PAPER • OPEN ACCESS

Deskriftive analysis of oil palm agroindustry development of Special Economic Zone of Sei Mangkei as a new city in Indonesia

View the article online for updates and enhancements.

IOP ebooks™

Bringing you innovative digital publishing with leading voices to create your essential collection of books in STEM research.

Start exploring the collection - download the first chapter of every title for free.

Deskriftive analysis of oil palm agroindustry development of Special Economic Zone of Sei Mangkei as a new city in Indonesia

Anggiat Sinurat[1,2], Marlon Sihombing[3], H B Tarmizi[4] and Chairul Muluk[5]

[1] Doctoral Program Student at Regional Planning Study Program, Graduate School, University of Sumatera Utara Jl. Prof. T. Maas Medan-Indonesia-Postal Code 20155 (angginoer@gmail.com).

[2] Faculty (School) of Economic, University of Simalungun Pematangsiantar (USI) Jl. Sisingamangaraja Barat Pematangsiantar Indonesia - Postal Code 21137.

[3] Faculty (School) of Social and Political Science, University of Sumatera Utara (USU) Jl. Dr.A. Sofian No.1 Medan-Indonesia – Postal Code 20155 (mrlnsihombing@gmail.com).

[4] Faculty (School) of Economic and Business, University of Sumatera Utara (USU) Jl. Prof.TM Hanafiah SH No.12 Medan- Indonesia – Postal Code 20155 (hb.tarmizi@yahoo.com).

[5] Board of Trustee, University of Sumatera Utara (USU) Jl. Dr. Mansyur Medan-Indonesia-Postal Code 20155 (chairulm@gmail.com).

Abstract. This study aims to find out and analyze descriptively the business activities of oil palm agroindustry development Sei Mangkei SEZ as an industrial area into a new city in Simalungun Regency, North Sumatra Province-Indonesia. The article is part of the outors dissertation in the study in the Regional Planning. The research method used is Input-Output analysis and descriptive analysis of Indonesian regulations and policies. The Government of Indonesia has poured an initial investment of 2.7 trillion IDR to develop the Sei Mangkei SEZ infrastructure, plus state-owned enterprises and private investment, has amount 5.10 trillion IDR for year ended 2017. Does the impact of infrastructure development on the agroindustry Sei Mangkei SEZ make it a new city?. The results of the study conclude that Sei Mangkei SEZ oil palm agroindustry was developed through a public policy by forming an area in the form of a new city with the construction of facilities and infrastructure to produce spatial economic growth that affects each other in an economic system. Industrial sector as secondary operating in Sei Mangkei SEZ experienced an increase in the linkage function and a large interaction with the sector internally and the overall economic system in the interregional region. That the amount of investment used to build facilities and infrastructure in the region can improve the function of the region as a new city in Indonesia North Sumatra Province by the development of infrastructure, facilities of a high value of degree of sensitivity effect as push factor and pull factor as spread effect index.

1. Introduction

Oil palm agroindustry is absolutely necessary in order to increase the added value of the primary oil palm commodities which is a surplus production in Indonesia, including in North Sumatra Province. The production of palm oil in general only processed fresh fruit bunches (FFB) immediately into Crude Palm oil (CPO), even Indonesia is the largest CPO exporting country in the world. Awareness of the importance of the downstream palm oil industry to increase added value and its contribution to Indonesia's GDP, is as a solution to the problem of prognosis. The majority of Indonesian palm oil production is for export, but when compared the amount of production to the export value there has been a prognosis because the export commodities not yet a final goods (table 1). The most important export destination countries are China, India, Malaysia, Singapore and the Netherlands. The export of palm oil is an important foreign exchange producer and this industry provides absorbtion labour for millions of Indonesians. Almost 70% of oil palm plantations are located in Sumatra, most of the rest around 30% are on the island of Kalimantan.

Table 1. Production and Export of Indonesian Palm Oil in 2011-2016.

