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THE IMPLEMENTATION OF OIL PALM BASED REGIONAL INNOVATION SYSTEM (SIDA) IN SUPPORTING THE MASTERPLAN FOR THE ACCELERATION AND EXPANSION OF INDONESIA'S ECONOMIC DEVELOPMENT (MP3EI) OF THE ECONOMIC CORRIDOR OF SUMATERA-INDONESIA

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ABSTRACT: *The purpose of the research is to determine the Implementation of Oil Palm Based Regional Innovation System (SIDA) in Supporting the Masterplan for the Acceleration and Expansion of Indonesia's Economic Development (MP3I) of the Economic Corridor of Sumatera. It is a qualitative-descriptive research. The population in this research was the residents of Desa Mangkei Lama and Desa Mangkei Baru for 150 families. The sampling was conducted by using the purposive random sampling technique with certain criteria. The minimum sample size in this study was 30 respondents. With the Special Economic Zone (KEK) of Sei Mangkei which cultivates the oil palm it produces the CPO but not fully distributed yet. Many distributed oil palm products still need to be developed into a large-scale laboratory scale industry. The growing oil palm nursery on the developed village which is a supplier of seeds for the oil palm plantations. The developing Cooperative of oil palm midribs based Cattle feeds that supplies the feed for the cattles, Excelent Calves and Bio Gas. The plantation community empowerment through the Biomass stove using the Shells and Briquets. The Oil Palm plantations produce CPO but not fully distributed yet. Many distributed oil palm products still need to be developed into a laboratory-scale industrial scale.*

KEYWORDS: Oil Palm, Regional Innovation, Special Economic Zone, Economic Development.

INTRODUCTION

The development of Regional Innovation System (SIDa) in North Sumatra which has a theme of the distribution of oil palm-based small and medium enterprises (SME), the suppression of SIDa is focused on the economic activity of oil palm in MP3EI, which is the productivity increase, the sector development on the farm, and also the development of distribution industries. The current conditions in North Sumatra which support the distribution process of Oil Palm trees are as the following:

- Oil Palm is the main commodity in MP3EI of North Sumatera's Economic Corridor
- The area of Oil Palm plantations in North Sumatera is 1.2 Million Hectares
- There is a Special Economic Zone (KEK) of Sei Mangkei which processes the Oil Palm
- Oil Palm produces CPO but not fully distributed yet

Many distributed Oil Palm products are still in the laboratory scale which needs to be

developed into the industrial scale. Based on that basis, the SME based development of SIDA for oil palm distribution in North Sumatra proposed four programs, they are; 1. the improvement in the productivity of community plantations, 2. the development of SME based distribution industries, 3. the utilization of biomass as energy alternative in oil palm plantations and 4. the implementation of Oil Palm-Cow Energy Integration program (ISSE) as the supporting capacity of food and energy security in North Sumatra. The program is based on the potential of oil palm in North Sumatra that is not optimally developed. Although it is supported by the condition of the suitable land and climate, the strategic position and the oil palm market are still prospective.

Subagyo (2013) states in the Essential Frameworks and Elements for the Development of Regional Innovation System that it has a very important role in supporting the elements of the business / industry which are reflected in the Essential Frameworks and Elements for the Development of Regional Innovation System. The SMEs act as a node of a partnership network which provides integrated services to develop the innovative SMEs through the improvement of performances of both of the existing and the development of new innovative SMEs. Therefore, the integrated services provided by the SMEs include: 1). Technology-based services, 2). Human resources development of the SMEs, 3). Business intermediation of SMEs, and 4). Facilitating access to the business funding. With all of the potential, the development of Regional Innovation System (SIDA) of North Sumatra is expected to be supported by various parties involved, so that they can work synergistically.

