

# KINERJA

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## JAVA ISLAND: REGIONAL DISPARITY AND SUSTAINABILITY PERSPECTIVES

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### Abstraksi

*Indonesia sedang menghadapi disparitas regional yang sangat kompleks. Kondisi ini diperburuk dengan kebijakan terpusat yang terkonsentrasi hanya pada pertumbuhan ekonomi. Disparitas seharusnya dikelola dengan bijak untuk mengurangi dampak negatif yang ditimbulkan. Pemahaman level disparitas regional merupakan suatu kondisi yang diperlukan agar dapat mengevaluasi kebijakan dan implementasi pengembangan. Oleh karena tingginya populasi dan konsumsi sumber daya alam secara relative, Pulau Jawa telah menghadapi berbagai problem lingkungan, banjir dan longsor. Hal ini merupakan tantangan sustainabel penduduk urban dan pinggiran termasuk system produksi. Penelitian ini bertujuan untuk menganalisa disparitas Pulau Jawa dengan menggunakan pengukuran disparitas regional yang dikenal dengan Williamson index dan Theil-Entropy index. Theil indices terdiri dari 3 jenis disparitas regional yakni (a) between and within regencies/ municipalities, (b) between rural-urban areas, dan (c) between and within metropolitan/megapolitan urban system and the rest of Java areas. Berbagai parameter socio-economic dan environmental mengindikasikan bahwa Pulau Jawa sekarang sedang menghadapi krisis spasial dan lingkungan. Ini menyebabkan eksploitasi berlebih pendukung lingkungan dalam beberapa dimensi seperti pertumbuhan populasi dan aktifitas ekonomi di Pulau Jawa yang berhubungan dengan pengembangan yang tidak seimbang antara Pulau Jawa dengan luar Pulau Jawa.*

**Kata kunci:** *disparitas regional, pengembangan regional, land use cover changes, bencana*

### 1. INTRODUCTION

Regional disparity has been a universal issue for almost all countries, developing and developed ones. Problem of inequalities had risen since development process started. It could be diminished or even increased depends on the process itself and also strategies to eradicate the spread. In a vast size archipelagic country like Indonesia, disparities seem to be an unavoidable fact of nature, but interregional disparities in economic development have always been attracted considerable political and scholarly attention. Imbalanced regional development emerged in form of uneven distribution and resource allocation. The consequences were then appearing conflicts especially originated from mistreated communities. It was also loosened networking and social capital. Hinterland was weakened due to backwash impact which transferring massively resources from rural (hinterland) to core (urban) areas. The circumstances were unfortunate and threatened regional capacity to

grow synergically with other regions. Many believe this disparity was the impact of distortionary centralistic policy interventions. The regional development problem is perceived closely related to the political values of national integration. Consequently, analyses of regional disparities become an important ingredient of general assessments of Indonesian "state capacity" and the state of the nation. There has been a direct link between the perceived increase of regional disparities and the urge increasing share of the central government in state revenue. It has been requested since decentralization policy implemented.

Indonesia has seen experiencing moderates economic growth and a rise in standard of living over the 1998 economic crisis and decentralization era. However, even many fiscal and non fiscal regulations have been implemented to ameliorate the excess of centralistic development approaches, the benefits of decentralization have spread highly unevenly, especially at the regional level. Usually, disparities within district levels are much larger than between provinces or main islands. Therefore, inter- and intra-regional disparities as well as centre-region relations are important issues in Indonesia.

National regional development should be a multidimensional process – involving fundamental changes in social structure, social attitudes, and national institutions, while at the same time maintaining the accelerated economic growth, solving income inequality, and alleviating poverty. Incremental and paradigm changes according to Anwar (2001) in regional development should lead to an equity that supports economic growth and efficiency, and sustainability. The concept of development which considers three aspects evolve in time is affected by the changes in the value systems of the society such as social and economic conditions as well as political reality. There is congruence between population distribution pattern, wealth distribution (regional disparity) and environmental degradation (Madu, 2007)

At the national scale, the implementation of development has created major and complex developmental problems. The heavy emphasis on the macro economic growth tends to overlook the emergence of big gaps in regional development. Investment and resources are generally absorbed and concentrated more in urban areas and growth centers, while hinterland or rural areas experience excessive exploitation of resources.

At the macro level, the disparity in the regional development in Indonesia is characterized by the tendency in several spatial biased developments, namely 1) Java-biased (Tabor et al., 1999); 2) Jakarta-biased (Jabodetabek) (Maulida, 2007); 3) urban-biased (Dick, 1981; Douglas, 1998; Martina, 2005; Rustiadi and Pranoto, 2007); and 4) terrestrial-biased (Rustiadi, 2008). The development disparity between regions is on the one hand in the form of poor distribution and allocation in the utilization of resources – creating inefficiency and less optimal economic system. On the other hand, conflicts are becoming so potential because the regions which previously obtained little attention in development now begin to demand their rights. The unequal development has resulted in the structure of relationship or interaction between regions which weaken each other. Hinterland weakens because of excessive backwash of resources, resulting in a net flow and accumulated value-added more concentrated on development centers massively and excessively. Such condition is indeed disadvantageous because the disparity in regional development, besides making less optimal capacity of regional development, prevents the potential aggregate (macro) growth of development from synergic (mutually supporting) interaction of development between regions). To reduce differences, emphasis must be given to the less prosperous regions and treating unequal regions equally is not a recipe for reducing disparities (ODPM, 2003)

Disparity on development is usually described based on the result of development process, for instance human development index. According to Amos (1988), Williamson (1966) was the first who examining relationship between regional disparity and economic development, while Kuznets (1966) was the first applying hypothesis to personal inequalities. Rooted in inverted-U hypothesis, Williamson found that per capita income inequality declined in the period of 1950-1960 for several separate data sets.

Neckerman and Torche (2007) intensively reviewed causes of inequality in United States of earning, wealth and opportunity and its consequences on social and political aspects particularly on health, education, crime, social capital and political power. Both then concluded that causes of inequality depended on time of observation, rate of distributional changes and possibly skill-biased technological changes

Process of development in Indonesia was believed to be "urban bias" and some also called "Java bias" since almost all strategies was started and initiated from urban and concentrated in Java. Therefore there is in common to present Indonesia's context into two parts as Java vs. outer Java or West part of Indonesia (KBI) vs. East part of Indonesia (KTI). It is quite rare to present Java as a single entity when describing disparity without comparing to other areas of Indonesia. However, from regional indicators, disparities among regions of Java were emerging. The government, for instance National Land Agency in the latest five years concentrated to study disparities among North and South regions of Java. Then, it was also concerned on disparities between metropolitan and non metropolitan area.

This study was designed to describe the direction of Java island development growth, Java economic role in national context and to analyze disparity on development in Java using some indicators including economy, human development and environment. It was designed to illustrate how geographical economics can assist regional development policymakers in fighting unsustainable regional disparities in the future. It was supposed to describe the recent economic role of Java Island in national context and to describe disparity within the island.

