Strengthening Local Potential for Sustainable Economic Development in Bengkulu City

N. Listyaningrum[1*], S. F. Lestari[1], I. A. Riyanto[1], A. Cahyadi[1], and B. Sulistyo[2]

[1]Department of Environmental Geography, Faculty of Geography, Universitas Gadjah Mada, Bulaksumur, Yogyakarta 55281, Indonesia

[2]Department of Soil Science, Faculty of Agriculture, University of Bengkulu, Kandang Limun, Bengkulu 38371, Indonesia

noviyanti.listyaningrum@mail.ugm.ac.id

Abstract. Number of poor population in Bengkulu City is the highest among other regencies in Bengkulu Province. Development in Bengkulu City looks forward internally, but not changing the image as lagging region in Indonesia. Although the Human Development Index (HDI) of Bengkulu City is the highest in Bengkulu Province and more than the national average, it has not been beneficial for the Bengkulu City progress. Research objectives are: (1) to know the leading sector in Bengkulu City, (2) to know the chain of regional economic issues of Bengkulu City, and (3) to formulate a strategy of sustainable economic development in Bengkulu City. Method which is used in this research is literature study and descriptive analysis towards calculation results of location quotient (LQ), specialization index (SI), Theil entropy index (TEI), shift-share analysis, and Klassen typology based on gross domestic product (GDP) data. The results show that the most leading sector in Bengkulu City is company service, with LQ of 2.97 (2011); 3.02 (2012); and 2.96 (2013). The regional economic issues in Bengkulu City can not be separated by disparity of the leading sector, unspecialized of the leading sector, low competitiveness and lagged of the leading sector, coupled with increasing of poor population, not optimized of HDI utilization, and low function of regional development key. Development strategy in Bengkulu City formulated through local potential empowerment, such as developing company service sector, increasing the company setor service competitiveness, and creating generative city relations.
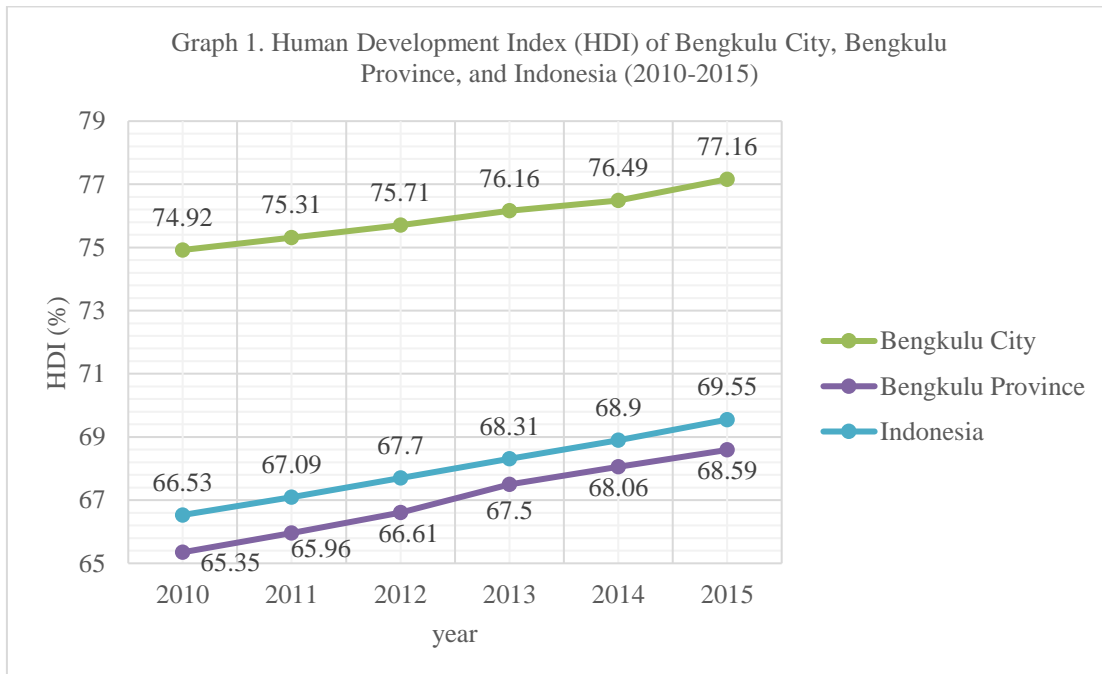
1. Introduction

