

Wiwandari Handayani

**Emergence of Rural-Urban Regions in
Central Java Province – Indonesia:**
Analysis, Assessment, and Policy Recommendations



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Emergence of Rural-Urban Regions in Central Java Province – Indonesia: Analysis, Assessment, and Policy Recommendations

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List of Abbreviations

ADB	: Asian Development Bank
AFTA	: ASEAN Free Trade Area
APEC	: Asia-Pacific Economic Co-operation
Bakosurtanal	: <i>Badan Koordinasi Survey dan Pemetaan Nasional</i> / Indonesian National Mapping and Survey Agency
Bappeda	: <i>Badan Perencanaan dan Pembangunan Daerah</i> / Planning Board and Development Agency
BPN	: <i>Badan Pertanahan Nasional</i> /National Land Agency
CBS	: Central Bureau of Statistics
CCF	: Cluster Consultation Forum
CDR	: Crude Death Rate
CEC	: Commission for Eradication of Corruption
EMRs	: Extended Metropolitan Regions
ERDF	: Economic and Resources Development Forum
ESPON	: European Observation Network
EU	: European Union
FDI	: Foreign Direct Investments
FEDEP	: Forum for Economic Development and Employment Promotion
GDP	: Gross Domestic Product
GDRP	: Gross Domestic Regional Product
GNP	: Gross National Product
GIS	: Geographical Information System
ICIS	: International Centre for Integrative Studies
IUIDP	: Integrated Urban Infrastructure Development Program
IMF	: International Monetary Fund
IRD	: Integrated Rural Development
LEs	: Large Enterprises
GSP	: Local Governance Support Program
MDGs	: Millennium Development Goals
NIDL	: New International Division of Labour
NPCE	: National Program for Community Empowerment
NUDS	: National Urban Development Strategies
NGO	: Non Governmental Organization
OECD	: Organization for Economic Co-operation and Development
PASW	: Predictive Analytics SoftWare
PP	: <i>Peraturan Pemerintah</i> /Governmental Regulation



REPELITA	: <i>Rencana Pembangunan Lima Tahun / Five-Year Development Plan</i>
RGC	: Rural Growth Centre
RTRWK	: <i>Rencana Tata Ruang Wilayah Kota/Kabupaten/ City/District Spatial Plan</i>
RTRWN	: <i>Rencana Tata Ruang Wilayah Nasional/National Spatial Plan</i>
RTRWP	: <i>Rencana Tata Ruang Wilayah Propinsi/Provincial Spatial Plan</i>
SMEs	: Small and Medium Enterprises
Sakernas	: <i>Survey Angkatan Kerja Nasional / National Labour Force Survey</i>
Supas	: <i>Survey Penduduk Antar Sensus / Inter-Censal Population Survey</i>
Susenas	: <i>Survey Sosial-Ekonomi Nasional / National Socio-Economic Survey</i>
TFR	: Total Fertility Rate
UFRD	: Urban Functions in Rural Development
UN	: United Nations
UNDP	: United Nations Development Program
UNESCAP	: United Nations Economic and Social Commissions for Asia and the Pacific
USAID	: United States Agency for International Development
WTO	: World Trade Organization



Abstract

Disparity and inequality have emerged as central issues in regional development realm which need to be worked out. In the case of Java Island - Indonesia, even though infrastructures mainly in transportation and communication have already built-up relatively evenly compared to other islands in the country, it is in fact not sufficient to reduce disparity and inequality among provinces or in each province within the island. Furthermore, urbanization mostly in developing countries leads to the blurring of the distinction between rural and urban areas. McGee (1991) identifies such regions as *desakota* regions (Indonesian words: *desa* is rural and *kota* is urban). *Desakota* or rural-urban regions are places that have a mixture of rural and urban characteristics.

Concerning inequality that leads to propensity of unbalanced development patterns as has been taking place in Java Island including in Central Java Province as one big province in the Island, the emerging of rural-urban regions are considered to be further examined. Expectedly, further comprehension regarding the dynamics of these regions would be advantageous to promote balanced development as well as to enforce the creation of integrated regional development policies which are not simply dichotomized rural and urban regions.

There are three main objectives of the research as follows:

1. To elaborate typology of rural-urban regions in Central-Java Province
2. To comprehend any possible future of spatial formations through scenario building
3. Formulating policy recommendations to promote balanced development in the study area

To achieve the objectives, there are two main parts of the analyses. The first part is a cluster multivariate analyses which is mainly quantitative but embedded with some qualitative data analyses. In this part, some statistical descriptive analyses and GIS tools are applied to create robust and accurate set of variables. The second part is scenario planning which is mainly qualitative but embedded with some quantitative data analyses. GIS is also used to illustrate particular part of the scenario. Combinations of these two findings are further proceeded to produce policy recommendations for future regional development in Central Java Province.



Based on the cluster analysis results, it was identified that industrialization considered as a prominent indicator to examine rural-urban transition process occurs in at least two different paths. The first path is defined as urbanization from above in which the transition takes place as a part of the extended metropolitan regions. The second path is defined as urbanization from below where rapid industrialization that leads to a particular type of urban transition occurs far from the location of the highest hierarchy urban centre.

The different path of industrialization between typical urbanization from above and urbanization from below is clearly recognized from the GDRP and employment structure of the districts. Districts that are categorized as rural-urban regions in the form of the urbanization from above model are located in urban fringes or as a part of extended metropolitan region development. The economic activities of these districts are mostly characterized by big manufacturing industries which are 'footloose' in character. Since the districts are relatively located in favorable areas for foreign and local big investors mostly due to the consideration of infrastructure provision and supply of blue-collar workers, these industries do not significantly generate backward and forward linkages within the local economy. The existence of this particular type of industry has proven to be very effective to accelerate economic growth since they significantly contribute to the regions' GDRP but in fact, they absorb only a relatively small amount of employment.

Quite the reverse, the emerging type of urbanization from below may provide evidence that industrialization in developing countries does not necessarily always take place as a part of the urban growth process or as a part of extended metropolitan regional development, as well as should not always depend on the existence of big manufacturing industries. Rural-urban regions in the form of urbanization from below are mostly located in a quite distant from the urban districts. Accordingly, the economic activity of these districts is mostly characterized by local based small-medium industries. This implies that these particular industries have a strong bonding with local potential. Generally, the industries absorb significant numbers of workers but unfortunately contribute only a small amount to the GDRP. This further means that the industries still perform at a relatively low level of productivity.

Apart from the emerging of the two types of rural-urban regions, the existence of relatively well-developed urban districts along with significant numbers of districts categorized as highly rural, provide evidence that previous policies which have been applied lead to a concentrated spatial development pattern. This pattern may indicate a significant difference in urbanization speed among districts in the study area.



Nevertheless, rural-urban regions particularly in the form of urbanization from below should be acknowledged as a promising spatial form that may lead to a more balanced development pattern in the future. It is strongly embedded with local potential which implies a stronger foundation for the economy in addition to its ability to absorb significant numbers into the labor force. The form of urbanization from below which appears in the research indicates that the concept of endogenous growth for developing countries is essentially down-to-earth.