Description	2011	2012	2013	2014	2015	2016
Production (million tons)	23.5	26.5	30.0	31.5	32.5	32.0a
Export (million tons)	17.6	18.2	22.4	21.7	26.4	27.0a
Export (billion US $)	20.2	21.6	20.6	21.1	18.6	18.6a

[a] show prognosis.

Government-owned plantations have a medium role in the palm oil industry, while large companies produce around half 50% of the total production Indonesian palm oil. Smallholders Farmers produce around 35%. Most of these smallholders are very vulnerable when there is a decline in the price of world palm oil resulting in a decrease in the price of FFB. The Indonesian government approve to the oil palm agroindustry development policy in North Sumatra Province through the Development of Sei Mangkei SEZ. Basic principles underlying SEZ are: SEZ as the Growth Center functions; Regional development requires interregional development cooperation efforts; The pattern of regional development; and Market mechanisms, must also be a prerequisite for regional development planning. SEZ gets facilities through the Economic Policy Package of fiscal and non-fiscal incentives. The Government of Indonesia has poured an initial investment of 2.7 trillion IDR to develop the Sei Mangkei SEZ infrastructure, plus state-owned enterprises and private investment, has amount 5.10 trillion IDR for year ended 2017.

Does the impact of infrastructure development on the agroindustry Sei Mangkei SEZ make it a new city?. The scope of the discussion is limited to the impact of infrastructure development on the Sei Mangkei SEZ oil palm agroindustry as an urban area based on the linkage index of the industrial sector in North Sumatra Province - Indonesia.

2. Literature Study

2.1. City and Urban

According to Bintarto (1984), the city is a network of human life systems with high population density, characterized by heterogeneous socio-economic strata, and materialistic patterns compared to the area behind it. Classification of cities that are nonnumeric based on city functions, it is according to functions such as: city as a center of production, trade, and recreation center. In this area regions can arise with industrial cities, where these centers are connected with transportation routes between the city and the city and between the city and the hinterland. Furthermore, Tarigan (2005) said, basically to see whether the concentration is a city or not, is how many types of urban facilities are available and how far the city performs urban functions. Urban facilities/ urban functions, among others, are as follows: trade center, service center, both individual and corporate services, etc. The more urban facilities they have and the more urban functions they carry, illustrating the actual hierarchy of the city. The higher the hierarchy the wider the area of influence. A newly developed area that meets the characteristics and functions as an urban is called a new city. Ideally, the city is a productive regional center. Thus the central place is the city center. Based on the principles of agglomeration, the economy of a large city becomes the center of its own area and a smaller city center of activity. That is, small cities depend on the availability and existing activities in the big city. It can be concluded, that in addition to numerical basis, the city can also be seen based on nonnumeric that is based on the function of the city which can be seen from the feasibility concentration in the city area so that it can carry out a service function or a higher influence on hinterland based on the level of centrality. Thus, the high-order function has a wider interaction area than the low-order function.

There are two new cities, namely small new cities and new cities in big cities. The small new city is a city built from nothing until it becomes a city that is ready to live and function as an urban, its location can be in part of the old city or outside. New cities in big cities are parts of the city that are dismantled and rebuilt to become a new city complete with urban facilities (Adisasmita, 2005). The researchers concluded that Sei Mangkei SEZ was included in the category of a small new city even though it carried out an urban function which had a large influence in the industrial sector.

2.2 Planning and Policy in Industrial Development

Planning with a clear goal. This clear objective concerns the alignment of the interests of stakeholders. Renner (1950) in Sirozujilam (2011) classifies that industry is included in extractive, reproductive, factory and facilitative activities. Industry needs raw materials, markets, labor, energy, capital and transportation. Christaller (1933) in Sirojuzilam (2011) with concept of the Central Place Theory,