## 2. METHODOLOGY

### 2.1 Data and Analysis

The regional disparity was analyzed descriptively by comparing the trends in the indicator of population and economic growth between Java and outside Java as well as within Java. The regional disparity analysis inside Java was focused particularly on the polarization of population and economic growth among provinces, among regencies and municipalities/towns, between northern and southern coast regions, and between Jabodetabek and Non Jabodetabek region for the period of 2000-2006.

To describe inter- and intra-regional disparity, there are some techniques, including coefficient of variation, Williamson index, Theil index, Atkinson index, Hoover coefficient, Coulter coefficient, and Gini index (Portnov and Felsenstein, 2005). In this paper, we employed Williamson and Theil technique to produce Williamson and Theil index. Williamson index is general index to describe and compare inter-region disparities. Williamson formulated the index as follows (Williamson, 1966):

$$V_w = \frac{\sqrt{\sum_{i=1}^n (y_i - \bar{y})^2 \frac{f_i}{p}}}{\bar{y}}$$

where:

$V_w$  = Williamson index

$Y_i$  = Gross regional domestic product (GRDP) of sector-i

$\bar{y}$  = Average GRDP of the region

$f_i/p$  =  $f_i$  is population of region-i while  $p = \sum f_i$ , total population.

Williamson index has a value greater than or equal to 0. If  $Y_i = \bar{y}$ , then index will be = 0. It means no disparity among regions. Index greater than 0 shows there is economic-inequality among regions. The greater the index means the larger gaps or disparity among regions. We utilize gross domestic regional product (GDRP) and population of regencies/municipalities in Java on 2000-2007. It is arranged to figure out trend of Williamson index to understand regional disparities among regions of Java in time series basis.

Theil entropy index was employed to portray within and between regional disparities. According to Kuncoro (2002) and Wibisono (2003), Theil index has some advantages, for instance: (1) it is not insensitive to regional scale and (2) Theil index is independent to the number of regions, (3) it can be decomposed simultaneously into within and between region disparities. The formulation of Theil Index (Ying, 2000) is as follows:

$$I_{Theil} = \sum (y_j/Y) \cdot \log [(y_j/Y)/(x_j/X)]$$

Where:

- $I_{Theil}$  = Total disparity (Theil Entropy index)
- $y_j$  = GRDP of regency-j.
- $Y$  = GRDP of Java.
- $x_j$  = Total population of regency-j.
- $X$  = Total population of Java.

In this paper we employ Theil index to describe: (1) Inter provinces and regencies of Java (2) Regency-Municipality disparities; (3) South vs North areas of Java; and (4) Jabodetabek vs non Jabodetabek areas.

Theil's (1967) first presentation of the measure of inequality was based on statistical information theory. Theil's original presentation of his inequality indicator is not intuitively appealing, as the quotes above suggest. In other cases, no intuitive motivation is given, and it is simply mentioned that the Theil measure is based on information theory (as in Alison, 1978: 867).

### 3. DISCUSSION

#### 3.1 Population Growth Dynamics

Population or human resource is main actor on development. The growth of population should be considered to be main driving forces on process of development. In the other hand, its quality can be considered as result of development processes. Java as a main island of Indonesia is inhabited by almost 60% of Indonesians, while only consist of 7% areas. The proportion of population on Java Island to the national population from 1930 to 1990s continued to drop from almost 70% to below 60% (after 1990s). However, since late 1990s the figure has tended to increase again (Figure 1).

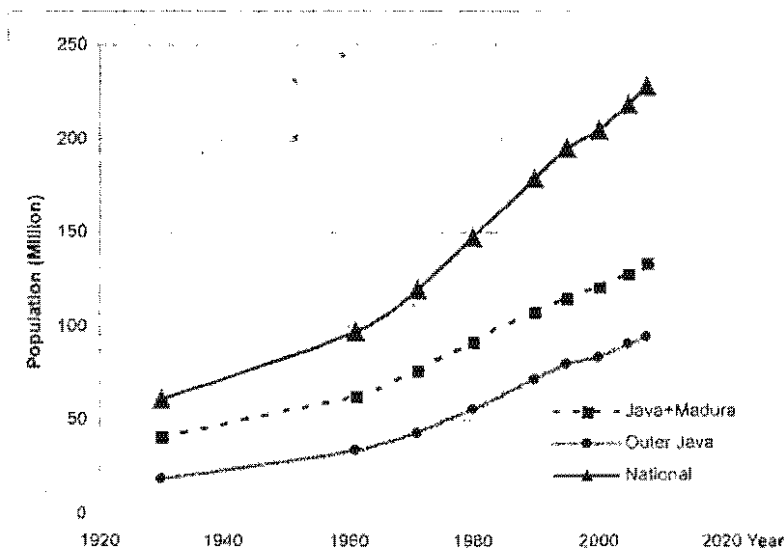
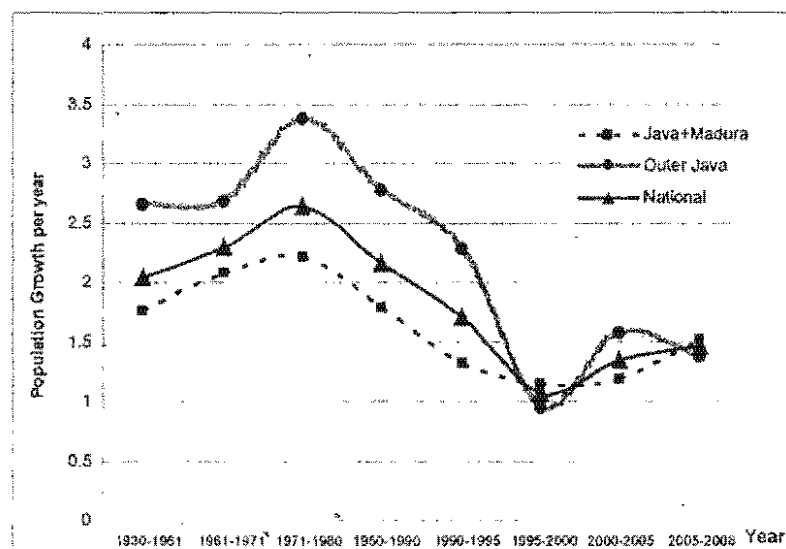


Figure 1  
 National, Java and Outer Java Population since 1930 to 2008

Sources: Population census (Sensus Penduduk)

Until 1970s, the growth slowed down, although it was still at high rate. Since then the growth rate both on Java Island and outside Java continued to fall. However, at the end 1990s both group areas faced increasing rate, where the rate of Java was greater than outside Java. Without a significant intervention, Java will be experiencing high growth rate with less magnitude compare to the rate of 1960-1980s (Figure 2).

The relatively better welfare of Java Island has been followed by high population growth rate. The revived high growth rate of national population particularly in Java seems to be resulted from the less tight of family planning policy since the reform era. In addition, the policies in regional autonomy seems not brought out positive effect on the improvement in the spatial distribution of population and narrowing the development polarization between Java and outside Java.