From the inter-regional perspective, one critical fact that should be considered regarding urbanization in Central Java is that the speed of urbanization in the province is relatively restrained in comparison to its neighboring province. Using urban population, density, share of built-up area, GDP, and employment as the main variables, it is found that the primate city phenomenon and disparity are still there but in a relatively lesser gap compared to other provinces on Java Island.

Apart from cluster analyses that mostly examine the situation of 1994-2006, scenario building for Central Java is based on population projections and distribution calculations and land potential – land demand spatial analyses observed in any possible situation of 2030.

Not in line with the promising rural-urban transition that potentially takes place based on one of the rural-urban forms explained in the previous part, an optimistic view of future balanced Indonesian (or Central Java) development in the scenario building analyses would be achieved only if there are fundamental changes in the framework of Indonesian development policy.

At any rate, the future of Indonesia will highly depend on the two driving forces:

1. Degree of openness of Indonesian economy which potentially will be getting higher but should be controlled.
2. Good governance implementation to improve institutional capacity. It is decisive and therefore, it requires sustained effort to achieve a satisfactory outcome.

Uncontrolled openness will lead to unbalanced development in any dimensions. As can be currently observed, the implementation of relatively open economy under the principle of neo-classical exogenous growth with lacking adequate local institutional capacity since new order era in 1960s, has led to the existence of great disparity and severe poverty in Indonesia. There is not any indication, yet, to achieve local-regional convergence. Indeed, there are problems of potential resources leakages and unbalanced distribution of economic activities as it has led to unbalanced spatial distribution.



In the context of Central Java, as has been analyzed in the scenario building part under the status quo scenario and low projection scenario, it is likely that rapid urbanization in terms of growth of density and land conversion in the study area are only concentrated in a particular potential corridor. The southern coastal corridor will potentially perform as a lagging region if there is not any significant policy intervention.

Accordingly, based on the result of land supply – land potential analyses, it was found out that there is still a lot of discrepancy between available land supply and estimated land demand. Food security and disaster issues, then, rise as another two important tasks to be worked out. Calculation on land potential of transferability reveals that 66 per cent of land conversion during the period of 1994-2006 was invaded protected paddy field. In addition, it is also important to take into account that almost 35 per cent of total area in Central Java are categorized either as steep hillside and therefore should function as protected zone or categorized as a disaster prone area.

The very basic recommendation addresses the urgent need to change the main principle of old growth-oriented development policy toward new regional development policy. In the last five decades of Indonesian development, unbalanced - growth orientation has become the mainstream of regional development policy in which the growing region should 'serve' the lagging region in the format of a spread effect or trickling down formulation. Decentralization that has been implemented almost for a decade has not changed the mainstream of the policy as it should be. The decentralization that has been taking place is not really empowering the local asset by facilitating the local region with minimum adequate infrastructure to make them partially self-governing.

Nevertheless, the undesirable outcome of the old regional development policy should be replaced by a principle revision on the current regional development policy framework. This requires fundamental changes to new growth oriented policies that might effectively assist local regions to perform development in a more equal way. The main principle of the new growth regional development concept is to empower local regions so they will be able to grow independently. Indeed, inequitable interdependency among regions or between growing and lagging regions should be reduced gradually.

Issue of food security is also central for development in Indonesia as most of the times land conversion highly concentrated in fertile regions in Java Island. Concerning the issue, despite the urgent necessity to force development on islands other than Java, it is also critical to create breakthroughs regarding land use and agriculturally integrated policy to ensure environmental as well as food



supply sustainability. They will include further recommendation for land reform, re-examine commodity prices and subsidy policy, as well as recommendations to set incentive-disincentive regulation to protect the sustainability of fertile regions.

Based on the proposed macro policy framework, there are three different approach priorities for three different types of districts in Central Java Province:

- Urban districts: promote mutual linkages. Linkages are essential in promoting balanced development. As policentricity, the spatial form of balanced development is created based on the conception of self-contained development, which means specialization and independency are two critical factors that further need to be acknowledged. To have a balanced spatial formation, each urban centre should contribute its function and contribution proportionally to create mutual as well as proportional linkages. It could begin with promoting policies that may generate mutual linkages between big urban centers and the intermediate urban centers, as well as between big urban centers and the rural areas.
- Rural-urban regions: a shift for innovation and technology development. It is obvious that hard infrastructures are not enough for development. The research findings have provided evidence that well developed infrastructure cannot simply reduce disparity and gaps among regions. The existing districts categorized as rural-urban regions (see cluster analysis result) should be employed to further control the gap. It is mainly because these rural-urban regions have succeeded in formulating the basic frame of development to drive their economy.
- Promote lagging regions. With the intention of controlling the gap mainly between developed regions (northern and inner corridor) and less developed regions (southern corridor), considerable attention is needed to develop lagging regions located in the southern corridor. As implied in the previous argumentation regarding the necessity of basic hard infrastructure, efforts to develop lagging regions in the study area could be done by initially building adequate integrated infrastructure and creating the linkages in the less developed corridor. Adequate infrastructure mainly road improvement will definitely reducing traveling times for any purpose of commodity distributions and people movement. This will be a good start to further utilize local assets for the self-contained concept of development.

Last but not least, policy will not lead to an optimum outcome without sufficient institutional capacity. As a single dynamic process, policy making,



implementation, and evaluation will come to an expected result if only with the support of sufficient mechanisms and capable human resources, in which these two are the most significant components regarding institutions. However, it is also important to be admitted that institutional building is a time-consuming and a complex process in addition to its requirement of sustained effort. Moreover, most of the time, sustainability is difficult to be maintained due to low commitment of the political leaders (Picciotto, 1995). Concerning the reasons, institutional capacity building seems always regarded as a big challenge to be worked out in a development process to integrate cross-sector or cross-border issues in addition to the more down-to-earth mechanism to accommodate the grey area (rural-urban) regions.



Zusammenfassung

Im Bereich der regionalen Entwicklung zeigen sich räumliche Disparitäten und Ungleichheiten, welche einer genaueren Betrachtung bedürfen, da diese zu ungleichen Entwicklungsmustern in vielen Ländern weltweit führen. Es ist daher von großer Relevanz, die sich entwickelnden ländlich-urban geprägten Regionen in *Zentral-Java* (Indonesien) einer eingehenden Untersuchung zu unterziehen. Erwartungsgemäß ist ein erweitertes Verständnis, bezogen auf die Entwicklungsdynamik dieser Regionen, von Vorteil, um mit den Belangen dieser zurecht zu kommen und eine ausgeglichene Entwicklung im Rahmen der Politik der integrierten regionalen Entwicklung umsetzen zu können, welche nicht ausschließlich dichotomisch ländliche und städtische Regionen kennt.

Die vorliegende Arbeit verfolgt drei Forschungsziele:

1. die Ausarbeitung einer Topologie der ländlich-urban geprägten Regionen in Zentral-Java (Indonesien)
2. die Bandbreite künftiger räumlicher Formationen durch die Bildung von Szenarien aufzeigen
3. die Formulierung von politischen Handlungsempfehlungen um eine ausgeglichene Entwicklung im Untersuchungsbereich zu befördern.