Innovative enterprises have a relevance to funding. One of the elements is the innovative financing mechanism. It can be a traditional mechanism which is to raise and distribute aid / fund (Jhose Michaud and Jen Kates, 2011). Ma (2010) states that there are three important things affecting the funding of technological innovation of SMEs in China, they are the policies and regulations including taxation policies, the funding of SMEs technological innovation, and the increase of the cost of the inputs. The small and medium enterprises (SMEs) and other microfinance institutions are rarely touched by formal economic science. Whereas, in addition to the large numbers, they are also strong in supporting the Indonesian economy. According to Dibrel et al (2005), the products of SMEs generally do not contain the imported ingredients or components, because they use local materials or components, both the natural and human resources. At the moment of the increase of dollar exchange rate, this sector can not only survive but also can get its export earnings increased sharply.

THEORETICAL PERSPECTIVE

The Framework of Innovation in the Business

The Development of Regional Innovation System (SIDa) is a development with a systemic approach which means that the passage of SIDa Development Program in a defined area is the quality of the cooperation of more than one actor / stakeholder / institution involved in order to support the success of the innovation development goals. The most important thing in the development of SIDa is the general framework that is condusive for Innovation in business development in the region, which is the interaction between the stakeholders with business institutions and sustainability in support with the business data, Regulations, basic infrastructures as well as innovation and business incentives.

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a. Innovation and Business Database

Innovation Data which can increase the capacity of SME based Oil Palm Distribution Innovation and Business include:

- The area of oil palm plantations in North Sumatera, including the government plantations,
- The number of Processed CPO Producing companies
- The number of Processed Distributed Oil Palm Products Producers
- The number of Distributed Oil Palm Products which are developed in SME scale
- Many Innovation Products of Oil Palm which are possible to be Developed from the Laboratory into Industri Scale

b. Regulations supporting Innovation and Business

Law No. 18 of 2002 about the National Research, Development, and Implementation System of Sciences and Technology.

Special Economic Zone (KEK)

According to the National Council for Special Economic Zones in Lingga and Pratomo (2013), Special Economic Zone (KEK) is an area with a certain extent within the territory of the Republic of Indonesia are set to perform the functions of the economy and acquire certain facilities. The function of the KEK is to conduct and develop business in the field of trades, services, industries, mining and energy, transportations, maritime and fisheries, post and telecommunications, tourisms and other fields. Therefore, the KEK is divided into several zones, such as, export processing zone, logistics, industry, technology development, tourism, and energy with export- and domestic-oriented products. KEK is developed through the preparation of the region which has the geo-economy and geo-strategy advantages and serves to accommodate the industrial, exports, imports and other economic activities which have a high economic value and international competitiveness.

Various activities conducted in KEK are regulated by the law. The regulations include the prohibitions or restrictions of import and export, the exceptions in import and export, the traffic of goods both to KEK and from KEK, the regulations on quarantine, and the use of rupiah currency as the legal tender in KEK. Each KEK is also equipped with various facilities, both fiscal / non-fiscal facilities and facilities in the Draft Law (RUU) of KEK.

REVIEW OF PREVIOUS RESEARCH

Research by Lingga and Pratomo (2013) entitled The Analysis of Public Perception of the Development of Special Economic Zone of Sei Mangkei has a conclusion that in relation to its potential as a center of growth, there were 39% of respondents believed that the industrial area Sei Mangkei has a very good future and it will grow rapidly, 55% of respondents stated that Mangkei Sei industrial area has a good future and it will develop, and 6% stated that they are pessimistic about the potential of this region in the future. The perception was also supported by the opinion of 47% of respondents who stated that that KEK of Sei Mangkei is very nice as a center of economic activity and 50% of respondents believed that KEK of Sei Mangkei is good as a center of economic activity. It was confirmed by the perception of 92%

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of respondents who believed that KEK of Sei Mangkei will stimulate the growth and improve the economy of the surrounding areas.