draws conclusions that as an area that has a wide influence on the surrounding areas, the center of growth can be imaged with vertices with hexagonal geometric shapes. He argued that positive land is a land that supports the city center. The city center exists because for various important services the land/ environment must be provided. The nodal city area will affect the surrounding area in various aspects of activities. Furthermore, the Growth-pole Theory by Perroux (1955) in Arsyad (1999), in the development process there will be a leading industry which is the main driving industry in the development of a region. The economy is a combination of relatively active industrial systems to relatively passive industries, as growth centers. Tarigan (2005) also said, Growth-pole must have 4 characteristics, are: The existence of internal relations that have economic value; The existence of a multyplier effect; The existence of geographical concentration, also increasing the attractiveness of the city; and It is encouraging the growth of the sorround area. Outor's can be concluded, the existence of a policy of developing an economic sector in a location such as the palm oil agro-industry in Sei Mangkei, will bring forward and backward effects in the sector as well as to other sectors in the region concerned and to other affected areas and has the potential to become a new city.

2.3 Agroindustry as an Agribusiness Subsystem
Agribusiness covers all activities ranging from the procurement of agricultural production facilities (farm supplies) to the trading system produced by farming or processed products (Firdaus, 2008). Arsyad (1985) in Firdaus (2008), that agribusiness is a unit of business activity which includes one or the whole of the chain of production, processing and marketing that has to do with agriculture in the broadest sense. Agriculture in the broadest sense is a business activity that supports agricultural activities and business activities supported by agricultural activities. Soekartawi (1995), agroindustry is part of agribusiness activities, where agroindustry is a processing of agricultural commodities. If agriculture is defined as a business that produces agricultural commodities at the primary level, then the relationship with the industry can be in the form of a backward-linkage or forward-linkage. Losch (1954) attempts to show how economic activity must be arranged in a space. The authors conclude that SEZ developed a public policy by forming an area in the form of a new city by investing in the construction of facilities and infrastructure to produce spatial economic growth that affects each other in an economic system.

3. Research Methodology

3.1. Methods Approaches
The research location is the Sei Mangkei SEZ industrial area, having its address at Bosar Maligas Subdistrict, Simalungun Regency, North Sumatra Province-Indonesia. The analytical method used in analyzing the problem of this research is descriptive statistics analysis by surveying techniques. The data collected comes from secondary data. While the data that is not yet available, obtained by carrying out a Special Input-Output Survey. The data surveyed are investment, labor, infrastructure and facilities as well as industrial operations in the region. The survey results are recorded and compiled to describe the increasing function of the region as a growth center (city or urban), the existence of industrial aglomeration and the business development that has taken place to conclude that the Sei Mangkei SEZ industrial area or area has changed into a new city. The citation of the research results from the discussion on previous research problems in the dissertation was used to reinforce the impact of industrial areas as urban areas. The survey results on the development of investment and infrastructure show that there are 3 main sector taking place in the region. Some of the analytical techniques related to the calculation of the impact of the region on the surrounding area were analyzed by the following steps:

3.1.1 Input-Output (I-O) Analysis. To analyze the impact of Sei Mangkei SEZ agroindustry development on the surrounding area to obtain the I-O coefficient. Furthermore, the I-O coefficients are applied to calculate the pull factor and degree of sensitivity index. The input-output table are powerfull tools to analyze the regions economi and are very usefull in regional economic development

planning, the validity of its use depends on the correctness of the input coefficients obtained (Tarigan, 2006). I-O Analysis formula used as a modification of the Leontief I-O table model (Tarigan, 2004) with 3x3 matrix to capture the economic sectors of the region are aggregated in 3 main sectors is primary, secondary and tertiary sectors as in table 2.

Table 2. Input - Output Transaction Table in 3 Sectors.

Input Sources	Output Alocations					Total Available of Goods	
a. Intermediate Input:	Intermediate Demand Production sector i				Final Demand	Import	Total Output
			Quadrant I		Quadrant II		
1) Primary Sector	X_{11}	..	X_{1j}	..	X_{1m}	F_1	M_1	X_1
2) Secondary Sector	X_{21}	..	X_{2j}	..	X_{2m}	F_2	M_2	X_2
3) Tertiary Sector	X_{31}	..	X_{3j}	..	X_{3m}	F_3	M_3	X_3
			Quadrant III				
b. Primary Input	V_1	..	V_j	..	V_m	Quadrant IV	
Total Input	X_1	..	X_j	..	X_m		

3.1.2 Backward and Forward Linkages Analysis. This linkage analysis explains how the relationship final demand to output and impact on input demand in the upstream sector in one sector and create a multiplier effect on the overall input and output of other sectors in an economic system which calculate by in the following matrix equation formula (Tarigan, 2004):

Table 3. The Relationship Output, Coefficient of Multiplier and Final Demand.