Die Analyse, auf welchen o. g. Zielstellungen basieren, besteht aus zwei Ansätzen. (1) einer Multivariaten Clusteranalyse; im Wesentlichen quantitativ jedoch mit einigen Elementen qualitativer Untersuchungen. (2) der Entwicklung von Szenarien; im Wesentlichen qualitativ, jedoch mit einigen Elementen quantitativer Untersuchungen. Die Ergebnisse dieser beiden Ansätze bilden die Grundlage für die Formulierung politischer Handlungsempfehlungen für die künftige Regionalentwicklung in Zentral-Java.

Basierend auf den Ergebnissen der Clusteranalyse konnten ländlich-städtisch geprägte Regionen identifiziert werden, wobei hier hinsichtlich der Entwicklung dieser zwei Arten zu unterscheiden ist. Dies sind die Top-down Urbanisierung sowie die Bottom-up Urbanisierung. Gebiete welche als ländlich-städtisch geprägte Regionen kategorisiert wurden (Top-down Urbanisierung), befinden sich in den Randbereichen der Städte oder in Teilen einer sich ausweitenden Metropolregion.

Die Wirtschaft in diesen Gebieten kann im Wesentlichen als räumlich losgelöste produzierende Großindustrie bezeichnet werden. Umgekehrt, befinden sich



ländlich-städtisch geprägte Gebiete (Bottom-up Urbanisierung) in naher Umgebung städtischer Gebiete. Daher ist die Wirtschaft in diesen Gebieten insbesondere durch kleinere und mittlere Unternehmen geprägt, welche stark in Verbindung zu bringen sind mit dem lokalen wirtschaftlichen Potential.

Ländlich-städtisch geprägte Regionen (Bottom-up Urbanisierung) sollten als vielversprechende Form räumlicher Entwicklung wahrgenommen werden, welche zu einem ausgeglichenen Entwicklungsmuster in Zukunft führen kann. Die Bottom-up Urbanisierung zeigt, dass das Konzept des endogenen Wachstums essentiell für Entwicklungsländer ist.

Basierend auf den gebildeten Szenarien zeigt sich jedoch, dass eine optimistische, ausgleichende Entwicklung in Indonesien wie auch Zentral-Java nur erreicht werden kann, wenn es zu grundsätzlichen Veränderungen im Rahmenprogramm der Indonesischen Entwicklungspolitik kommt. Diese sehr grundsätzliche Empfehlung zeigt den dringenden Bedarf, Grundprinzipien der wachstumsorientierten Politik zugunsten einer neuen Politik der regionalen Entwicklung zu verändern. Das Grundprinzip des neuen wachstumsregionalen Entwicklungskonzeptes soll lokale Regionen zu stärken, um so unabhängiges Wachstum zu generieren. Unangemessene Abhängigkeiten von einzelnen Regionen oder zwischen wachsenden und schrumpfenden Regionen sollten somit eingeschränkt werden. Die ausgeglichene Entwicklungspolitik wird jedoch ohne ausreichende institutionelle Kapazitäten nicht zu einem positiven Ergebnis führen. Die Bildung von Institutionen ist ein zeitintensiver und komplexer Prozess, zusätzlich zu den Anforderungen einer nachhaltigen Entwicklung, welche als Herausforderung angenommen werden sollte.



1 Introduction

1.1. Background

Regional development is essentially a matter of resource allocation. Subsequently, it aims to create human well being which has proper access to utilize various resources including natural resource, land, human resources as well as many other potential and actual resources optimally and proportionally under the principle of sustainable development. In this ideal situation, economic growth and equality perform in harmony as balanced development has been achieved. However, in the current situation, there are still many people living in poverty while some view others living in a great prosperity. In a spatial context, it reflects on the existence of particular fast growing developed areas while many others are still categorized as stagnant and underdeveloped regions. These phenomena provide evidence that regional development has not produced a rewarding result. As have been revealed in World Development Report (World Bank, 2009) and World Urbanization Prospects (United Nations - UN, 2004), disparity and inequality have emerged as central issues in regional development realm which need to be worked out.

Disparity between the western part and the eastern part of Indonesia is one of the national issues to be critically addressed (Government of Indonesia, 2007). From the provincial spatial and development plan policy documents, it is identified that urban development in Central Java is still concentrated only in the northern part of the province. Even though infrastructures mainly in transportation and communication in Java have already built-up relatively evenly compared to other islands in the country, it is in fact not sufficient to reduce disparity and inequality among provinces or in each province within the island. There is something principle which should be overhauled in the policy level. Current development policies are likely to treat rural and urban areas in an entirely different manner. The policies disregard the fact that outcomes of a policy whether it is pro rural or pro urban would become a single set of dynamic processed affecting rural and urban areas as an interdependent system. Furthermore, urbanization mostly in developing countries leads to the blurring of the distinction between rural and urban areas. McGee (1991) identifies such regions as *desakota* regions (Indonesian words: *desa* is rural and *kota* is urban). *Desakota* or rural-urban regions are places that have a mixture of rural and urban characteristics. These emerging regions may also strength



the argument that urban and rural areas are interconnected and cannot simply be treated based on separate policies.

Concerning inequality and propensity of unbalanced development patterns that currently take place in Indonesia including in Central Java, the emerging of rural-urban regions are considered to be further examined. Expectedly, further comprehension regarding the dynamics of these regions would be advantageous to promote balanced development as well as to enforce the creation of integrated regional development policies which are not simply dichotomized rural and urban regions.

1.2. Problem Statement

Urbanization and rural-urban transition should be taken into account as two important terminologies in relation to the discussion of rural-urban regions. These emerging regions are a critical part of the development process in which the process is an integral component of urbanization and rural-urban transition.

Urbanization in Asia, including in Indonesia, has resulted on a distinctive pattern in which it has a different character from that which has been happening in the Western Europe and the Northern America as developed countries. There are at least two obvious distinctive characteristics of urbanization. The first characteristic is related to the existence of mega-urban regions in most Asian countries (Douglass, 2000). As a matter of fact, these regions are created due to the globalization phenomenon in which foreign investments that played a dominant role in the development are concentrated in only particular urban regions. The development of these mega-urban regions has led to an emergence of particular rural-urban areas in the surrounding regions and has created severe disparity between core regions and their peripheries.

The second characteristic is related to what Lo et al (1981) call 'dualistic structures'. Formal industrial sectors in most urban areas fail to absorb the increasing labour force that is mostly made up of migrants. Subsequently, informal sectors appear in such urban areas. As a result, rural economic activity as well as rural life style emerges in many places categorized as urban. Thus, many urban areas that have experienced high economic growth based on modern and formal industrial sectors are also occupied by informal rural sector activities such as small-scale traditional industries and informal urban farming.