Conceptual Framework

The conceptual framework used in this research is as the following:

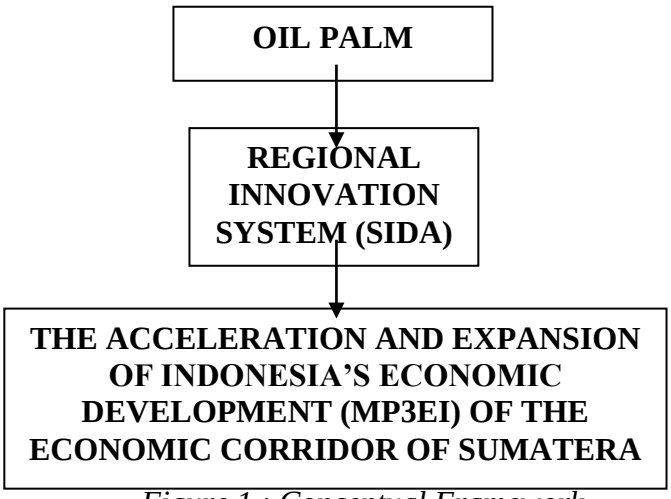

Figure 1 : Conceptual Framework

METHODS AND MATERIAL

Research Design

The research design of this research was the survey. The research data used was the primary data of the field survey on the Special Economic Zone (KEK) of Sei Mangkei of Kabupaten Simalungun, North Sumatera – Indonesia which consists of Desa Mangkei Lama and Desa Mangkei Baru.

Population and Sampel of the Research

The population of the research was the residents of Desa Mangkei Lama and Desa Mangkei Baru for 150 families. The sampling was conducted by using the purposive random sampling technique with certain criteria. The minimum sample size in this study was 30 respondents.

Research Variable

The definition fo research variable is as the following:

Table. 1. Operational Variable

Variable	Indicator	Scale	Measurement
	Oil Palm nursery in the villages is drastically increased	Ordinal	Likert scale
	Oil Palm nursery in the villages supplies the needs of Oil Palm in the villages.	Ordinal	Likert scale
	There is a Cooperative of Oil Palm	Ordinal	Likert scale

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	midribs based Cattle Feeds Didesa.		
	The Cooperative of Oil Palm midribs based Cattle Feeds as the Cattle feeds supplier	Ordinal	Likert scale
OIL PALM BASED REGIONAL INNOVATION SYSTEM (SIDA)	The cattle business produces Beef, Excelent Calves and Bio Gas	Ordinal	Likert scale
	The cattle business produces Excellent Calves	Ordinal	Likert scale
	The cattle business produces Bio Gas	Ordinal	Likert scale
	The plantations community empowerment is very suitable to the Bio Gas stove using the Shells and Briquets.	Ordinal	Likert scale
	The Oil Palm plantations produce CPO but not fully distributed.	Ordinal	Likert scale
	The laboratory-scale distributed oil palm products need to be developed into industry scale	Ordinal	Likert scale
	The diversification of CPO products into derivative foods and cosmetics (Chocolate, Butter, Soap, Cosmetic, etc)	Ordinal	Likert scale
	The developing SME based Oil Palm industry is expected that the Oil Palm industry gives a wider multiplier effect to the welfare of the society.	Ordinal	Likert scale
	The derivatives of Oil Palm are used to obtain the bank financing	Ordinal	Likert scale
	The efforts have been conducted in the form of Laboratory to produce Excellent Seeds, and also Oil Palm processed products in the form of Cocoa Butter Subtitutes (CBS), paraffin, Soap and Butter.	Ordinal	Likert scale

Data Analysis

The data analysis method used is by using the descriptive analysis with Mean, Maximum and Minimum.

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RESULTS AND DISCUSSIONS

Description of the Data

The description of questionnaires is as the following:

Table 2 : The Development of Oil Palm Nursery Efforts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	7	23,3	23,3	23,3
	2,00	6	20,0	20,0	43,3
	3,00	5	16,7	16,7	60,0
	4,00	12	40,0	40,0	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 2 show that 40% respondents agree that the Oil Palm Nursery Efforts in the village are increased rapidly and 7% the respondents disagree.