Bengkulu City is the capital of Bengkulu Province, Indonesia. Bengkulu City had a high Human Development Index (HDI) (Graph 1) compared to the average in the province and country [1]. Based on [2], infrastructure development in Bengkulu City has exceeded targets, but Bengkulu Province included a quite poor in western part of Indonesia [3] and the poorest in Sumatra Island [4]. The number of poor population, according to BPS year 2010-2015 showed it tends to has increased (Graph 2), especially in Bengkulu City [5]. Development in the city has not given positive impact yet to the province.
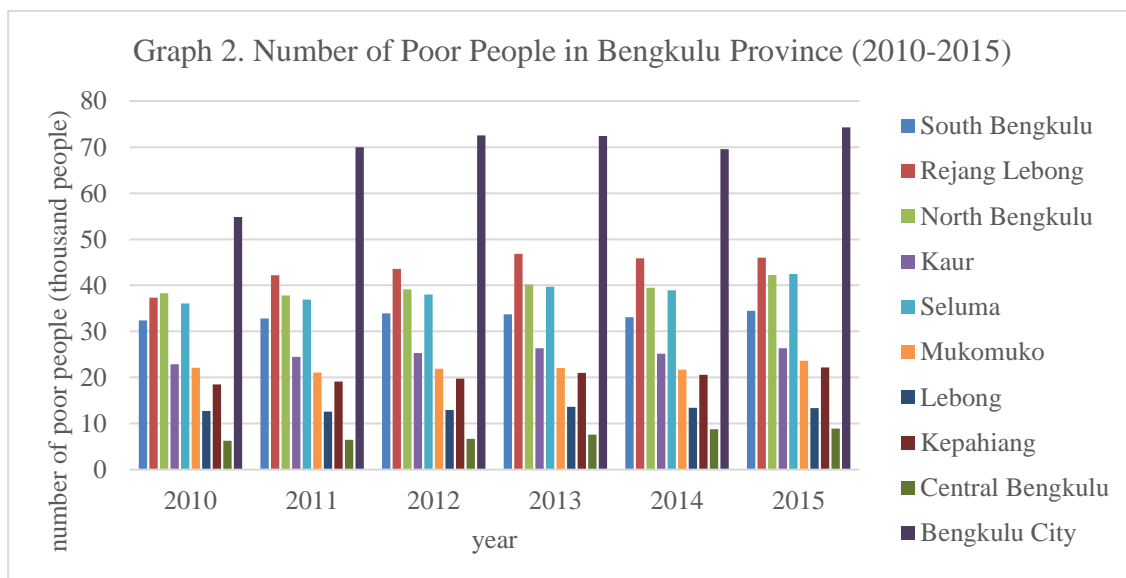
Regional development should pay attention to three keys [6], i.e.: (1) intraregion factor, reflected in the regional potential, (2) interregion factor, reflected by the geographical position against the wider or national scope, and (3) supra region factor, related to law, legal, or bureaucratic. One of the problems arising in the regional development is about regional economic development strategy so that scale of

priority is required. The priority sector in regional development is the leading sector [7]. Strengthening and expanding of the leading sector in each region is strategic answer towards economic and social problems lagged region [8].

Graph 1. Human Development Index (HDI) of Bengkulu City, Bengkulu Province, and Indonesia (2010-2015)

Source: [1]

Graph 2. Number of Poor People in Bengkulu Province (2010-2015)

Source: [5] (processed)

It is important to solve the Bengkulu Province issues, started by regional development of the provincial capital or Bengkulu City. Research objectives are: (1) to know the leading sector in Bengkulu City, (2) to know the chain of regional economic issues of Bengkulu City, and (3) to formulate a strategy of sustainable economic development in Bengkulu City.