**Figure 2**  
**Dynamics of population growth rates of Indonesia, Java and Outer Java (1930-2008).**  
 Sources: Population census (Sensus Penduduk)

### 3.2 Dynamic Rate of Economic Growth and Income per Capita

Java Island holds a very significant role because of its contribution in supplying 55% of food production (rice) and around 59% of national Gross Domestic Regional Products (GDRP). According to Central Bureau of Statistics (BPS), the GDRP of Java continues to rise annually, and its share always higher than the share of outside Java. During the period of 2000 to 2007 the economic growth rate in Java is consistently higher than that of outside Java (Figure 3) and there was no significant change in polarization of Java vs. outside Java development.

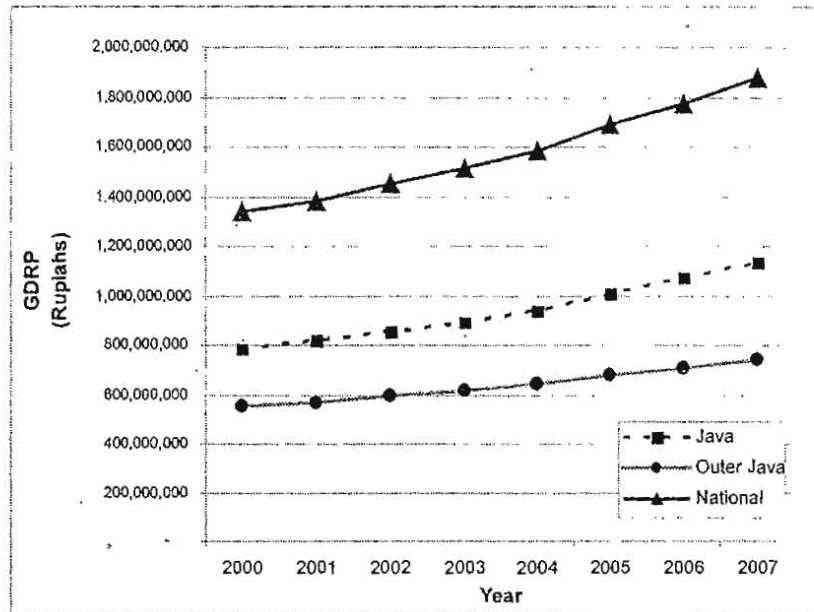


Figure 3

National, Java and Outer Java GDRP since 2000 to 2007

Sources: GDRP (2000-2007)

The income per capita of Java inhabitants is consistently greater than that of outside Java. The economic growth rate accompanied by a greater population growth rate in Java has lessened increasing rate of GDRP per capita of Java than that of outside Java (Figure 4).

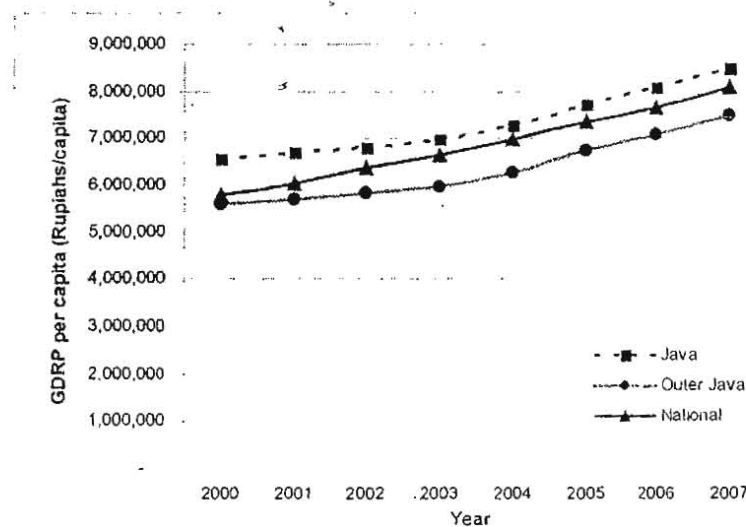


Figure 4

National, Java and Outer Java's GDRP per capita (2000-2007)

Sources: GDRP per capita (2000-2007)

The welfare status can be observed from percentage of expenditure on food compared to total households expenditure as presented in Figure 5. The increase of income is commonly followed by a relative reduction in food expenditure. The income and welfare improvement in national level could be indicated the decreasing percentage of food expenditure; i.e. 63.67% (2003) to 57.71% (2006). All provinces of Java suffer less percentage from the national level, indicating better welfare than that of the households of the outside Java.

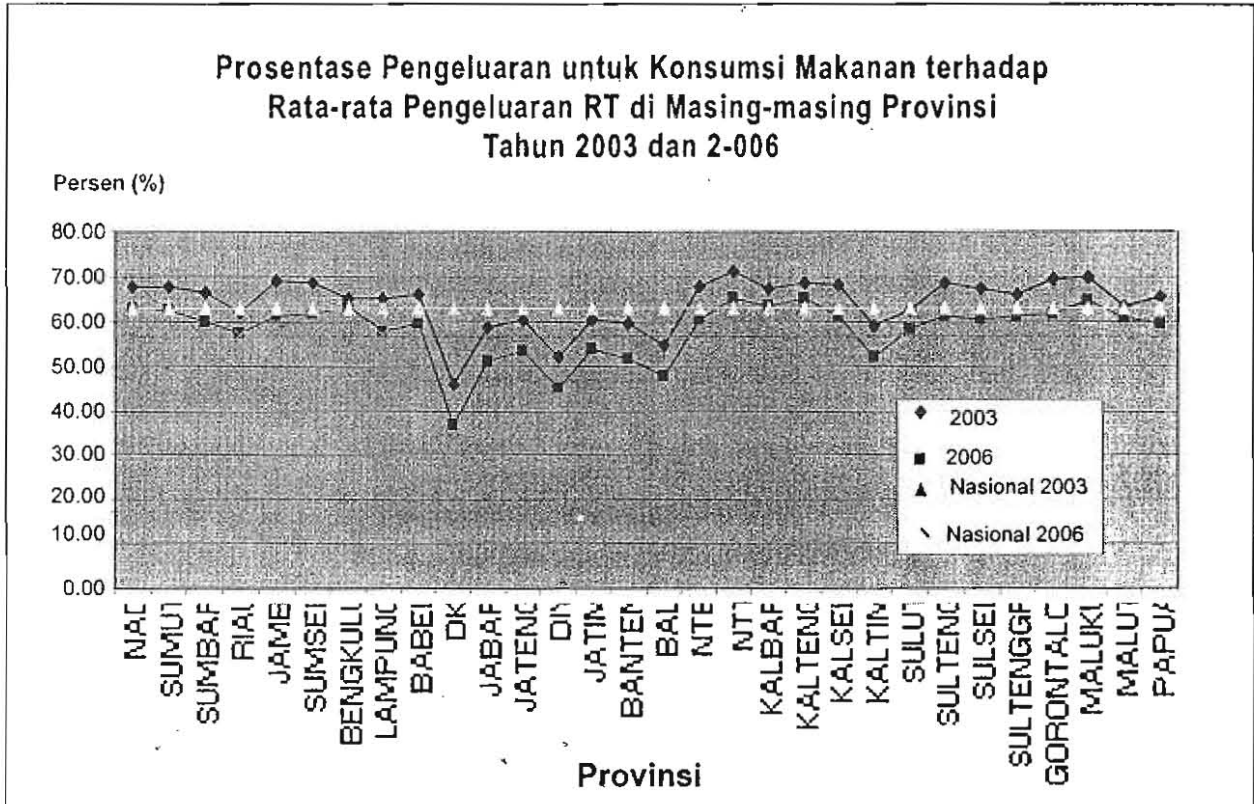


Figure 5  
Percentage of Consumption Rates in 2003 and 2006

Source: SAKERNAS (2003 and 2006)

Despite of having huge number of poor households ("pre-welfare" and "welfare-I" types of BPS category), the Java Island experienced a decline in the number of poor families from more than 12 millions in 2000 to around 9 millions households in 2006, (drop of 23,83%). However, almost all other islands outside Java (except for Kalimantan) increased in the number of poor households.