Table 3 : Oil Palm Cultivation of the Villages as the Producers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	4	13,3	13,3	13,3
	2,00	10	33,3	33,3	46,7
	3,00	3	10,0	10,0	56,7
	4,00	13	43,3	43,3	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 3 show that 43.3% respondents, agree that the Oil Palm Nursery Efforts in the village supply the needs of oil palm and 10% respondents state that they are neutral.

Table 4: The Cooperative of Cattle Feeds Business

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	6	20,0	20,0	20,0
	2,00	15	50,0	50,0	70,0
	3,00	5	16,7	16,7	86,7
	4,00	3	10,0	10,0	96,7
	5,00	1	3,3	3,3	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 4 show that 50% respondents disagree to the Cooperative of Oil Palm Midribs based Cattle Feeds Business and 3.3% respondents absolutely agree.

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Table 5: The Cooperative of Cattle Feeds Business Supplying the Cattle Feeds

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	9	30,0	30,0	30,0
	2,00	11	36,7	36,7	66,7
	3,00	4	13,3	13,3	80,0
	4,00	3	10,0	10,0	90,0
	5,00	3	10,0	10,0	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 5 show that 36.7% respondents disagree that the Cooperative of Cattle Feeds Business as the supplier of Cattle Feeds and other 10% respondents agree.

Table 6: The Cattle Business produce Beef, Excellent Calves and Bio Gas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	3	10,0	10,0	10,0
	2,00	3	10,0	10,0	20,0
	3,00	7	23,3	23,3	43,3
	4,00	15	50,0	50,0	93,3
	5,00	2	6,7	6,7	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 6 show that 50% respondents agree that the Cattle Business produces Beef, Excellent Calves and Bio Gas and 2 other groups of 10% respondents disagree and absolutely disagree.

Tabel 7 : The Cattle Business produce Beef, Excellent Calves and Bio Gas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	2	6,7	6,7	6,7
	2,00	5	16,7	16,7	23,3
	3,00	6	20,0	20,0	43,3
	4,00	14	46,7	46,7	90,0
	5,00	3	10,0	10,0	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 7 show that 46.7% respondents agree that the Cattle Business produces Beef, Excellent Calves and Bio Gas and 2 other groups of 10% respondents disagree and absolutely disagree.

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Table 8: The plantation community empowerment through the Biomass stove using the Shells and Briquets

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	3	10,0	10,0	10,0
	2,00	5	16,7	16,7	26,7
	3,00	8	26,7	26,7	53,3
	4,00	14	46,7	46,7	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 8 show that 46.7% respondents agree to The plantation community empowerment through the Biomass stove using the Shells and Briquets and 10% respondents absolutely disagree.

Tabel 9 : The Oil Palm Plantations which Produce CPO are not distributed yet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2,00	4	13,3	13,3	13,3
	3,00	7	23,3	23,3	36,7
	4,00	19	63,3	63,3	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 9 show that 63.3% respondents agree to The Oil Palm Plantations Produce CPO but it is not distributed yet and other 2 groups of 0% respondents absolutely disagree and absolutely agree.

Table 10 : The Development of Laboratory-Scaled Oil Palm Distributed Products

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2,00	5	16,7	16,7	16,7
	3,00	13	43,3	43,3	60,0
	4,00	12	40,0	40,0	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 10 show that 43.3% respondents state neutral to The Distributed Oil Palm Products need to be developed into the industry scale and other 2 groups of 0% respondents absolutely disagree and absolutely agree.

Tabel 11 : The Diversification of CPO Products into Derivative Foods an Cosmetics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2,00	4	13,3	13,3	13,3
	3,00	11	36,7	36,7	50,0
	4,00	15	50,0	50,0	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

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The results of Table 11 show that 50% respondents agree to the diversification of CPO product of foods and consmetics (Chocolate, Butter, Soap, Cosmetics, etc) and other 2 groups of 0% respondents absolutely disagree and absolutely agree.