X_1		b_{11}	..	b_{1j}	..	b_{1n}	F_1
..		..	..	..	..	..	..
X_i	=	b_{i1}	..	b_{ij}	..	b_{in}	F_i
..		..	..	..	..	..	..
X_n		b_{n1}	..	b_{nj}	..	b_{nm}	F_n

Where: b_{ij} = fill cell line to column to j of inverse matrix $(I-A)^{-1}$; X_i = output sector i; F_i = Final demand sector i; i = 1, 2, ... n; and j = 1, 2, ... m.

From the above equations we can see that any change of final demand from sector i (F_1) of 1 unit will result in a change in X_1 of b_{11}, to X_2 of b_{21} and so on. In general the number of impacts posed by sector i on sector j is:

$$r_j = b_{1j} + b_{2j} + b_{3j} + ... + b_{nj} = \Sigma_j \, b_{ij} \qquad \dots (1)$$

Where: r_j = The total impact of changes in sector i demand on the entire economy (sector j). b_{ij} = impact on sector j due to changes in sector i.

From the formula 2 can be calculated the average impact that occurs on the output of each sector as a result of changing the final demand for a particular sector by formula (2):

$$Y_j = \left(\frac{r_j}{n} \right) = \frac{1}{n} \Sigma_j \, b_{ij} \quad \dots (2)$$

Where: Y_j = average impact on output of each sector due to changes in sector final demand i.

In order to be comparable, the attractiveness of each sector should be normalized i.e the impact of the sector divided by the overall impact of the sector. Once normalized, it can be determined which sectors are above average impact and which sectors are below average. The output of each sector that changes, due to changing the final demand of a particular sector, can be normalized by finding the average, that is by using the formula:

$$\alpha_j = \frac{\Sigma_i \, b_{ij}}{(1/n) \, \Sigma_i \Sigma_j \, b_{ij}} \qquad \dots (3)$$

Where: α_j is the pull factor index of sector i (Tarigan, 2004:105). Conclusion: If the value $\alpha_j = 1$ then the pull factor is equal to the mean of the region (the average of the whole sector); If the value of α_j , 1 then pull factor exceeds the region's average, and if the value of $\alpha_j < 1$ then pull factor is lower than the regional average.

The sector with a pull factor index greater than 1 means the ability of this sector to make greater changes in the downstream sector that attract the upstream sector to contribute to developing there is a translating pull factor because it is attractive to the sectors that were previously developed. From the formula (4), can also be seen the overall impact that occurs on the output of sector 1 (X_1) if the final demand of some sectors changed. If F_1 changes to 1 point, then output X_1 changes by b_{11}, if F_2 changes 1 point, output X_1 changes by b_{12}, and so on. It can be described in terms of equations as follows:

$$s_i = \Sigma_j \, b_{ij} \quad \dots \dots \dots (4)$$

Where: S_i = Number of impacts on sector i as a result of changes in various upstream sectors in the region's economy.

In order to compare the degree of sensitivity about one sector and another, it is necessary to compare the degree of sensitivity of the sector to the overall sector average need to be normalized by the formula is as follows:

$$\beta_i = \frac{\Sigma_j \; b_{ij}}{(1/n) \; \Sigma_i \Sigma_i \; b_{ij}} \quad ....(5)$$

Where: B_i = Sector Degrees-Sensitivity Sector i or abbreviated Degree of Sensitivity. Conclusion: If the value $B_i > 1$ means the sector has a degree of sensitivity that exceeds the regional average; If the value $B_i = 1$ then the degree of sensitivity is equal to the mean of the region (the average of the whole sector); If the value $B_i < 1$ then the degree-sensitivity is lower than the average region.