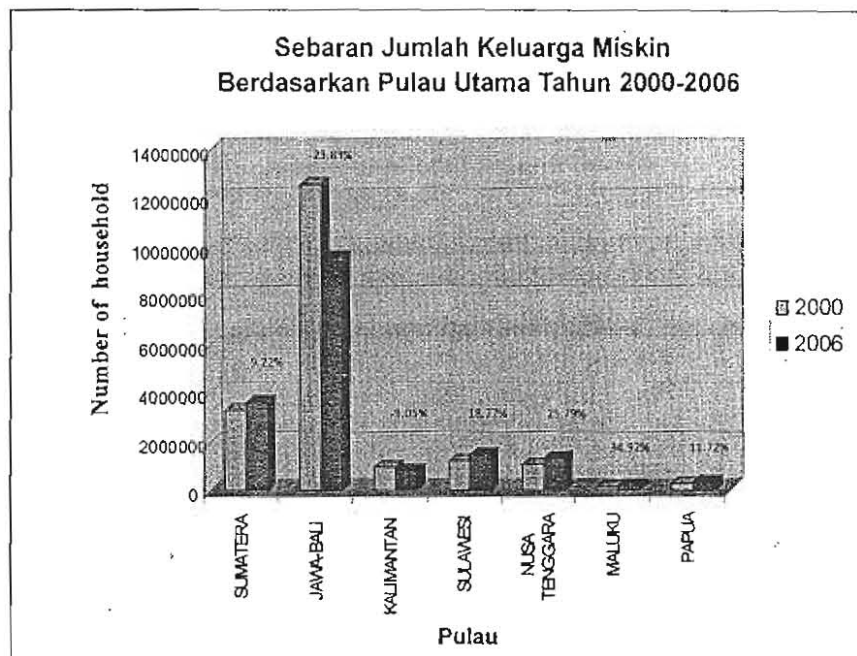


Figure 6  
Distribution of Poor Households by Major Islands in 2000 and 2006  
Source: Podes (2000 and 2006)

Due to relatively fertile soils and better infrastructure to support rice production, Java island historically came across a high support to the civilization development. Moreover, there are some views such as those expressed by Anwar (2004) and World Bank (1996) that the national development has tended to be Java bias and urban bias. A similar opinion was also put forward by Garcia and Garcia (2000), who acknowledged the Java-bias in the national development in Indonesia.

### 3.3 Environmental Changes and Sustainability Issues

The high pressure of population in Java and economic activities has eventually produced some drawbacks in terms of environmental capacity and irreversible damage. The Island also continues to experience the land use conversion of its most fertile land as well as forest areas and have the impact on its environmental carrying capacity.

According to the Study Team of Environmental System in Java of IPB (2007), the environmental key issues are among others: (1) population; (2) economic changes/dynamics (disparity); (3) food; (4) energy; (5) land; (6) water; (7) forest; and (8) disaster. The simple relationship of these issues can be illustrated as in Figure 7.

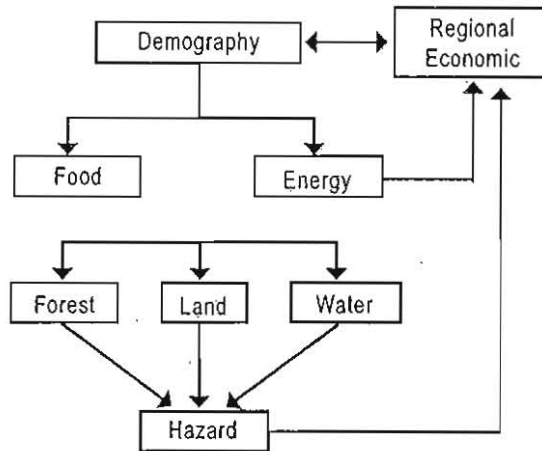


Figure 7  
Linkages Key Issues of Java Island

Source: Study Team of Environmental System in Java of IPB, 2007.

Besides its fertile soil, Java is an island which is geographically, geologically, hydro-meteorologically, and biologically or naturally prone to disaster. The empirical data and facts indicate that since the reform and regional autonomy policy era come into affect in 2000 the island has experienced various antropogenic-disasters. The disasters tend to increase in term of (1) types, (2) frequency, (3) location distribution , (4), and (5) impact, as well as (6) distribution of potential location.

The percentage of disaster occurrence in Java tends to increase. Figure 8 describes percentage of villages hit by floods and landslides. Meanwhile, the spatial distribution of villages hit by floods and landslides from 2005-2006 is presented respectively in Figures 9 and 10.

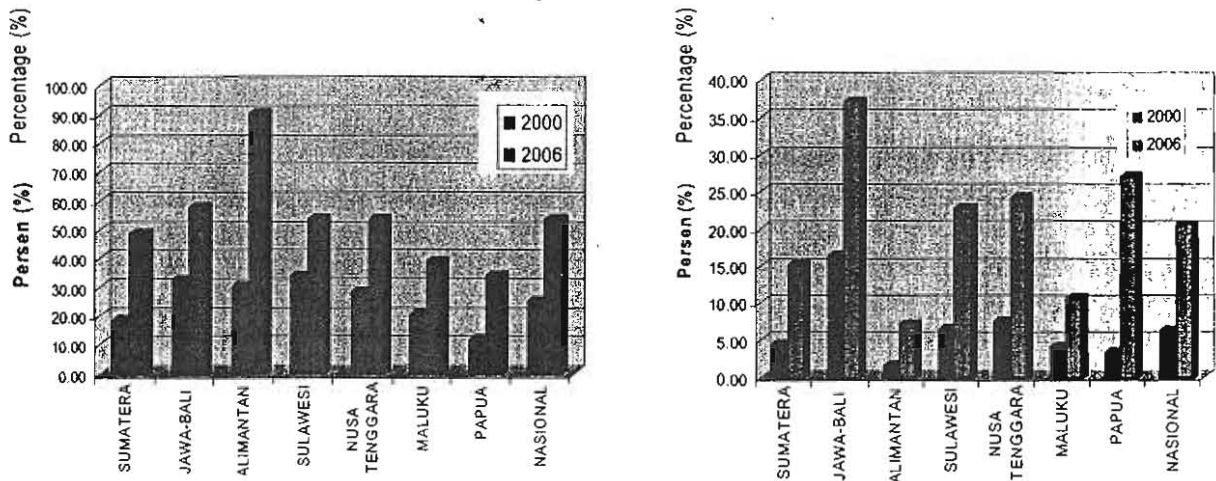
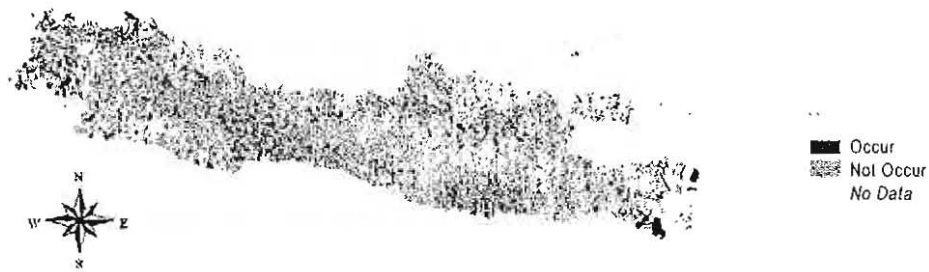


