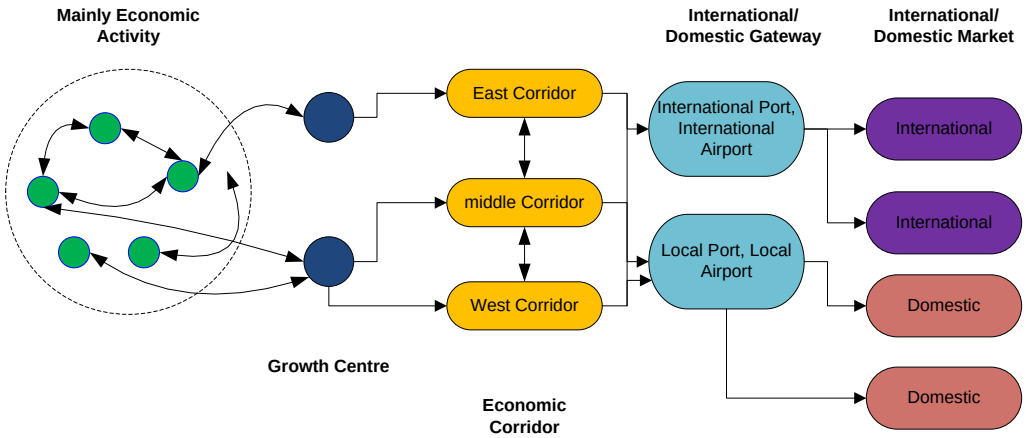

Figure 8. Growth Economic Area and Infrastructure Connectivity Mapping in Lampung

Meanwhile, on the other hand, economic growth has begun to shift to Sumatera, but the infrastructure has not been too good, so it is being built to be better. To accelerate economic growth, transportation infrastructure carries important impacts. The future for now is Sumatera; Java is in the past. Therefore, infrastructure development focus at the moment is to build highways, such as Trans-Sumatera and to have railway lines connected. In addition, transport would be much faster and distribution of goods would be more efficient in Java and Sumatera.

CONCLUSSION

By using the prediction of traffic growth and some assumption changes to traffic flow to the plan of toll road and Sunda Strait Bridge is already constructed, Traffic flow from bakauheni to Bandar Lampung rise to 2,821 pcu/hours. The flow is divided by a cross through the East Road of 706 pcu/hours and via toll road is 1,269 pcu/hour and through the middle road is 846 pcu/hour.

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REFERENCES

Anonim 2013. *Lampung Dalam Angka 2013*. Badan Pusat Statistik Provinsi Lampung

Anonim 2012. *Rencana Aksi Percepatan dan Perluasan Pembangunan Ekonomi Lampung 2012-2025*. Bappeda Provinsi Lampung.

Anonim. 2011. *Profile of Lampung, Seeing is Believing*. The Government Province of Lampung.

Anonim 2010. *RPJMD Provinsi Lampung 2010-2014*. Bappeda Provinsi Lampung.

Sulistyorini, R. 2012. Perencanaan Transportasi Berbasis Pengembangan Wilayah Untuk Mendukung Pembangunan Jembatan Selat Sunda. Laporan Akhir Hibah MP3EI. Lembaga Penelitian, Universitas Lampung (unpublished).