4. Result and Discussion

4.1 Descriptive Analisys of the Progress of Development Sei Mangkei SEZ

Agroindustry development in Sei Mangkei SEZ since 2011, planned to require 104 ha of industrial location designation space to be expanded to 2002.77 hectares. To support the project, the Government has spent an investment of 2.7 trillions IDR for the built of infrastructure, is designed to accommodate more than 200 world-class industrial units that are of great significance for the realization of Indonesia's competitiveness. This project is effectively starting to operate with the Palm Oil Mill contained in it with a production capacity of 75 tons of oil palm FFB per hour. PKO plant 400 tons of PKO/ day has been operating since 2011 which produces CPKO products which are used as raw materials for the oleochemical industry. Unilever Oleochemical of Indonesia (UOI) Co Ltd has been operating in 2015 which produces 15,000 tons/ year of surfactant; glyserin 16,500 tons/ year; soap noodle 40,000 tons/year; fatty acid 135,000 tons/ year. On an area of 27 hectares, UOI Co Ltd employs 550 - 600 workers and creates a multiplier effect such as generating small and medium-sized business in operating since 2015. Realization of investment of Sei Mangkei SEZ in 2013-2017 of 5.10 trillions IDR. Other companies have expressed interest in building a factory in Sei Mangkei SEZ. It has been established as a pilot model for SEZ development throughout Indonesia even in 2018, the area has been designated as one of the New Cities of 4 new cities proposed by the Ministry of Civil and Public Housing of the Republic of Indonesia. The number of labour 783 people.

Several developments have been carried out within the region, including: lighting, areas, main connecting substations as regional electricity control centers, regional gates and landscapes, roads and environmental channels, regional master, area fences, water treatment plant capacity of 500-900 m^3/hour, land maturation for API's Co Ltd plan, and clean water distribution network to tenants. Based on observations, a description of the progress of the Sei Mangkei SEZ agroindustry development, among others: Regional offices and administrator offices; Renewable energy for electricity supply; The Phase I master channel is built 1.9 km; Road area with concrete quality K350, with a size of Road ROW62 along 3.4 km; Road ROW43 along 0.9 km; Road ROW34 along 0.4 km; Road ROW28 along 1.7 km; Tank Farm with a capacity of 6,000 tons of CPKO and 5,000 tons of CPO; Dry Port with a capacity of 2,300 TEUs; Liquid waste capacity $250m^3$/hour, current usage is still $20m^3$/hour; Development of fiber optics; Construction of a gas pipeline network with a capacity of 75 Mmscfd; PKO Plant 400 tons of core/day has been operational since 2011; Oleochemical Plant has been operating in 2015 produces 15,000 tons/ year of surfactant; glyserin 16,500 tons/year; soap noodle 40,000 tons/year; fatty acid 135,000 tons/ year; Industri Nabati Lestari Co Ltd with a capacity of 600,000 tons; Construction of the Bandar Tinggi-Kuala Tanjung railway rail as long as 7.25 km; Sei Mangkei SEZ asset in process by the Ministry of Finance; Construction of Kuala Tanjung International Port; Sei Mangkei SEZ Railway Line; Electric Infrastructure Sei Mangkei SEZ; Business License for Industrial Estate; and KINRA Co Ltd as the manager of Sei Mangkei SEZ.

4.2 Sei Mangkei Input-Output Table

Base on survey, there are 3 economic sectors, are primary, secondary and tertiary consisting of intermediate and primary cost as still of economic sector cost structure. The I-O Table presentation uses the sectoral cost structure approach taken from I-O Table of Statistics Bureau of Indonesia, domestic transaction on the basis of price 17 products, 2010. From 17 sectors then aggregated into 3 sectors of sectoral cost structure as Primary Sector 16,24%; Secondary Sector 49.09%; and Tertiary Sector 34.72%. The assumption of FFB at the price level is 1,350 IDR/ kg. CPO at a price of 7,300

IDR/ kg; PKO at the price of 6.475 IDR/ kg and Palm Shell at the price of 800 thousands IDR/ tons. The value of this cost structure is also used as the baseline data to form the Sei Mangkei SEZ I-O Table as shown below.