Figure 8. (a) Percentage of floods in main islands of Indonesia (2000 dan 2006), and (b) Percentage of landslides in main islands of Indonesia (2000 dan 2006).



**Figure 8**  
**Spatial Distribution of Flood Evidences in 2005-2006**

Source: Study Team of Environmental System in Java of IPB, 2007.

More than 50% of villages in Java were hit by floods in 2005-2006, increasing from the previous year (2003) of around 30%. Meanwhile, landslides, a strategic issue in degrading the environmental capacity of Java, also step up, from 16% in 2000 to around 48% in 2006, as shown in Table 1. The highest percentage of villages landslides was experiencing by West Java Province, i.e. rising from 21,4% in 2000 to 69,2% in 2006.



**Figure 9**  
**Spatial Distribution of Landslides Evidences in 2005-2006**

Source: Study Team of Environmental System in Java of IPB, 2007.

**Table 1**  
**Desas Experiencing Landslides in 2000 – 2006**

Province	Number of desa		% desas	
	2000	2006	2000	2006
Banten	-	1482	-	19.3
West Java	7222	5808	21.4	69.2
Jakarta	265	267	0.0	0.0
Central Java	8543	8564	18.4	52.4
Yogyakarta	438	438	39.4	52.4
East Java	8457	8477	8.6	34.1
<b>JAVA</b>	<b>24925</b>	<b>25036</b>	<b>16.1</b>	<b>47.6</b>

Sources: Podes (2000 and 2006)

### 3.4 Regional Disparity within Java Island

In addition to the environmental problem, the Java Island is facing internal regional population density and income disparity. The description of regional disparity in Java can be classified into its source of disparity: i.e. among provinces, among regencies/towns, between north and south parts of Java, and between Jabodetabek and Non Jabodetabek regions.

3.4.1 Disparity among Provinces

Table 2 presents number of population and its growth rate in each province of Java. Meanwhile, the population number (people), population density (people/km<sup>2</sup>), and population growth rate (%) for each province of Java is portrayed in Figures 11 (a), (b), and (c).

Table 2  
Population, Share of Population and Population Growth Rate of Each Province in Java (%)

Parameters		Jakarta	West Java	Central Java	DIY	East Java	Banten
Population	2000	8,494,418	35,723,473	31,448,251	3,121,701	35,340,005	8,054,040
	2007	8,723,416	40,329,050	32,380,284	3,434,533	36,895,561	9,423,370
Population share (%)							
	2000	6.95	29.24	25.74	2.55	28.92	6.59
	2007	6.65	30.74	24.68	2.62	28.12	7.18
Average Population Growth Rate 2000-2007 (%/year)		0.39	1.75	0.42	1.38	0.62	2.30

Source: Podes (2000 and 2007).

In 2000-2007, almost all provinces of Java experienced an increase in population growth rate except DKI Jakarta (Jakarta City Province).

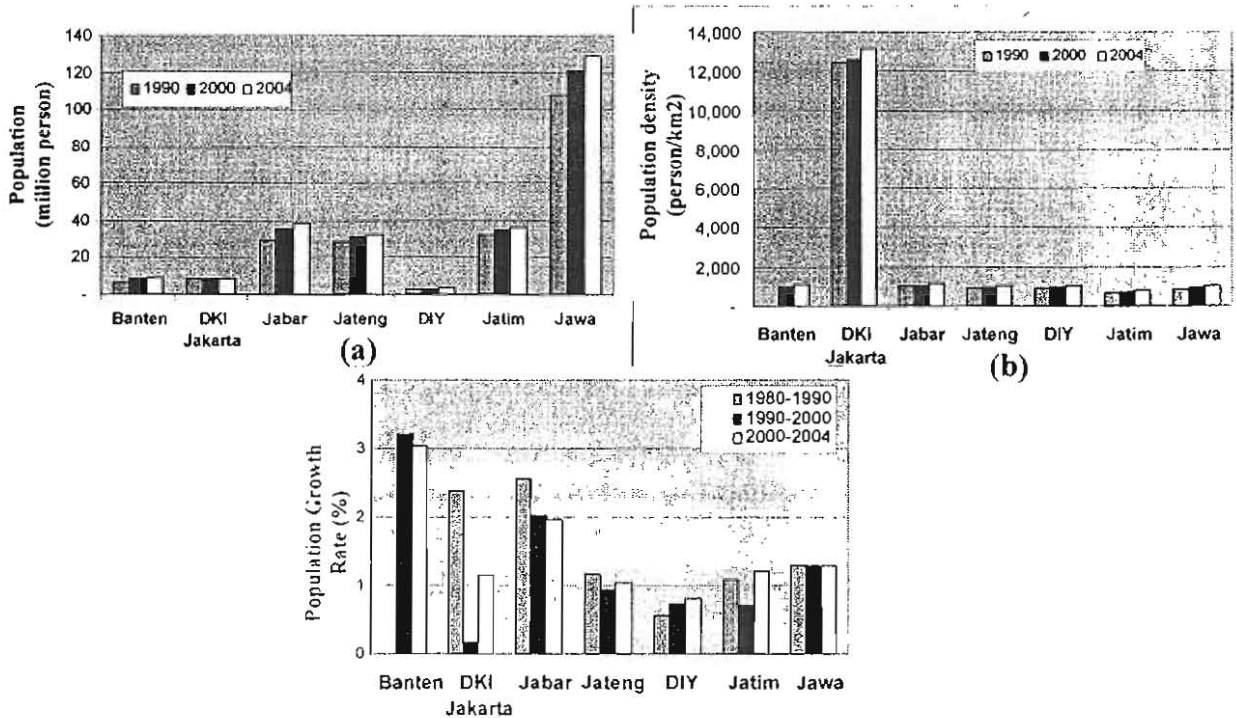


Figure 11.