2. Methodology

The research method whisch is used in this research is literature study. Regional economics, the chain of regional economic issues, and the strategy formulation of sustainable economic development of Bengkulu City were descriptively analyzed through calculation of location quotient (LQ), specialization index (SI), entropy Theil index (TI), shift-share analysis, and Klassen typology based on gross domestic product (GDP) data of Bengkulu City and Bengkulu Province.

LQ is calculated with the formula (i). GDPir is sectoral GDRP in the city, TGDPr is total GDP in the province, GDPin is sectoral GDP in the city, and TGDPn is total GDP in the province.

$$LQ = \frac{GDPir/TGDPr}{GDPin/TGDPn} \qquad (i)$$

SI is calculated with the formula (ii). SI is specialization index in region 1 (city) and 2 (province), Ei1 is sectoral GDP in region 1, E1 is total GDP in region 1, Ei2 is sectoral GDP in region 2, and E2 is total GDP in region 2.

$$SI = \sum_{i=1}^{n} \left| \left(\frac{Ei1}{E1}\right) - \left(\frac{Ei2}{E2}\right) \right| \qquad (ii)$$

TI is calculated with the formula (iii). Yi is GDP per capita of the city, Y is GDP per capita of the province, Xi is number of city population, and X is number of province population (Table 1).

$$TI = \sum \frac{Yi}{Y} x \log[(\frac{Yi}{Y})/(\frac{Xi}{X})] \qquad (iii)$$

Table 1. Data for Calculating GDP per Capita

Year	Total GDP of Bengkulu City	Total GDP of Bengkulu Province	Xi	X	Yi	Y
2011	9,657,223.1	30,295,100	313,324	1,742,080	30,822	17,390
2012	10,327,320.5	32,363,000	326,219	1,783,725	31,658	18,143
2013	10,956,459.1	34,326,400	334,529	1,814,357	32,752	18,919

Source: [9], [10], [11], [12], [13] and [14]

Shift-share analysis is calculated based on regional share (regional growth component, Nj), sectoral growth (proportional shifts, Pj), and the growth of regional competitiveness (differential shift, Dj) as outlined in Table 2.

Table 2. Calculation of Shift-Share Analysis

Yijo	Micro region sectoral GDP of year x	Gj	Yjt-Yjo
Yijt	Micro region sectoral GDP of year (x+1)	Gj	Nj+Pj+Dj
Yjo	Micro region total GDP of year x	Nj	(Yjo(Yt/Yo))-Yjo
Yjt	Micro region total GDP of year (x+1)	(P+D)j	Yjt-((Yt/Yo)(Yjo))
Yio	Macro region sectoral GDP of year x	(P+D)j	Gj-Nj
Yit	Macro region sectoral GDP of year (x+1)	Pj	((Yit/Yio)-(Yt/Yo))Yijo
Yo	Macro region total GDP of year x	Dj	((Yij-(Yit/Yio)Yijo)
Yt	Macro region total GDP of year (x+1)	Dj	(P+D)ij-Pj
		Gij	Yijt-Yijo
		(P+D)ij	Yijt-(Yt/Yo)Yijo

Source: Sjafrizal, 2012 *after* [15]

Klassen typology (Table 3) compares the sector growth rate of the city (ri) to the province (r) and the sector contribution of the city (si) to the province (s).

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Table 3. Classification of Sector Potentialat City

Growth Rate (r) Contribution (s)	ri > r	ri < r
si > s	rapidly developed progressive	depressed progressive
si < s	potential rapidly developing	Relatively lagged

Source: [15]

3. Result and Discussions

Measuring of economic resources or potential in Bengkulu City is done by calculation based on GDP (Table 4 and Table 5). LQ value equal to or greater than 1 is the leading sectors, generally in Bengkulu City is tertiary or services sector. Company service has the highest LQ, i.e. 2.98 (2011); 3.02 (2012); and 2.96 (2013). The leading sectors are expected to meet the demand from other regions from the city, stimulate to add income, and become the main driver in the regional economy.