The urbanization that has been occurring is highly related to the fact that rural-urban transitions in most developing countries do not take place smoothly



(Champion and Hugo, 2004; Douglass, 2000; Gugler, 1996; Gilbert and Gugler, 1991). Rural areas become stagnant due to exploitation of potential resources for urban area development. There is not a mutual relationship between rural and urban areas. Small-intermediate urban areas also have significant difficulties in performing optimally. They fail to be functioned as a barrier of resource movement from the rural area to the largest urban centre. These all result in a significant disparity in which unbalanced development remains.

Thus, what has been happening regarding urbanization and rural-urban transition in most developing countries including Indonesia has led to discourse on bringing together rural and urban, agriculture and industry, and ultimately economic growth and equity in harmony as an integrated package of development (Tacoli, 2006; Lynch, 2005; UN-HABITAT, 2005; ESCAP, 2001; UNDP, 2000; Douglass, 1998). Accordingly, discussion to promote balanced development has been becoming a global concern at least since the last decade to reduce disparity and inequality mainly in Asia-Pacific region (UN, 2001; UNDP 2000). However, it is clearly not an easy task in the implementation level.

Several approaches have been implemented in many developing countries to reduce disparity as well as to integrate rural and urban development. In Indonesia, development policies under the principle of decentralization, which are likely to be rural oriented such as agropolitan, is considerably important to strengthening interaction between urban and rural areas (Douglass, 1998). However, all approaches which have been applied are likely not very effective yet aimed to synergized rural and urban characteristics in the region to create a more balanced development. In any case, it can be shown from the fact that until 2006 the western part of Indonesia still comprises five times higher GRDP (Gross Regional Domestic Product) than the eastern part of the country in addition to the fact that Java Island still produces almost 60 per cent of the Indonesian GDRP (CBS, 2006b).

Two major factors can explain the failure of the applied development policies. The first is that current policies are considerably neglected endogenous forces while many scholars have argued should be considered as a potential source to enforce optimal development (Barquero, 2002; UNDP, 2000). The second is the fact that most governments in developing countries are forced to create and then implement a more sector based planning policy instead of integrated multi-sector planning policies. As a result, mis- coordination among institutions becomes an important issue in enforcing harmony of rural-urban development.



In the context of Central Java, in addition to the traditional approach that considers urbanization as mostly urban industrialization, rural industrialization based on small-medium enterprises has become a concern at least since the economic crisis in 1997. These types of industries noticeably survived compared to the large manufacturing industries during the crisis period (Hill, 2001). Rural industrialization has formed various typical urbanized activities in the area officially defined as rural regions. This type of industrialization is expected to generate a strong economic linkage between the rural and the urban areas as well as the rural and the world market. Though, it also raises questions since these kinds of industries are mostly based on limited natural resources such as rattan and timber.

Ultimately, urbanization has continued to increase in various ways notably in all big, medium, and small cities in Java. The globalization phenomena that have been connecting such regions to the world arena in combination with endogenous forces make rapid urbanization inevitable. According to CBS data (2001), the number of people who are defined as living in urbanized area in Java Island has risen from 25.1 per cent in 1980 to 48.7 per cent in 2000 (see appendix B for formal classification to define urban place in Indonesia). It results on more regions categorized as *desakota* or occupying double characters, both as rural as well as urban. Moreover, this phenomenon also has led to environmental degradation issues and food security problems. The rapid growth of land conversion from agriculture land and forest to built-up areas causes less land to be cultivated, fewer people to work in agriculture, and fewer areas to be allocated as green zones. Eventually, migration from rural to urban areas will be uncontrolled and more regions will be considered as disaster prone areas.

Meanwhile, most research in the area of the rural-urban region is focused only on particular aspects such as people movement and natural resource flow. As urbanization and rural-urban transition are central concerns in this subject, migration and agricultural issues become the focus of matters in current rural-urban discourse (Lynch, 2005; Tacoli, 2006; UNDP, 2000). There is still little discussion on spatial features of these rural-urban interfaces whilst the emergence of regions with mixed character of rural and urban is significant to be figured out not only based on a particular aspect. Therefore, further investigation is essential to examine current typology of rural-urban regions in more comprehensive terms. In this research, Geographic Information Systems (GIS) and statistical analysis are considered to be used as advanced tools to define typology of combination of rural-urban characteristic. Following that, scenario planning is applied to comprehend possible futures. Mixture of



qualitative and quantitative data are also employed to produce a more comprehensive portrayal of these regions. Comprehensive analyses results expectedly would be effective to be utilized as the ammunition to formulate robust policy framework for promoting balanced regional development.

1.3. Research objectives

There are three main objectives of the research as follows:

- 1. To elaborate typology of rural-urban regions in Central-Java Province**
- 2. To comprehend any possible future of spatial formations through scenario building**
- 3. Formulating policy recommendations to promote balanced development in the study area**

To be more specified, following are several research questions as guidance for the analysis stage:

- How is the rural-urban regions growth in the study area? Is it mostly as a part of extended metropolitan region? Or these regions also significantly develop from the lower hierarchy of the urban structures or from rural regions?
- Based on the pattern, in what ways that current understanding of rural-urban dichotomy is still relevant or not relevant in the study area?
- How is the performance of these rural-urban regions? Is the current performance lead to a more balanced development or quite the reverse, these regions demonstrate that disparity between developed and under developed regions become more apparent?
- What are the explanatory factors to comprehend these rural-urban regions in which they have both rural and urban characteristics?
- Based on results from the previous questions, afterwards, in what ways balancing policies that have been implemented in the study area are effective or ineffective?
- Based on result from the previous questions, afterwards, what could possibly happen for future spatial formation in the study area?
- Has the traditional political concept that has been put into practice lead to worse spatial disparities? Or is it effective enough and still valid in the Indonesian region in general?

1.4. Structure of the Study

In total, the study is organized in eight chapters. The first part is the introduction which contains background, problems statements and research



objectives. In order to achieve the study objectives, the research design is addressed in Chapter 2. The research design is proposed to provide a brief view regarding research approach, steps, data collection, and methods of how this study is being conducted.

Chapter 3 is devoted to some empirical evidence, theoretical perspectives as well as lessons learned from policy implementation both in developed and developing countries. Therefore, this chapter is divided into three main parts. The first part is aimed to answer ‘what has been happening?’ It is then furthered discussed in the second part in theoretical perspectives. The theory explanation expectedly answers the question ‘how and why they happen?’. The last or the third part is aimed to show some lessons learned from international experiences in promoting balanced development. Four successful as well as unsuccessful stories are discussed in this part. They are policentricity in most European countries, the rural based development approach in most Asia’s developing countries, the success story of East Asia in their transformation process, and the last is endogenous growth and decentralization policy in Asian developing countries.

Chapter 4 discusses development planning policies in Indonesia. In the first part, this chapter covers government hierarchy followed by a brief description of development planning policies framework. Discussion of development planning policy implementation is then explained in the third part. It is divided into two sub-parts; in the new order era and in the decentralization era. This chapter is closed with concluding remarks regarding policy outcomes and trends for the future.