(a) Population (million person); (b) Population Density (person/km<sup>2</sup>); and (c) Population Growth Rate (%) of Provinces of Java (Year 1990, 2000, 2004)

The disparity in development among regions of Java can also be examined from their economic growth rates. The DKI Jakarta (with the smallest size of region) is the region with the biggest contribution of GDRP (30%) (Table 3). Since 2000, the provinces of the west region (Banten, DKI Jakarta and West Java) developed with a fast economic growth rates. The average rate of DKI Jakarta, West Java and Banten were above 5.50%, whereas the other three provinces (Central Java, DIY East Java) were lesser (around 4.30%).

Tabel 3  
GDRP, GDRP Share and Average Growth Rate of Each Provinces in Java.

Parameters		Jakarta	West Java	Central Java	DIY	East Java	Banten
<b>GDRP</b>							
(Billion Rupiahs)	2000	226,505	171,433	101,205	13,560	198,816	47,380
	2007	329,833	252,845	135,335	18,308	266,524	69,836
GDRP share (%)	2000	29.85	22.59	13.34	1.79	26.20	6.24
	2007	30.75	23.57	12.62	1.71	24.85	6.51
Average Growth Rate (%/yr)		5.52	5.71	4.25	4.38	4.29	5.70

Source: GDRP (analyzed).

The disparity of regional income (GDP) per capita between regencies/towns studied using Williamson index tended to decline from 0.77 (in 2000) to 0.71 (in 2007). East Java came across the highest disparity among regions/towns compared to other provinces of Java, with two-fold disparity higher than that of other provinces (Figure 15).

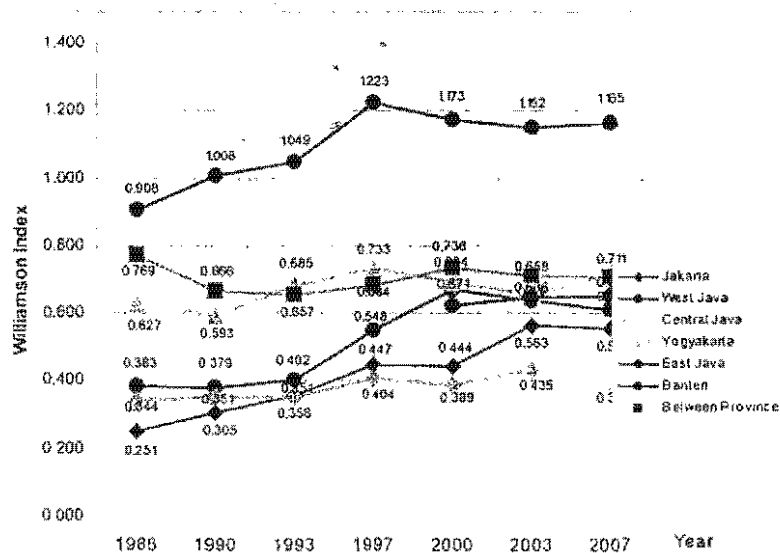
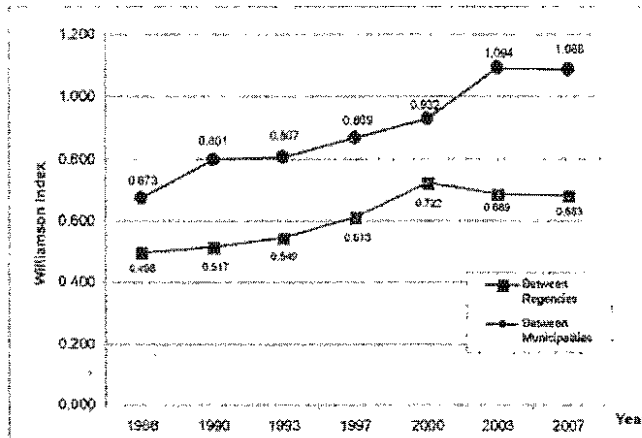


Figure 12  
Williamson's Disparity Index between Regencies/Towns in Each Province in Java

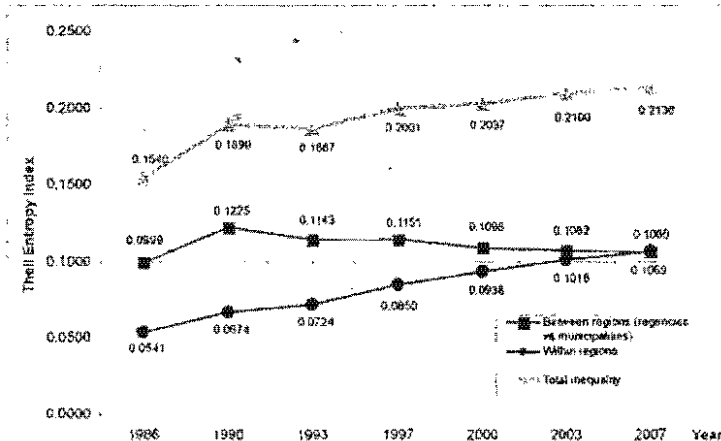
Theil indices shows that the total disparity of Java tended to increase from 1986 to 2007 (Figure 12). The Theil indices of among provinces and among regencies/municipalities within province in 1986 - 1997 were significantly different. However, between 1997 and 2007 convergence was evident (Figure 13). It means that

inequality among regencies/municipalities within provinces tended to increase. In the period of 1986-2007, the disparity among regencies/towns was dominantly (55% to 65%) contributed by differences among provinces, whereas the rest (33% to 43%) was contributed by inequality among regencies/towns within the province. It seems there was an increasing disparity resulting from the differences among regencies/towns within province.



**Figure 13**  
Total Inequalities among Regencies and Municipalities of Java Based on Theil Indexes

Figure 14 shows series of Theil index decomposition into two components, i.e. disparity within and between provinces. Apparently, disparity within provinces tended to decrease from 50.8% to 47.8% in 2000-2006. In contrast, disparity among provinces increased from 49.2% to 52.2% in the same period. It implied process of development in some provinces of Java



**Figure 14**  
Theil Indexes Decomposition Based on Gross Domestic Regional Products (GDRP) of Java's Provinces

When discussing human resources, quality in hard and soft aspects should be put on. Physical aspects including sufficiency on physical requirements have to be described. Human resources quality as a result of development processes is usually evaluated from human development indicators named human development index (HDI). The HDI is generally utilized as an indicator to compare human development process in more than 200 countries of the world. It has been produced annually by United Nation Development Program (UNDP) since 1993. The indexes are also produced by BPS in Indonesia to compare human development of each district occasionally.

It is showed that disparity among Javas's provinces was emerging. Apparently, Jakarta province still dominates in all aspects.

**Table 4**  
**Human Development Index by Province in Java (1999, 2002, 2005)**

Province	Human Development Index		
	1999	2002	2005
Jakarta	72.5	75.6	76.1
West Java	64.6	65.8	69.9
Central Java	64.6	66.3	69.8
Yogyakarta	68.7	70.8	73.5
East Java	61.8	64.1	68.4
Banten	Na	66.6	68.8

Source : BPS-BAPENAS-UNDP, Indonesia Human Development Report, 2004

### 3.4.2 Disparity Among Regencies and Municipalities

Administratively, in 2007, Java Island consisted of 84 regencies and 32 municipalities. A regency is generally characterized by a relatively large region and dominant in agriculture-based activities and down-stream sectors. On the other hand, a municipality has a relatively small area with dominantly non-agricultural activities (industry, trade, services, etc).