Table 4. GDP of Bengkulu City and Bengkulu Province according to Business Field on the basis of Constant Prices 2010 (million rupiah)

Business Field	Bengkulu City			Bengkulu Province		
	2011	2012	2013	2011	2012	2013
Agriculture, Forestry, Fisheries	977,084.4	1,007,621.6	1,034,104.6	9,734,700	10,272,900	10,687,200
Mining and excavation	19,480.4	20,461.9	20,707.4	1,245,600	1,330,700	1,357,900
Processing industry	377,217.0	400,572.6	422,609.9	1,841,500	1,989,900	2,137,700
Procurement electricity and gas	8,046.4	8,724.6	9,336.8	23,300	25,600	27,300
Water supply, waste management, waste, and recycling	34,720.6	35,753.9	35,850.0	81,900	83,000	83,800
Construction	445,074.7	484,152.3	499,682.1	1,332,200	1,451,000	1,521,000
Wholesale and retail trade; car and motorcycle repairs	1,908,210.1	2,056,926.7	2,185,574.6	4,191,400	4,479,700	4,840,500
Transportation and warehousing	1,536,440.6	1,636,637.4	1,741,274.1	2,312,600	2,467,300	2,630,200
Provision of accommodation and drinking	152,527.2	164,061.3	177,115.8	413,600	446,700	481,600
Information and communication	791,552.9	860,611.6	926,877.6	1,212,000	1,301,900	1,411,200
Financial service and insurance	470,992.2	535,181.2	574,697.8	1,000,800	1,133,700	1,214,000
Real estate	521,295.5	585,089.2	632,358.5	1,291,800	1,408,600	1,517,800
Company Service	598,470.4	657,217.0	697,112.1	632,000	682,900	738,800
Government administration, defense, and mandatory social security	681,316.8	695,958.4	750,129.4	2,511,800	2,664,700	2,882,500
Education Service	821,783.8	845,692.9	901,816.2	1,829,700	1,946,500	2,079,200
Health services and social activities	209,744.9	224,343.1	235,878.6	425,600	455,200	484,300
Other services	103,265.2	108,314.9	111,333.7	214,700	222,900	231,500
Total	9,657,223.1	10,327,320.5	10,956,459.1	30,295,100	32,363,000	34,326,400

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

All sectors in Bengkulu City are not specialized because value index tends to be close to 0, while a specialized sector has value index approaching or equal to 1. Company service sector which is the highest LQ has the SI of 0.0411 (2011), 0.0425 (2012), and 0.0421 (2015). Low of SI of all sectors in

Bengkulu City pointed out that the leading sectors based on LQ has not become development concentrations yet and not as a major tool in increasing regional economic growth. Bengkulu City is still lagging or has not been able to compete with other cities in Indonesia.