Table 4. Input - Output Table of Sei Mangkei SEZ in 2016 (Billion IDR).

Sektor[a]	1	2	3	180	301	302	303	304	305	309	310
1	102.04	1,198.16	0.00	1,300.20	412.95	0.00	1,016.49	119.82	0.00	1,549.25	2,849.46
2	150.51	573.66	390.15	1,114.32	275.30	136.70	2,051.66	71.29	855.49	3,390.44	4,504.76
3	126.53	85.25	913.74	1,125.53	229.41	17.91	1,635.76	109.65	0.00	1,992.74	3,118.26
190	379.09	1,857.07	1,303.89	3,540.05	917.66	154.62	4,703.92	300.76	855.49	6,932.43	10,472.48
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	12.25	342.55	562.86	917.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	1,270.62	2,930.95	1,616.95	5,818.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
203	37.76	5.14	12.00	54.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00
204	1.02	0.00	140.35	141.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
209	1,321.64	3,278.63	2,332.16	6,932.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
210	1,700.73	5,135.71	3,636.05	10,472.48	917.66	154.62	4,703.92	300.76	855.49	6,932.43	10,472.48

[a]The Sector Code1is Primary Sector; 2 is Secondary Sector; 3 is Tertiary Sector; 180 is Number of Intermediate Demand; 190 is Number of Intermediate Input; 200 is Import; 201 Wages and Salaries; 202 is Business Surplus; 203 is Depreciation; 204 is Net Indirect Taxes; 209 is Gross Added Value; 210 is Number of Inputs; 301 is Household Expenditure; 302 is Government Expenditure; 303 is Fixed Capital Formation; 304 is Stock Changes; 305 is Export; 309 is Number of Final Demand; 310 is Number of Demand; 409 is Total Import; 509 is Revenue.

4.3 The Impact of Final Demand on Gross Added Value of SEZ

Based on the industrial input coefficients obtained as presented in table 4 above, the magnitude of the Sei Mangkei SEZ agroindustry impact on gross value added on the overall economy in 5 components is household consumption, government consumption, capital accumulation, inventory changes and export value. To calculate the impact of the final demand on Gross Added Value (GAV) a diagonal matrix of GAV coefficients is firstly sought by dividing the gross added value of primary input with the total input of the economic sector. The coefficients of these values are then placed on the diagonal of the matrix and the other cell values in the matrix are given the number 0. The next step is to multiply the diagonal matrix of the GAV coefficient with the final request matrix table, to obtain the impact of the final demand component on the creation of the GAV as shown in the table 5.

Table 5. The Impact of Final Demand Components on GAV Creation.

I-O Code	Description	Final Demand (Billion IDR)	Impact to Value Added (Billion IDR)	Output Ratio
301	Household Consumption	917.66	643.80	0.70
302	Government Consumption	154.62	98.76	0.64
303	Capital Accumulation	4.703.92	3.148.88	0.69
304	Inventori Changes	300.76	208.95	0.70
305	Export	855.49	546.14	0.64
	Amount	6,932.43	4,646.52	0.67

Based on the impact value and ratio output above, the Degree of Sensitivity and Pull Factor of Industrial Sector and its index of Industrial Sector had been calculated after normalization as shown in the table 6. It is known, the sector that has a high degree of sensitivity gives an indication that the sector has a strong driving force as a growth-pole function. Conversely, a sector that has a high Pull Factor means that the sector has a high dependence on other sectors. The sector with the highest linkages means that the sector has the potential to produce high output as well.

Table 6. Degree of Sensitivity and Pull Factor of Industrial Sector of Sei Mangkei SEZ.