Chapter 5 is a brief view of urbanization in Central Java Province. The discussion is explored based on several parameters namely urban population and density, share of built-up areas and land conversion, GDP, employment, and unemployment. A brief comparison between urbanization in district and non-urban districts in the province is the final part of the chapter.

Chapter 6 focuses on cluster analysis application to create rural-urban typology. It includes technical explanations, steps of clustering analysis, assessment of the variables, cluster solution and dendogram interpretation, cluster validation based on discriminant analysis, robustness analysis and ends with a discussion on rural-urban transition in the study area based on the clustering result.

Chapter 7 elaborates scenarios for future spatial formations in Central Java Province. There are four main parts including steps of scenario building, macro



framework, and flesh out scenarios for national setting and for Central Java province.

This study is finalized with conclusions and policy recommendations in Chapter 8. The chapter comprises a summary of research findings, policy challenges, policy recommendations, and future research agenda.





2 General Research Design

2.1. Conceptual Framework

This research is categorized as empirical research in which empirical phenomena are examined to accomplish the research objectives. According to Simon (2003:5), empirical refers to “getting the facts” in which the research should “explaining nature and making predictions about it”. In the view of Simon explanation, Figure 2.1 illustrates briefly empirical phenomena and literature-theoretical framing which are used as the main platform in the research.

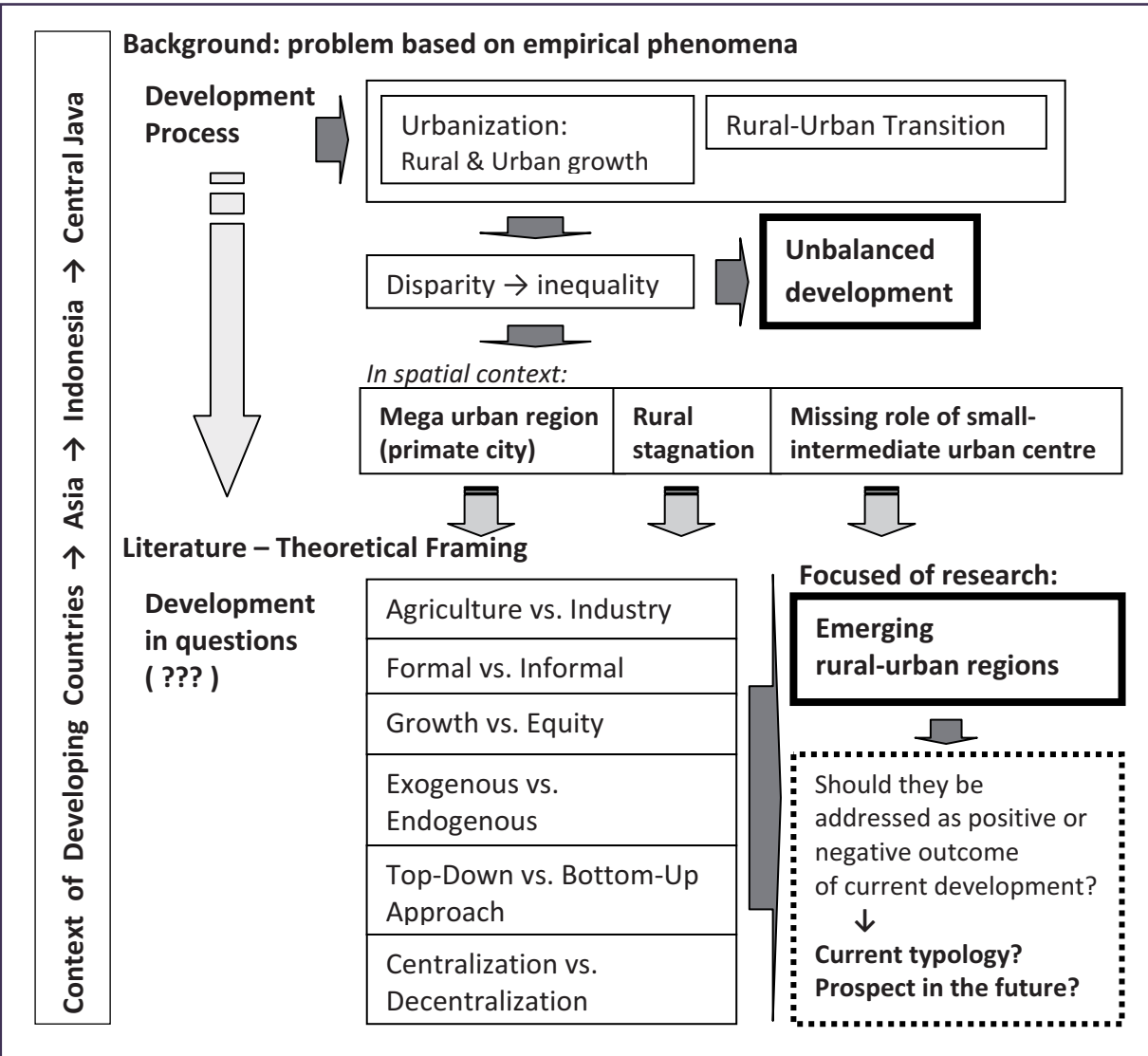


Figure 2.1 Conceptual Framework



2.2. Research Approach

The mixed method approach was chosen to be applied in this research. According to Creswell (2009: 4), mixed method research is an approach to combine qualitative and quantitative forms of philosophical assumptions as well as collecting and analyzing data. Philosophically, this research categorized as pragmatic. It implies that the research emphasized on research problems and use combination of methods to address the problems. The problems themselves are comprehended from empirical evidence supported by relevance theory and concepts as has been illustrated in Figure 2.1. Accordingly, to some extent, this research also applies a postpositivist worldview. Postpositivism mostly used for quantitative research emphasizes empirical observation, measurement, and theory verification (Creswell, 2009:6-7). However, since many parts of the analyses are likely to combine quantitative and qualitative approaches to have more comprehensive results, then, pragmatic worldview is considered as more suitable to be used as the philosophical point of view.

The concurrent embedded mixed method strategy is applied to combine the quantitative and the qualitative data analysis. It means quantitative and qualitative data are used and then processed in the analysis stage simultaneously (Creswell, 2009: 210-215). Statistic descriptive, cluster analysis and GIS are highly quantitative, in these parts of analysis there will be a combination of quantitative and qualitative data to be used as the variables. Quite similarly, scenario planning is qualitative in nature but in this approach, combination of quantitative and qualitative data also be employed to develop the scenario. Figure 2.2 explains briefly three main components in the research design.