Table 5. LQ and SI in Bengkulu City

Business Field	LQ				SI			
	2011	2012	2013	note	2011	2012	2013	note
Agriculture, Forestry, Fisheries	0.3149	0.3074	0.3032	not leading	0.2202	0.2199	0.2170	not specialized
Mining and excavation	0.0491	0.0482	0.0478	not leading	0.0391	0.0391	0.0377	not specialized
Processing industry	0.6426	0.6308	0.6194	not leading	0.0217	0.0227	0.0237	not specialized
Procurement electricity and gas	1.0833	1.0680	1.0715	leading	0.0001	0.0001	0.0001	not specialized
Water supply, waste management, waste, and recycling	1.3299	1.3499	1.3403	leading	0.0009	0.0009	0.0008	not specialized
Construction	1.0481	1.0456	1.0293	leading	0.0021	0.0020	0.0013	not specialized
Wholesale and retail trade; car and motorcycle repairs	1.4282	1.4389	1.4146	leading	0.0592	0.0608	0.0585	not specialized
Transportation and warehousing	2.0842	2.0787	2.0741	leading	0.0828	0.0822	0.0823	not specialized
Provision of accommodation and drinking	1.1569	1.1509	1.1522	leading	0.0021	0.0021	0.0021	not specialized
Information and communication	2.0488	2.0715	2.0577	leading	0.0420	0.0431	0.0435	not specialized
Financial service and insurance	1.4763	1.4793	1.4831	leading	0.0157	0.0168	0.0171	not specialized
Real estate	1.2659	1.3017	1.3053	leading	0.0113	0.0131	0.0135	not specialized
Company Service	2.9706	3.0159	2.9562	leading	0.0411	0.0425	0.0421	not specialized
Government administration, defense, and mandatory social security	0.8509	0.8185	0.8153	not leading	0.0124	0.0149	0.0155	not specialized
Education Service	1.4090	1.3615	1.3589	leading	0.0247	0.0217	0.0217	not specialized
Health services and social activities	1.5460	1.5444	1.5259	leading	0.0077	0.0077	0.0074	not specialized
Other services	1.5088	1.5228	1.5067	leading	0.0036	0.0036	0.0034	not specialized

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

TI (Table 6) of total sectors are 1.761 (2011), 1.709 (2012), and 1.684 (2013). TI year 2011-2013 overall sector declined, means decreasing of disparity or inequality in Bengkulu City. Based on TI calculation, the greatest inequalities occur on the most leading sector (company service). The company service sector TI is 7.721 (2011), 7.678 (2012), and 7.386 (2013). The leading sectors are driving the regional economy, but causing inequality in the region. High inequality of company service sector demonstrates the absence of systematic management of the company service.

Table 7 shows Klassen Typology of Bengkulu City. Half of all sectors in Bengkulu City is included in category of advanced but pressured. Company service sector has higher contribution in the city than in the province but lower growth rate in the city than in the province.

Table 6. Entropy Theil Index in Bengkulu City

Business Field	2011	2012	2013
Agriculture, Forestry, Fisheries	0.274	0.251	0.238
Mining and excavation	-0.027	-0.028	-0.029
Processing industry	0.913	0.858	0.820
Procurement electricity and gas	1.975	1.879	1.860

Table 6. (Continued)

Business Field	2011	2012	2013
Construction	1.884	1.823	1.755
Business Field	2011	2012	2013
Water supply, waste management, waste, and recycling	2.634	2.614	2.552
Wholesale and retail trade; car and motorcycle repairs	2.907	2.856	2.751
Transportation and warehousing	4.849	4.706	4.630
Provision of accommodation and drinking	2.167	2.090	2.063
Information and communication	4.739	4.684	4.581
Financial service and insurance	3.043	2.967	2.937
Real estate	2.459	2.485	2.459
Company Service	7.721	7.678	7.386
Government administration, defense, and mandatory social security	1.393	1.275	1.248
Education Service	2.853	2.645	2.601
Health services and social activities	3.241	3.148	3.054
Other services	3.135	3.088	3.001