Table 12 : SME based Oil Palm Industry gives Multiplier Effect

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2,00	4	13,3	13,3	13,3
	3,00	6	20,0	20,0	33,3
	4,00	18	60,0	60,0	93,3
	5,00	2	6,7	6,7	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 12 show that 60% respondents agree to the developed SME based Oil Palm industry is expected to give wider multiplier effect to the welfare of the society and 0% respondents absolutely disagree.

Tabel 13 : The Derivative Products of Oil Palm to obtain Bank Financing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2,00	1	3,3	3,3	3,3
	3,00	7	23,3	23,3	26,7
	4,00	18	60,0	60,0	86,7
	5,00	4	13,3	13,3	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 13 show that 60% respondents agree to to the derrivative products of Oil Palm to obtain the bank financing and 0% respondents absolutely disagree.

Tabel 14 : Efforts in the Form of Laboratory to Produce Excellent Seeds, and also Processed Oil Palm Produc

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00	2	6,7	6,7	6,7
	2,00	1	3,3	3,3	10,0
	3,00	3	10,0	10,0	20,0
	4,00	23	76,7	76,7	96,7
	5,00	1	3,3	3,3	100,0
	Total	30	100,0	100,0	

Source: Processed Data (2015).

The results of Table 14 show that 76.7% respondents agree that the efforts had been conducted in the form of Laboratory to produce excellent seeds, and also processed Oil Palm products in the form of Cooca Butter Subtitutes (CBS), paraffin, Soap, and Butter and 6.7% respondents disagree.

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DISCUSSION

There were some efforts to reinforce the potential or power possessed by the people (empowering). It needs more positive steps, in addition to just create the climate and atmosphere. The reinforcement includes concrete steps, and involves the provision of various inputs, as well as the opening of access to the various opportunities that would make people become more empowered (Sutiarso, 2006). Therefore, there should be a special program for people who are less powerful, because the programs are general for all, not always be able to reach the society. The plantation sector should be developed into the backbone of the economy of North Sumatra. This is supported by the fact that the North Sumatra has abundant natural resources in the form of the crops, which is still exported in the form of raw materials. It raises the idea to develop the industrial sector as the engine of growth in the economy of North Sumatra. The early implementation in the development of industrial sector in North Sumatra was the enactment of the territory of Sei Mangkei as the center of natural resources-based industrial activity in North Sumatra by the Indonesian Government Regulation Number 29 of 2012, on Special Economic Zone of Sei Mangkei. Endang (2010) states that the development of oil palm-based food products become very important in the future. With the growing popularity of the use of natural compounds for the pharmaceutical industry materials, then the prospects for the development of food products are also more opened. Results from a number of research studies show that the economic value of oil palm may increase with the development of oil palm based new industries, which in turn can improve the welfare of the farmers.

The implementation of Oil Palm based Regional Innovation System (SIDA) of Sei Mangkei is potential to become the growth center region as it becomes a Special Economic Zone (KEK) of Sei Mangkei which will stimulate growth and development of surrounding areas by creating innovative products from oil palm. The existence of KEK of Sei Mangkei will improve people's lives around which are realized in the form of the increase in people's income, also in terms of the availability of facilities and social and economic infrastructures for the society. The development of Oil Palm Distribution will be beneficial to the progress of society, especially in terms of improving the socioeconomic status of the society. The development of KEK of Sei Mangkei with the primary expectations that KEK of Sei Mangkei will absorb a lot of labors so that the unemployment problem can be solved. The SME policy in Indonesia is more social-oriented, not market and competitiveness-oriented. It only encourages the SME policy to promote employment chances growth or poverty, and more geared to increase export and domestic market share, so that SME in Indonesia remains weak (Tambunan, 2010). Therefore, the policy of SME in Indonesia is more focused on the provision of credit not providing the facilities in order to innovate. Therefore, generally, the SME in Indonesia is more utilized for the capital not for financing the innovation.