Description	Degree of Sensitivity Value	Degree of Sensitivity Index	Pull Factor Value	Pull Factor Index
Industrial Sector	1,45	0,99	1.50	1.03

The industrial sector as secondary sector is known to have a degree of sensitivity level of 1.45 and has been classified as high, because it has a sensitivity level >1. The pull factor of the Secondary Sector is 1.50 and the value of the deployment power is also high, because of its value >1. After normalized known that the high pull factor index is the Industrial Sector, with the sensitivity index of 0.99. This means that investment in the industrial sector in the region and its downstream will have a broad impact on the economy, not only on the development of its input sectors, but also provide a driving force for the growth of other output sectors.

The results of the study state that value in a high degree of sensitivity and pull factor index, it was concluded that the industrial sector operating in Sei Mangkei SEZ Simalungun Regency experienced an increase in function or impact, role, linkage and great interaction with the sector internally. the overall economic system in the interegional region. This means that the amount of investment used to

build facilities and infrastructure in the region can improve the function of the region as a new city in North Sumatra Province. The Industrial Sector has a low forward linkage but high backward linkages, thus this sector is sensitive to changes in other sectors. Cited from Kuncoro (2007) mention, "Where agroindustry with low forward and backward linkages, this sector is not only insensitive to changes in other sectors but also cannot be relied on to grow other sectors although investment injection in this sector was increased". We had known that the importance of investment in development. Linkages as a mechanism to encourage further investment and makes it easier for policy makers to make decisions to invest. Where the driving industry is considered a starting point and is an essential element for further development. The results of the analysis illustrate whether the economy can grow if there is encouragement or an increase in the final demand (exogenous). This analysis model is often referred to as demand-driven model or demand side strategy (Rustiadi, 2011). Tarigan (2004), a sector with a sensitivity index greater than 1 is a leading and potential sector to be injected with investment so that regional functions grow and develop.

4.4 Descriptive Discussion of KEK Sei Mangkei Business Operating

Output has a reciprocal relationship with the final request, the amount of output produced depends on the number of final demand. Creation of added value of palm oil commodities from primary inputs of FFB that occur in business activities or sectoral economic activities at the Sei Mangkei SEZ, in addition to being used by the production sector in the process framework (fulfilling intermediate demand), also used to fulfill final demand or consumption. This needs to be considered as a dimension of the availability of quality raw materials in accelerating the development of integrated SEZs (Republic of Indonesia Action Plans, 2017).

The manufacturing industry activities that have taken place at this time in Sei Mangkei SEZ are the processing of the fresh palm fruit bunches into CPO and CPKO in the palm oil agroindustry. Tank Farm with a capacity of 6,000 tons of CPKO and 5,000 tons of CPO at present. In the vicinity of the existing Palm Oil plant owned by Perkebunan Nusantara III Co Ltd which was built in 1997 the capacity of 30 tons FFB/hour, then increased to 75 tons FFB/hour in 2011. Palm Kernel Oil Factory 400 tons of core/day has been operational since 2011 which produces CPKO products used as raw materials for the oleochemical industry by UOI Co Ltd. The Oleochemical Plant has been operating in 2015 which produces a surfactant of 15,000 tons /year; glyserin 16,500 tons / year; soap noodle 40,000 tons/ year; fatty acid 135,000 tons/year. On an area of 27 hectares, an oleochemical plant has been built that employs 550-600 workers and creates a multiplier effect such as generating small and medium-sized small business. The company was officially operating on November 26, 2015. In the near future the Industri Nabati Lestari Co Ltd produce Oil Plant with a capacity of 600 thousands 000 tons will be operationalized, so the creation of added value in the secondary sector is increasingly widespread. This means that the palm oil-based agro-industrial tree chain is getting longer. This will have an impact on the sectoral economy in the upstream and downstream sectors of Sei Mangkei SEZ. Supporting facilities available in the area in the form of waste management, road infrastructure, Kuala Tanjung international hub ports, dry ports, railroads, tank farms, gas distribution, electricity and clean water all of its continue to be developed in accordance with the demand driven in the region.