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

Table 7. Klassen Typology of Bengkulu City

Business Field	Bengkulu City (2011-2013)		Bengkulu Province (2011-2013)		Category
	ri (%)	si (%)	r (%)	s (%)	
Agriculture, Forestry, Fisheries	2.8765	9.757	4.7781	31.602	relatively underdeveloped
Mining and excavation	3.1012	0.195	4.4106	4.029	relatively underdeveloped
Processing industry	5.8459	3.880	7.7426	6.158	relatively underdeveloped
Procurement electricity and gas	7.7205	0.084	8.2439	0.078	advanced but pressured
Water supply, waste management, waste, and recycling	1.6134	0.342	1.1533	0.256	advanced and fast-growing
Construction	5.9572	4.583	6.8513	4.415	advanced but pressured
Wholesale and retail trade; car and motorcycle repairs	7.0212	19.860	7.4646	13.977	advanced but pressured
Transportation and warehousing	6.4574	15.901	6.6459	7.649	advanced but pressured
Provision of accommodation and drinking	7.7594	1.599	7.9078	1.385	advanced but pressured
Information and communication	8.2110	8.336	7.9053	4.059	advanced and fast-growing
Financial service and insurance	10.4620	5.073	10.1376	3.427	advanced and fast-growing
Real estate	10.1386	5.597	8.3951	4.348	advanced and fast-growing
Company Service	7.9270	6.285	8.1197	2.121	advanced but pressured
Government administration, defense, and mandatory social security	4.9285	6.944	7.1253	8.348	relatively underdeveloped
Education Service	4.7563	8.361	6.6002	6.049	advanced but pressured
Health services and social activities	6.0470	2.162	6.6735	1.408	advanced but pressured
Other services	3.8332	1.041	3.8388	0.690	advanced but pressured

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

Shift share analysis results in Table 8 show that the company service as seen from the components of the regional economic growth (Nj) is positive (Nj > 0) so that the company could be a sector which can specialize with faster growth in Bengkulu Province. Sectoral growth (Pj) has positive value (Pj >

0), so the company can grow faster and are able to specialize. The growth of regional competitiveness (Dj) is negative (Dj < 0), so that the company service sector has a weakness of low competitiveness compared to other regions. Bengkulu City will always be a city which can not compete with other cities if this condition remains exist.

Table 8. Shift-Share Components and Calculations of Company Service in Bengkulu CIty

Component	2011-2012 (thousand rupiah)	2012-2013 (thousand rupiah)
Gj	670,097,400	629,138,600
Gj	670,097,400	629,138,600
Nj	659,188,174	626,538,364
(P+D)j	10,909,226	2,600,236
(P+D)j	10,909,226	2,600,236
Pj	7,348,864	13,925,600
Dj	10,547,006	-13,902,572
Dj	10,547,006	-13,902,572
Gij	58,746,600	39,895,100
(P+D)ij	17,895,870	23,028

Source: [9], [10], [11], [16], [12], [13], [14], and [17] (processed)

Company service based on LQ analysis included the mostleading sector. Although it is not specialized and has a huge disparity, shift-share analysis (Table 8) shows that the company service is growing progressively with low competitiveness. Low competitiveness shows that competitive advantage which belonged to the company serviec is low, though comparative advantages is high. Low competitiveness is caused by GDP growth rate of the company service in the city is slightly lower than in the province, although the contribution in the city is greater than in the province.

The relationship beteen Bengkulu City and it's hinterland is presented in Figure 1. The city seemed to be separated from the surrounding region [7]. Regencies in Bengkulu Province can be easily leaks or pulled to other provinces, including the resource within them. Bengkulu Province has the shape of an elongated region (long and narrow shape) so it is difficult to develop a land transportation, while sea transportation (Indian Ocean) is less functional. The shape of region such as elongated complicates the relation of transportation and communication so it inhibit the growth of the region [18].

Bengkulu city geographically—intraregion factor—is coastal area and lowlands, supported by a new small regency (Central Bengkulu). Bengkulu City is also supported by some rather large regencies, but tend to pulled to neighbor provinces. For example, Mukomuko can be pulled to West Sumatra and Jambi; North Bengkulu may be pulled to Jambi; Rejang Lebong, Lebong, Kepahiang, South Bengkulu, and Seluma can be pulled to South Sumatra; and Kaur can be pulled to Lampung. It is the issue of the regional development key—interregion, caused by the easy accesibility and better marketing from the regencies to neighbor provinces than in the capital of Bengkulu Province. The main road of Sumatra Island crosses the regencies close to border province border or neighbor province, not to the Bengkulu City. This condition let the Bengkulu City tends to grow in less profitable direction.

Development strategy in Bengkulu City formulated through empowerment of local potential, i.e.: (1) developing company service sector, (2) increasing the company sector service competitiveness, and (3) creating generative city relations.