Disparities in development among regions of Java can be observed from the inequality between regencies and municipalities. Table 5 presents number and percentage of population and its average growth rate among the regions of Java between 2000 and 2007.

**Table 5**  
**Population of Regencies and Municipalities in Java in 2000-2007**

Parameters		Municipalities	Regencies
Population	2000	3,651,726	98,530,156
	2007	27,492,299	103,693,915
Population share (%)	2000	19.36	80.64
	2007	20.96	79.04
Average Population Growth Rate (2000-2007)		2.20	0.73

It appears that population number of 84 regencies of Java was around 79% of Java's population, whereas proportion of 32 municipalities was 21%. The growth rate of regencies was 0.73%, while of the towns was greater than it, reaching 2.20%.

Table 7 indicates that there was disparity in economic growth between regencies and municipalities of Java. The regencies, with its population percentage 80% of Java's, contributed less than 50% of the (Gross Domestic Regional Product) GDRP of Java. On the other hand, municipality, inhabited by only 20% of Java population, turned out to contribute more than 50% of Java's GDRP.

In terms of economic growth rate, in general both towns and regencies experienced quite significant rate. However, it seems that the urban rate was bigger than the regencies, that was 5.54% and 4.57% respectively.

Table 6  
Number, percentage and growth rate of GDRP of municipalities and Regencies in Java

Parameters		Municipalities	Regencies
GDP (Million Rupiahs)	2000	388,933,189	369,965,609
	2007	567,145,080	505,535,110
Percentage of Java's GDP	2000	51.25	48.75
	2007	52.87	47.13
Growth Rate of GDP		5.54	4.57

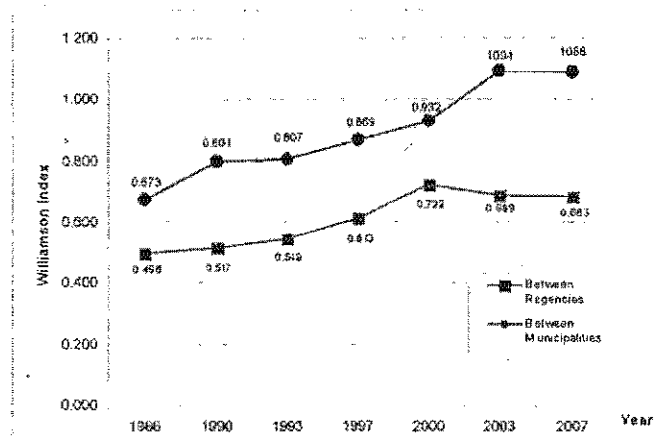


Figure 15  
Williamson's Index among Regencies and Towns (Municipalities) of Java

Their indices of Java suggests an increasing trend of the disparities among regencies and municipalities. The disparity among towns was always greater than among regencies. However, since 2000 dan 2003 there was convergence trend among and within regions. The figure indicates that since 1990s the disparity among towns and regencies have consistently dropped, and in 2007 it was convergence.

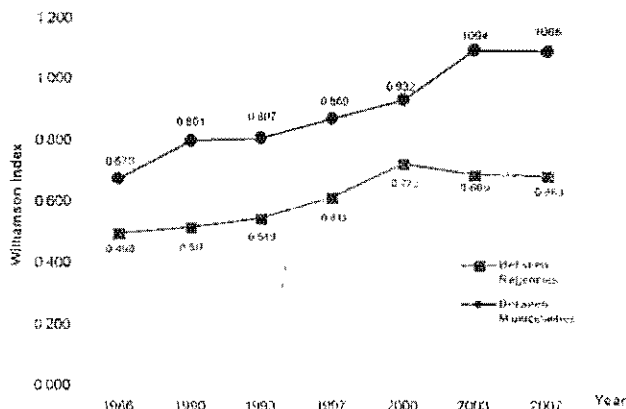


Figure 16  
Theil Entropy's Index of Regencies and Municipalities



### 3.4.3 Disparity Between Northern and Southern Java

The disparity in Java can be observed from the difference of indicators between northern and southern coastal areas of Java. The northern region of Java includes 42 regencies/towns and the southern area consists of 22 regencies/municipalities. Table 7 presents number, percentage, and growth rate of the northern and southern coast of Java from 2000 to 2007.

Table 7  
Number, Proportion and Growth Rate of Population in the Northern and Southern Coast of Java from 2000 to 2007

Parameters		Northern Java	Southern Java
Population	2000	48,005,046	28,715,983
	2007	51,845,317	29,137,133
Percentage of Java's Population	2000	39.29	23.50
	2007	39.52	22.21
Average Pop Growth Rate 2000-2007 (%/year)		1.11	0.22

It seems that in 2000-2001, the average growth rate of population in the northern region of Java was five fold of the population in the southern area.

Based on GDRP (constant price of 2000), both northern regions of Java in 2000-2007, as presented in Table 9, contributed much higher GDRP than the southern area. The percentage was 60% and 11% respectively. With the bigger GDRP, the economy in the northern part of Java grew more rapidly (5.2%) than the northern region (3.8%)

Table 8  
GDRP, GDRP share and growth of Northern Java and Southern Java in 2000- 2007

Parameters		Northern Java	Southern Java
GDP (Million Rupiahs)	2000	457,489,896	92,941,533
	2007	650,353,600	120,648,450
Percentage of Java's GDP	2000	60.28	12.25
	2007	60.63	11.25
Average Growth Rate of GDP (%/yr)		5.16	3.81

The comparison on Theil entropy's index of northern and southern region of Java indicates disparity within regencies/municipalities of both regional group (northern and southern) was exceeding that of between both regions. The disparity within the region contributed 80%, while the remaining 20% was contributed by the disparity between regions.

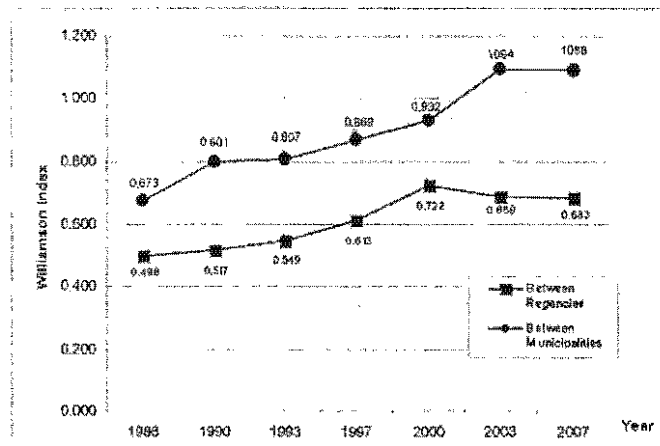


Figure 17  
Theil Entropy's Index between Northern Java and Southern Java

### 3.5 Metropolitan JABODETABEK vs Other Regions

The previous result described that disparity between municipalities (towns) was the highest among other modes of disparity. It was caused by the increasing polarity in the development between metropolitan and non-metropolitan areas. Figure 18 was designed to examine the disparity. The most extreme polarity results from the accelerated growth of Jabodetabek megapolitan.