In the sectoral economy, the provision of infrastructure as a facility in the region constitutes government investment expenditures, state-owned enterprises and national and foreign private investments as a dimension of building a business and investment climate. This is the final demand component namely government consumption, capital formation, household consumption, and inventory changes. Furthermore, it will have an impact on the creation of output, gross value added, community income and employment. The availability of infrastructure and facilities and infrastructure facilities for Sei Mangkei SEZ and the space for its procurement, must still be intensively carried out to develop the connectivity of the flow of goods and the smooth process of production, as a dimension of infrastructure and energy availability. This is a factor of attraction for investors to come into building industries in the region. Government activities in building and completing facilities needed in the business are part of the final investment or demand of input which at the same time is a trigger for

the increase in the impact of output on the sectoral economy of Sei Mangkei SEZ, the surrounding region, North Sumatra Province and National.

4.5 Government Policy Analysis

According Indonesian's The Long-term Development Plan of 2005-2025 was to strengthen the domestic economy with a globally competitive orientation, which was essentially directed at the following: The economic structure was strengthened by the industrial sector as a motor drive; Investment is directed to support the realization of high economic growth in a sustainable and quality manner; In order to strengthen the competitiveness of the global economy, the industrial sector needs to be to create a ca[acity and strengthen local small business; Infrastructure and financial services are developed in accordance with national economic development policies to be able to effectively support increased production and global competitiveness, and an increase in national interests in poverty alleviation and development of rural economic activities; Increased linkages of economic activities in urban areas with economic activities in rural areas are encouraged synergistically; and Spatial planning is used as a reference for spatial policies for development in every sector and regions so that spatial utilization can be synergistic, harmonious and sustainable.

5. Conclussion

Based on the research analysis and discussion, the conclusions obtained are as follows:
1. Oil palm agroindustry Sei Mangkei SEZ was developed through a public policy by forming an area in the form of a new city with the construction of facilities and infrastructure to produce spatial economic growth that influence each other in an economic system.
2. The industrial sector as secondary that operates in Sei Mangkei SEZ of Simalungun District, experiences an increase in the linkage function and a large interaction with its sector internally and the overall economic system in the interegional linkages. That the amount of investment used to build facilities and infrastructure in the region can improve the function of the region as
3. a new city in North Sumatra Province as described by the construction of infrastructure, industrial facilities, the degree of sensitivity, pull factor and a high pull factor index (>1).

References

[1] Bintarto R 1984 Village-Town Interaction and Problems (Jakarta: Ghalia Indonesia) p 36, 85

[2] Tarigan R 2004 Regional Economy (Jakarta: PT. Bumi Aksara) pp 98-105 _2005 Regional Development Planning (Jakarta: PT. Bumi Aksara) p 130

[3] Adisasmita R 2015 Urban Economic Development (Yogyakarta: Graha Ilmu) p 84-85

[4] Firdaus M 2008 Agribusiness Management (Jakarta: Bumi Aksara) p 7

[5] Hirschman 1958 The Strategy of Economics Development 6th edition (New Haven: Yale University)

[6] Kuncoro M 2007 Quantitative Methods Theories and Applications for Business and Economics (Yogyakarta: UPP AMP YKPN) p 256 _ 2007 Spatial and Regional Analysis Study of Indonesian Industrial Cluster Aglomeration (Yogyakarta: UPP AMP YKPN) p 276

[7] Rustiadi E P 2011 Regional Planning and Development (Jakarta: Pustaka Obor) p 151

[8] Sinurat A 2018 Analysis of Sei Mangkei SEZ Development Policy in the Rural Urban Linkage Perspective (Medan: Graduate School of University of Sumatera Utara)

[9] Sirojuzilam and Mahalli K 2011 Regional: Development, Planning and Economics (Medan: University of Sumatera Utara). 2011 Theory of Location (Medan: University of Sumatera Utara) p 24

[10] Soekartawi 1995 Introduction to Agroindustry 2nd Edition (Jakarta: PT. Rajagrafindo Persada)

[11] Arsyad L 1985 Introduction to Regional Economic Planning and Development (Yogyakarta: Economics Faculty of Gajahmada University) p 14 .2010 Economic Development (Yogyakarta: STIE YKPN) p 141