2.3. The Research Steps

Figure 2.3 illustrates the research process. There are three main steps. The first step is preliminary considerations that include explanation on conceptual framework and research design. The second step is a literature review followed by data analysis. Empirical phenomena and theoretical perspectives are explained in the literature review part. Following that, there are some brief contextual explanation regarding development policies in Indonesia and urbanization in the study area. There are two main parts of the analyses. The first part is a cluster multivariate analyses which is mainly quantitative but embedded with some qualitative data analysis. In this part, some statistical descriptive analyses and GIS tools are also applied to create robust and

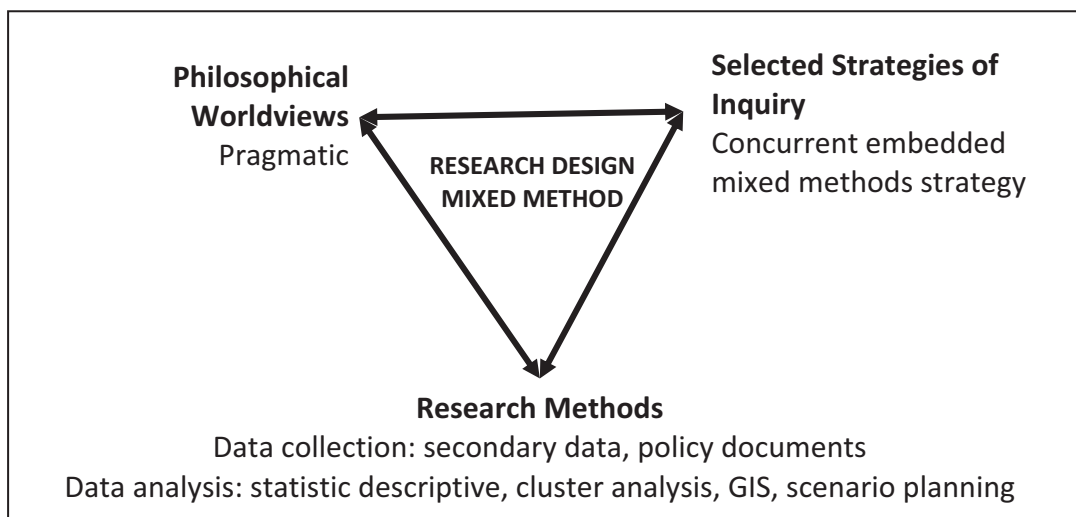


Figure 2.2 Three Main Components in the Research Design

Source: Adopted from Creswell, 2009: 5

accurate variable. The second part is scenario planning which is mainly qualitative but embedded with some quantitative data analyses. GIS is also used to illustrate particular part of the scenario. In the end, as the third part, there are three main output of this research. First is typology of rural-urban regions based on cluster analysis followed by scenario for future spatial formation in the research area. Combinations of these two findings are further proceeded to produce policy recommendations for future regional development in Central Java Province.

2.4. Study Area

The study area is within the administrative boundary of Central Java Province - Indonesia. It is located on Java Island and consists of 35 districts/municipalities and 565 sub-districts. Total area of the province is 3.25 million hectares with the total population are 32.18 million persons or around 14 per cent of the Indonesian population (CBS, 2006). Figure 2.4 illustrates orientation of the study area.

2.5. Data Needs and Collection

All data employed in this research is categorized as secondary data. These secondary data are collected from following different sources:

1. Annual statistic reports and relevant publications based on census and survey data from Central Bureau of Statistics (CBS).

Population Censuses were carried out five times in Indonesia; they were in 1961, 1971, 1980, 1990, and 2000. The sixth population census is expectedly done by the end of 2010. There are three types of survey data namely *Supas* (Inter-Censal Population Survey), *Susen* (National Socio-Economic Survey),

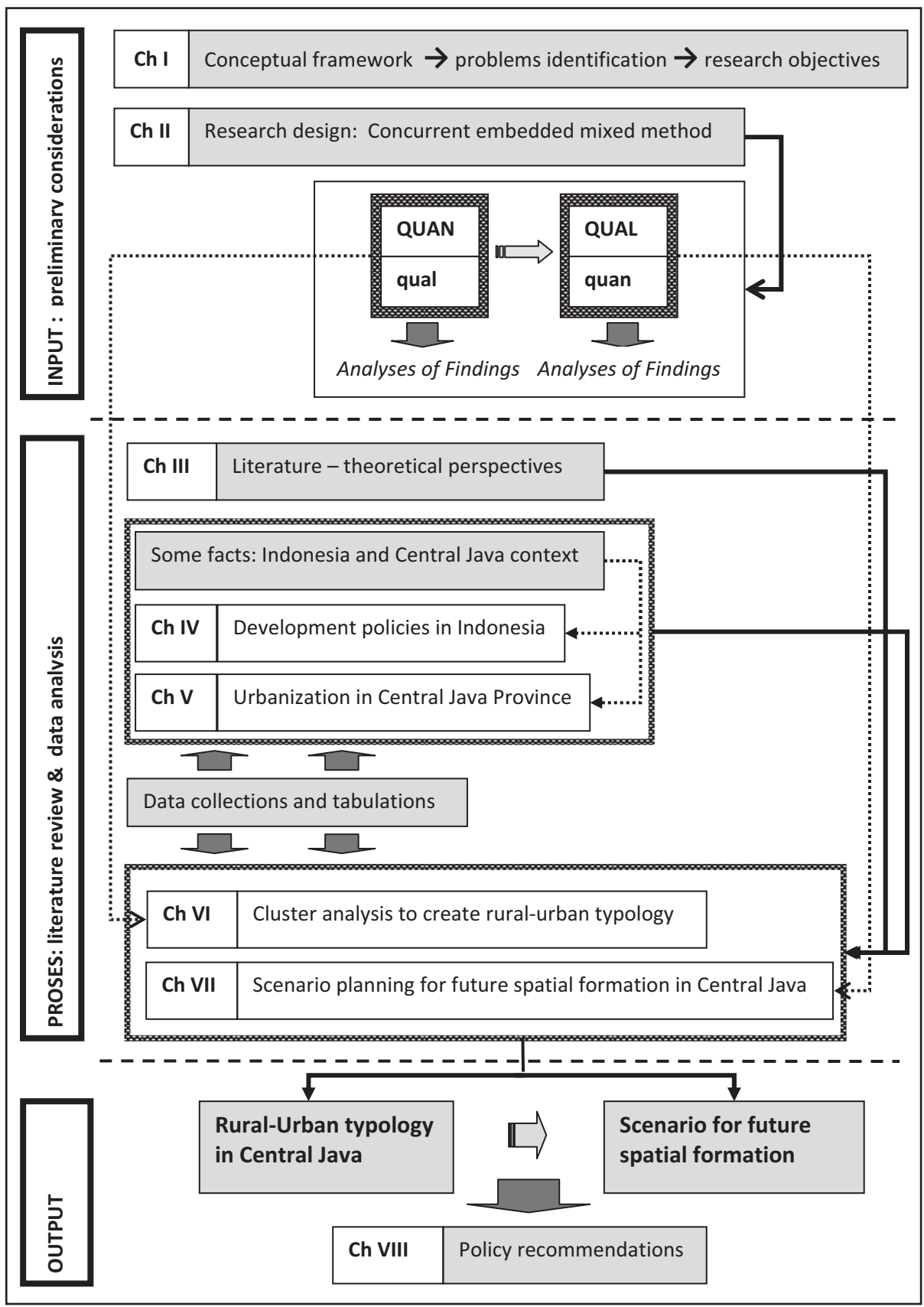


Figure 2.3 The Research Steps



Figure 2.4 Orientation of the Study Area
 Source: Bappeda (Planning Board and Development Agency of Central Java Province), 2006

and *Sakernas* (National Labour Force Survey). *Supas* is population survey conducted between two periods of population censuses, *Susenas* is a survey based on household unit to create social-economic profile, and *Sakernas* is particular survey to provide data regarding employment. All these sources of data are used in the study area mainly in regard to population, and social-economic performances for national, provincial, and district level.