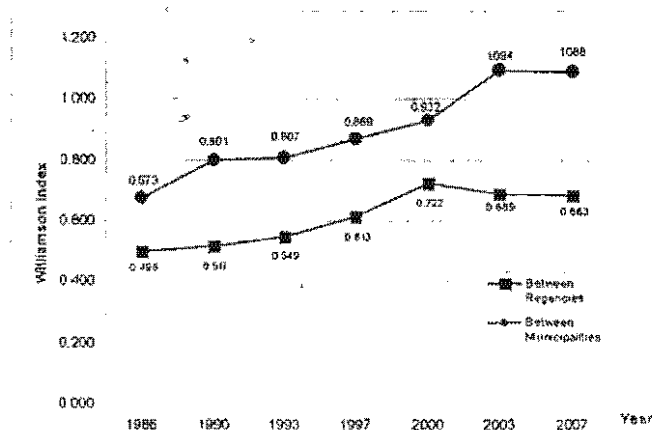


Figure 18  
Resulted Theil Entropy's Index of Disparity between Metropolitan and Non-Metropolitan in Java

Jabodetabek Megapolitan, covering some towns (Jakarta, Bogor, Depok, Tangerang and Bekasi), has become the largest metropolitan in Indonesia. This region serves as the capital city of the country (Jakarta) and at the same time the capital of national economy activities. It becomes the center of growth with a very high population density. Table 9 presents the number and growth rate of population of Jabodetabek and other regions (Non Jabodetabek) from 2000 to 2007.

Table 9  
Number and Growth Rate of Population of Jabodetabek and Other  
Regions (Non Jabodetabek) from 2000 to 2007

Parameters		Jabodetabek	Non Jabodetabek
Population	2000	21,316,943	100,864,939
	2007	24,398,393	106,787,822
Percentage of Java's Population	2000	17.45	82.55
	2007	18.60	81.40
Population Growth Rate (2000-2007)		1.95	0.82

Table 9 shows the population growth rate of Jabodetabek was relatively high. The rate of Jabodetabek (1.95%) was more than double of non-Jabodetabek regions (0.82%).

The disparity in economic growth between Jabodetabek and non-Jabodetabek regions was also studied. Jabodetabek includes only a small part of Java Island (the Province of Capital City of Jakarta, Bogor Regency and Municipality, Depok Municipality, Tangerang Regency and Municipality, and Bekasi Regency and Municipality) occupied by 18% of Java population. However, it contributed more than 40% to the total GRDP of Java and grew more rapidly (5.7%/year). Conversely, the other regions (non Jabodetabek) covering larger area contributed around 60% to the GRDP of Java (Table 10).

Table 10  
GDRP, GDRP share and growths of Jabodetabek and Non Jabodetabek  
in 2000-2007

Parameters		Jabodetabek	Non Jabodetabek
GDP (Million Rupiahs)	2000	319,198,056	439,700,742
	2007	469,870,330	602,809,860
Percentage of Java's GDP	2000	42.06	57.94
	2007	43.80	56.20
Average Growth Rate of GDP (%/yr)		5.68	4.61

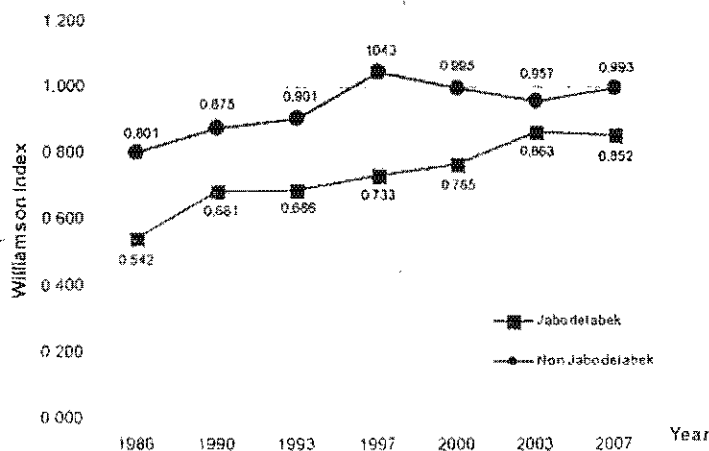


Figure 19  
Williamson's Index between Jabodetabek and Non-Jabodetabek

#### 4. CONCLUSION

Inter- and intra- regional disparities as well as centre-region relations in Indonesia and within Java Island are likely to change in the future, and the nature of government policies will greatly determine whether the gap between the economic centers and lagging regions in the periphery can be solved successfully. The central government is responsible to distribute the benefits of economic growth and development – primarily brought about by the economic centers (Java, Jakarta, cities and metropolis) – more evenly to poorer regions. Highly unequal and inequitable regional outcomes would only create social unrest and impede further economic development.

Various socio-economic and environmental parameters indicate that Java Island is now facing spatial and environmental crisis. It is due to overexploitation of supporting environment in some dimensions such as population growth and economic activities in Java Island which are all related to the imbalance development between Java and outside Java. Population and economic changes in Java implied to the high demand for food and energy and thus excessive utilization of land and water resources, which in turn results in the conversion of forest region as the essential buffer zone for Java Island. The overexploited supporting capacity of Java Island has created a series of disasters which have increased in intensity, damaged regions, and number of population affected by such disasters.

To maintain the development sustainability, Java requires expansion of its forest coverage, particularly the regions functioning as the protective area surrounding them. In contrast, because it is still necessary to keep Java Island as the national rice basket, effective indicators are required to control the converted use of the best rice field in Java. Therefore, the economic development in Java should be more oriented to tertiary sectors (commercial services) or non-extractive labor-intensive industries. Other industries are recommended for the development outside Java.

From a number of indications, it can be identified that Java Island is currently experiencing spatial and environmental crisis. This can be seen from the increasing occurrences of natural disasters with high frequency, intensity, types and coverage (particularly protective space/zones that are degraded), increasing conflicts over land uses, and imbalanced structure in the control of land use.

Besides the problem of reduced environmental supporting capacity, Java Island also has the issue of development disparity. The imbalance between regions is not only an important issue between Java and outside Java, but also within Java regions. The imbalance development among regions of Java can be categorized into the disparity among provinces, among regencies/municipalities, between the northern and southern parts of Java, and between Jabodetabek and Non Jabodetabek. The disparities among regions of Java were indicated by the disparities in population and economic growth rate.

The development trends in Java still indicate an increased polarity of development as examined in various perspectives with the exception of the disparity in the administrative regions of regencies and towns/municipalities. The source of the biggest and most outstanding disparity is the imbalance between metropolitan and non-metropolitan regions, which is particularly caused by the accelerated development of economy (economic agglomeration) and population in Jabodetabek.

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