CONCLUSIONS AND SUGGESTIONS

Conclusions

The conclusions of the research are as follows:

1. The Distribution of Oil Palm in Kabupaten Simalungun as the center of MP3EI area is not optimally guided yet by the government.

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2. The condition of the Cooperative of Oil Palm Midribs based Cattle Feeds as the supplier of Cattle Feeds is still minimum.

3. The Cattle Business from ISSE process which produces Beef, Excellent Calves, and Bio Gas is still minimum and needs to be developed.

4. The plantation community empowerment through the Biomass stove using the Shells and Briquets is not optimal yet caused by the lack of the raw materials.

5. The diversification of CPO products to be foods and cosmetics (Chocollate, Butter, Soap, Cosmetics, etc) is not optimal yet.

6. The access of Banks on the derrivative Oil Palm products in North Sumatera is not optimal yet especially for the financing of small and médium enterprises.

7. The potential of Biogas needs to be developed to improve the welfare of the society.

Suggestions

Suggestions for the future research:

1. The public policies related to the distribution of Oil Palm will support the Employment chances, Economic Development, Accessibility and Availability of the capital, Prices and Availability of Trained Human Resources in North Sumatera.

2. The needs of public policies related to the distribution of Oil Palm especially for the potential of Biogas in Kabupaten Simalungun, Batubara and Asahan as the center of MP3EI areas.

3. The plantation community empowerment through the Biomass stove using the Shells and Briquets needs to be developed so that the distribution of Oil Palm can be optimal.

REFERENCES

Dibrell, C; Davis, Ps, Craig, J. 2008. Encouraging innovation in SMEs through Information Technology, *Journal of Small Business Management*. Vol. 46, No. 2: 203 218. http://dx.doi.org/10.1111/j.1540-627X.2008.00240.x.

Endang S. Gumbira, Chairman MAKSI, "*Orientation Research and Product Development Downstream Palm Oil: Challenges Cooperation Academic - Business - Government (ABG) sustainable*", POIDeC 2013, Hotel Grand Melia Jakarta, Jakarta, October 17, 2013.

Fatah, Vian Ahmad Abdul. 2014. Effect of Product Innovation and Market Orientation Against competitive advantage (Survey On SME Batik Tasikmalaya Deden). *UNIKOM Bandung Online Journal*. Access August 15, 2015.

Indonesian Government Regulation Number 29 of 2012, on Special Economic Zones Sei Mangkei.

Law No. 18 2002 on the National System of Research, Development and Application of Science and Technology.

ISSN 2053-4019(Print), ISSN 2053-4027(Online)

Ma, Jingting. 2010. A Study on Influences of Financing on Technological Innovation in Small and Medium-Sized Enterprices. *International Journal of Business and Management*. Vol. 5, No. 2 February 2010.

Michaud, Jhose; Jen Kates. 2011. *Innovative Financing Mechanisms for Global Health: Overview & Considerations for US Government Participation*. The Henry L KAISER FAMILY Foundation.

Phallus, Doriani and Ario Pratomo Revelation .2013. Public Perception Analysis on Development of Special Economic Zones Sei Mangkei. *Journal of Economics and Finance*, Vol.1, No.2, January 2013.

Setiarso, Bambang, 2006. Knowledge Management (Knowledge-Management) and the Intellectual Capital (Intellectual Capital) For SME Empowerment, *Information and Communication Technology Conference*, Bandung 3-4 May 2006.

Subagjo, Ignatius, 2014. Development Innovation Center Micro, Small and Medium Enterprises (SMEs PI) in the Framework of Regional Innovation Systems (SID). Regional Innovation System (SID). LIPI. Jakarta. http://ejurnal.bppt.go.id/index.php/JSI/article/view/5. Accessed on August 25 2015.

Tambunan, T. 2010. Development of National Industry and the Role of FDI. *Journal of Development Economics*, Vol. 18 (1), p 21-34.

ISSN 2053-4019(Print), ISSN 2053-4027(Online)