2. Government documents and archival records.

These include policy documents, some social-economic information which is not published in the statistical reports, and land use data which have been processed into digital (GIS) format.

Table 2.1 explains briefly required data for conducting the research. In general, the data is divided into four categories. The first is related to physical environment. It includes slope, land use, road network, population data, and any other data that are basically spatially oriented. The second category is economic. There are two main data sets in the economic category namely GDRP and employment. Social as the third category includes population based on education attainment and poverty. The last category concerns policy documents as an important source to comprehend development policy applied in the research area.



Table 2.1 Data Needs, Types and Sources

Categories	Data	Types	Sources
Physical Environment	Slope - Contour Land use Carrying capacity of land Accessibility (road network and distance)	Spatial, digital (GIS) format	– National Coordination Agency for Survey and Mapping – National Land Agency – Provincial Planning Board and Devt Agency
	Population density, population growth, number of rural/urban population	Numeric	CBS
Economic	GDRP	Numeric	CBS
	Employment	Numeric	CBS
	Flow of good	Numeric	CBS
	Small-Medium-Large industries	Numeric	– CBS – Provincial Planning Board and Devt Agency
Social	Population by education attainment Poverty – Unemployment	Numeric	CBS
	Politic (Policy documents)	<ul style="list-style-type: none"> - Law No. 17, 2007 concerning National Long-Term Development Plan 2005-2025 - Law No. 26, 2007 concerning Spatial Planning System - Law No. 25, 2004 concerning (Non-Spatial) National Planning system - Governmental Regulation (PP) 26, 2008 concerning National Spatial Development Plan - 1st-5th Five-Year National Development Plan (<i>Repelita</i>) - Local Government Regulation (<i>Perda</i>) No. 3, 2008 concerning Provincial Long-Term Development Plan 2005-2025 - Provincial Medium-Term Development Plan 2003-2008 - Local Government Regulation (<i>Perda</i>) No. 6, 2010 concerning Central Java Province Spatial Plan 2009-2029 - Local Government Regulation (<i>Perda</i>) No. 21, 2003 concerning Central Java Province Spatial Plan 2003-2018 	

Notes: detailed data compilation can be seen in appendix

2.6. Data Processing and Analysis

2.6.1. Cluster Analysis

Cluster analysis is a multivariate statistical approach for grouping a data set. Each group (cluster) contains set of cases that have similarity in character. Concerning this, cluster analysis is relevant to be applied in creating rural-urban typology in the study area. To build the typology, there are considerably large data sets (indicators) that need to be classified into groups based on their similarity. Applying clustering algorithms will help to organize the data into groups efficiently based on statistic formulation. Then, it will assist to discover the characteristics of each group.

Following are several key issues that need to be considered when applying cluster analysis:



1. Selection of variables

As Ketchen and Shook (1996) points out, carefully select appropriate variables are very important to create meaningful and useful clusters. There are three approaches to select the variables namely inductive, deductive, and cognitive (Ketchen et al, 1993). This research uses a deductive approach as all variables that are applied highly based on theory or literature perspective.

2. Methods of clustering algorithms

In general, the methods of clustering can be divided into two types, namely hierarchical and non-hierarchical methods. There are no single agreements which are the best methods to be used. Therefore, some experts suggest using both of them and making comparison (Everitt, 1993:72; Kaufman and Rousseeuw, 1990:37; Ketchen and Shook, 1996). As non-hierarchical methods ask for number of clusters to be built, hierarchical methods can be used first to indicate the most suitable number of clusters.

3. Standardization

Since variables may contain scale differences and also a great combination range between minimum and maximum value, standardization can be applied so all variables contribute equally in the process. However, some experts believe that standardization is not really influence the result (Kaufman and Rousseeuw, 1990:9). Thus, it is also useful to do the analysis in both ways, with and without standardization.

Kaufman and Rousseeuw (1990: 8-11) points out that generally people calculate mean values of variables then use standard deviation to standardize data. However, this measure is likely to be affected very much by outliers. To overcome this problem, then commonly z-scores are applied to standardize data.

4. Multicollinearity

High correlation among variable will lessen the accuracy of the result (Ketchen and Shook, 1996). It may overweight certain variable over another. Regarding this, it is also important to re-evaluate variables which have high correlation.

5. Measuring distance

It is mainly to measure degree of dissimilarity or similarity. There are several measurements namely Euclidean distance, Block (Manhattan) distance, and Minkowski distance. Everitt (1993: 46-47) believed that even Ecludian distance is the most familiar measurement to be used but in most cases it has shown unsatisfactory results mostly since it is largely depends on scales applied for the variables (in inches, pounds, feet, meters etc). Some experts suggest using Block (Manhattan) to have a more 'natural' distance. Apart



from that problem, Kaufman and Rousseeuw (1990: 13) mention that Minkowski distance is a 'generalization' of Euclidean and Block (Manhattan) distance. Which measurement then suits the best? According to Everitt (1993:52) and Ketchen and Shook (1996), it largely depends on the types of data and the intuition of the investigators. Sneath and Sokal (1973 in Everitt, 1993:52) suggest using any measurement which may help to generate a convincing interpretation in the final result.

6. Applying agglomerative hierarchical clustering methods

As mentioned in point number two, there are two clustering algorithms. They are hierarchical and non-hierarchical methods. When using hierarchical methods, it is very important to carefully select the most suitable method to classify the data. There are several methods namely single linkage clustering, complete linkage clustering, group-average clustering, centroid clustering, median clustering, and Wards' hierarchical clustering methods. Even Ward's method and group average have been found to perform relatively well (Everitt, 1993: 142), Milligan (1980 in Everitt, 1993: 72) believes that no single method can be claimed as the best. Thus, applying a number clustering methods would be very helpful. If there is a consistent result, it may give more confidence to the researcher to make further interpretation.

2.6.2. GIS Application

Geographic Information System (GIS) is commonly used to analyse rural-urban areas in spatial context. In principle, GIS is a computer-based system to combine spatial and non-spatial data, analyse them for various purposes, and display the results as thematic maps or in other graphic formats (Weeks, 2004: 332-333). In this study, GIS is used for different purposes; to process land use data by analyzing feature relationship, to measure accessibility using network analyst tools, to measure density, to create land use change scenario, as well as to present informative thematic maps to describe particular rural-urban features in the study area. Following is a brief technical explanation on GIS operation in this study:

1. Land use data in 1994 and 2006 is processed by GIS to calculate land conversion rate as well to signify where the conversion takes place. Some commands in analyzing spatial data are used namely:
 - Buffering features to calculate built-up and non built-up area around the city centre
 - Overlaying data to calculate land conversion rate between 1994 and 2006
 - Calculating attribute values to combine some non-spatial data (such as density, GDP, and many others) and spatial (land use) data.