The regional development key—intraregion—will work better through the development of company service sector in Bengkulu City. The city can still be stable if it obtains input or support from the hinterland or surrounding regencies. This is supported by the document of Rencana Pola Ruang (Spatial Planning of the Region) year 2012-2032 [19] that Bengkulu City is not optimally geared to agricultural areas, but directed to industries and services. Company service sector is advanced but pressured (Table 7), so it has to be supported by an advanced and fast-growing sector, such as the information and communication sector. Cities in the future developing world will be the cyber city. Cyber city is a city concept of information technology-based city [20], so the information and communication sector can support the company sector and develop other sectors.

The competitiveness of company service sector can be increased with an increase in quality value, i.e. optimization of high HDI through labor experts in the field of employment, particularly in the company service sector. An alternative to increase the competitiveness of the company service sector is increasing investment to the company service sector.
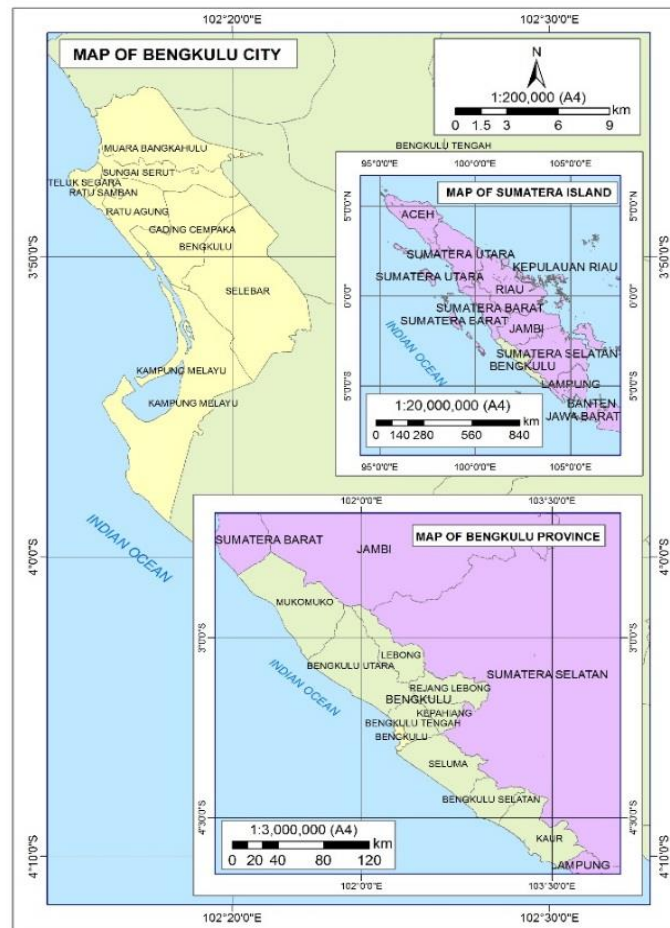

Figure 1. Location of Bengkulu City, Bengkulu Province, and Sumatera Island

The generative city relation can be realized through improving managerial capability in city development, harmonizing economic and physical aspect. Managerial capability in city development is based on the law and regional development planning, in order to enable the function of regional development key—supra region. Physical development is directed to regional connectivity system for improvement of the provincial transportation system, in order to facilitate the exchange of goods and services. The enclave relationship which is not profitable to the city will be transformed into a generative relationship. Sustainable development then can be realized. The regional development key—interregion—then can function well.

4. Conclusion and Recommendation

The most leading sector in Bengkulu City is company service. The regional economic issues in Bengkulu City can not be separated by disparity of the leading sector, not specialized leading sector, low competitive and depressed progressive of leading sector, coupled with the increasing poor population, not optimized utilization of HDI yet, and weak function of the regional development key. Development strategy in Bengkulu City formulated through empowerment of local potential, i.e.developingcompany

service sector, increasing the company setor service competitiveness, andcreating generative city relations.

References

[1] Bengkulutoday. (2017). Bengkulu Tingkat Pertama Termiskin dan Tertinggal di Sumatera. Retrieved on August 29, 2017 from Bengkulutoday: https://www.bengkulutoday.com/bengkulu-tingkat-pertama-termiskin-dan-tertinggal-di-sumatera

[2] BPS Kota Bengkulu 2012) *Bengkulu City in Figures 2012* (Bengkulu: BPS Kota Bengkulu)

[3] Antara Bengkulu. (2016, April). Pembangunan Infrastruktur Kota Bengkulu Melebihi Target. Retrieved on August 29, 2017 from Antara Bengkulu: http://bengkulu.antaranews.com/berita/37109/pembangunan-infrastruktur-kota-bengkulu-melebihi-target

[4] _____ 2013 *Bengkulu Province in Figures 2013.* (Bengkulu: BPS Provinsi Bengkulu)

[5] _____ 2014 *Bengkulu Province in Figures 2014.* (Bengkulu: BPS Provinsi Bengkulu)

[6] _____ 2016 *Produk Domestik Regional Bruto menurut Lapangan Usaha Provinsi Bengkulu 2010-2015* (Bengkulu: BPS Provinsi Bengkulu)

[7] _____ 2015 *Teknik Analisis Regional untuk Perencanaan Wilayah, Tata Ruang, dan Lingkungan* (Yogyakarta: Badan Penerbit Fakultas Geografi Universitas Gadjah Mada)

[8] _____ (2017) Penduduk Miskin Menurut Kabupaten/Kota. Retrieved on February 7, 2017 from BPS Provinsi Bengkulu: http://bengkulu.bps.go.id /linkTabelStatis/view/id/221

[9] Detiknews (2016, October) Obsesi Gubernur Ridwan Mukti Menata Bengkulu Provinsi Termiskin di Indonesia Barat. Retrieved on August 29, 2017 from Detiknews: https://news.detik.com/berita/d-3326011/obsesi-gubernur-ridwan-mukti-menata-bengkulu-provinsi-miskin-di-indonesia-barat

[10] Hayati S and Yani A 2007 *Geografi Politik* (Bandung: Refika Aditama)

[11] Pemerintah Kota Bengkulu 2012 *Peraturan Daerah Nomor 14 Tahun 2012 tentang Rencana Tata Ruang Wilayah Kota Bengkulu tahun 2012-2032* (Bengkulu: Bappeda Kota Bengkulu)

[12] _____ 2013 *Bengkulu City in Figures 2013* (Bengkulu: BPS Kota Bengkulu)

[13] BPS 2015 *Indeks Pembangunan Manusia 2015*. (Jakarta: BPS)

[14] Rachmawati R *Pengembangan Perkotaan dalam Era Teknologi Informasi dan Komunikasi* (Yogyakarta: Gadjah Mada University Press)

[15] _____ 2014 *Bengkulu City in Figures 2014* (Bengkulu: BPS Kota Bengkulu)

[16] Muta'ali L 2017 Implementasi tiga kunci pengembangan wilayah dalam mewujudkan pembangunan berkelanjutan Prosiding Seminar Nasional Peran Geografi dalam Pengelolaan Sumberdaya Wilayah NKRI di Era Teknologi, 18 November 2017. Fakultas Geografi Universitas Gadjah Mada.

[17] Ridwan, Suryantini A and Irham 2008 Analisis potensi ekonomi dengan penentuan sektor basis antar kabupaten di Provinsi Sulawesi Tengah Jurnal Agro Ekonomi **15** 187-202.

[18] Harigan R 2010 *Perencanaan Pembangunan Wilayah* (Jakarta: Bumi Aksara)

[19] BPS Provinsi Bengkulu 2012 *Bengkulu Province in Figures 2012* (Bengkulu: BPS Provinsi Bengkulu)

[20] _____ 2016 *Produk Domestik Regional Bruto menurut Lapangan Usaha Kota Bengkulu 2010-2015* (Bengkulu: BPS Kota Bengkulu)