2. Road network in 2006 in combination with location (point) of urban growth centre and the airport facility is built into network dataset to calculate accessibility of each district. In this network analysis, the new closest facility tool is applied to calculate distance average between each settlement polygon that has transformed into point features and closest urban centre and closest airport facility. It is assumed that district with shorter average distance to either closest urban centre or airport facility are likely to have higher accessibility compared to district that have longer average distances to these points.
3. Kernel density is applied to describe scenarios based on population density. Principally, kernel density calculates density around particular point or line features in raster data type. To apply this calculation, there are two basic things that should be considered namely cell size and radius. Cell size indicates size of input units and radius refers to scope of calculations. The surface value is highest at the location of the point and diminishes with increasing distance from the point, reaching zero at the search radius distance from the point
4. In scenario building, model builder is used to automate the tools applied. Model builder is a geoprocessing framework that assists to record the working steps in building the scenario. With the help of model builder in ArcGIS all iteration can be processed automatically. Besides, it could be minimize all human errors in the model building process.
5. Some commands in querying data, joining and relating tables, and presenting data are also used to create a combination informative spatial and non-spatial data to be presented in thematic maps.

Further technical description is explained in appendices.

2.6.3. Scenario Building

Scenario planning is generally used to comprehend any possible upcoming situations. However, scenario is not a prediction or forecast (Keough and Shanahan, 2008; Zegras et al, 2004, Chermack, 2001). It is rather a process to produce a number of possible futures that are credible and yet uncertain (Brauers and Weber, 1988; Schoemaker, 1995; van der Heijden et al, 2002 in Keough and Shanahan, 2008). According to Zegras et al (2004), scenario planning aims to draw attention to the major forces underlying potential futures. The forces could be categorized as social dynamic, economic, and political including regulatory possibilities, technology, and environment.

Initially, scenario planning was developed more at corporate level or for business purposes. It was Royal Dutch Shell, the first business group that initiate scenario planning as a part of their corporate strategic planning in the



late 1960s. Since Shell's application of scenario planning proved to be effective to anticipate uncertainty due to oil crisis in 1973, nowadays, scenario planning widely used not only for business reasons in corporate level but also for many other various purposes in local, national up to global level.

There is no clearly defined and standardized process in applying scenario planning. To illustrate, the International Centre for Integrative Studies (ICIS) in 2000 has assessed 22 scenario planning studies in the context of sustainable development in Europe. The scenarios that have been assessed consist of various approaches with different time frames. In general, the approaches are divided into two types; they are analytical and participatory. The analytical approach is divided further into two different method, they are quantitative (model-based) and qualitative (expert-based) (ICIS, 2000:86). Schwartz (1996 in Keough and Shanahan, 2008) proposes eight steps in the scenario building model. They are (1) Identify focal issue or decision, (2) Identify key factors in the local environment which influence the decision, (3) Identify driving forces that influence key factors in the local environment, (4) Rank by importance and uncertainty, (5) Select scenario logics, (6) Flesh out scenarios, (7) Consider implications, (8) Selection of leading indicators and signposts. The Schwartz' 8-step has been applied to develop scenarios for transportation planning in Mendoza-Argentina (Munoz, 1998 in Zegras et al, 2004) and Houston-USA (Zegras et al, 2004). Slightly different, Peterson et al (2003) propose a six steps in scenario building. They are (1) Identification of a focal issue, (2) Assessment, (3) Identification of alternatives, (4) Building scenarios, (5) Testing scenarios, (6) Policy screening.

Considering the brief explanation above, scenario planning is considered as relevant to be applied for examining future spatial formation possibilities in the study area. Essentially, the scenario that is applied is a describing process of possible future pathways. It is hypothetical and likely to be considered as an evaluation of possible decisions and/or policy strategies. The scenario develops mainly derived from understanding the driving forces that are acknowledged as the key elements to build the scenario.



3 Urbanization and Rural-Urban Transition in Asia: Some Empirical Evidences, Theoretical Perspectives, and Policy Implementation

This chapter is divided into three main parts. The first part is aimed at answering 'what has been happening?' This question is in relation to urbanization and rural-urban transition particularly in Asia's developing countries. To answer the question, therefore, some empirical evidence is explained in this part. It first begins with the explanation of some challenges to urbanization in Asia. Following that, how to define urbanization is briefly explained followed by a discussion on urbanization and its implication to rural-urban transition in Asia's developing countries. Concerning urbanization and rural-urban transition as spatial in character, the fourth part is focused on the spatial aspect which covers issues on mega urban, peri-urban and small-intermediate urban centres. Subsequently, as disparity is considered as the most critical issue, the fifth part discusses the disparity phenomenon in these countries.

What has been happening is explained in the first part then further discussed in the second part in theoretical perspectives. The theory explanation expectedly answers the question of 'how and why they happen.' There are two main parts in this theoretical section. The first is to comprehend urbanization and rural-urban transition in the perspective of development economics and the second is in the perspective of regional development.

Following discourses on relevant theories, the last or third part aims to reveal some lesson learned from international experiences in promoting balanced development as this form of development acknowledged as the appropriate approach to achieve better performance of Asian urbanization and rural-urban transition. There are four successful as well as unsuccessful stories discussed in this part. The first is implementation of policentricity in most European countries, the second is the rural based development approach in most of Asia's developing countries, the third is the success story of East Asia in balancing their transformation process, and the last is endogenous growth and decentralization policy implementation in Asian developing countries. Finally, this chapter is concluded with some remarks regarding the existence of rural-urban regions as particular form of urbanization and rural-urban transition in Asian developing countries.



3.1 Urbanization in Asian Developing Countries

3.1.1 Challenges to Urbanization in Asia

Urbanization has played the most significant part with regard to the development process all over the world including in developing countries in Asia. As development is simply related to modernization in which urban life could be illustrated as modernity, urbanization is then perceived as the path to stimulate the changing process from something defined as traditional to something else called modernity. Even though a lot of confusion is present to measure urbanization accurately (Cohen, 2006; Jones, 2004) there is still a common acceptable fact that population which is categorized as living in urban areas, is increasing substantially. According to the United Nations (2004), world urban population has increased from 30 per cent in 1950 to 47 per cent in 2000. Additionally, urban population in Asia has been steadily increasing from 17.4 per cent in 1950 to 37.5 per cent in 2000. The number is expected to increase further to 54.1 per cent in 2030.

However, as explained in Table 3.1, urbanization in terms of the increasing urban population in Asia is relatively low. It is only slightly higher compared to regions in sub-Saharan Africa. In addition to that, South East Asia has been experiencing the lowest growth of urban population in Asia. Looking further into the Asian region, this fact leads to at least three interesting phenomena to be carefully examined. First, the representation of the upper boundary and lower boundary of Asian urbanization is significant. To illustrate, Japan and the Republic of Korea are categorized as 80 per cent urban while for example Bhutan is only 7 per cent or Cambodia is at only 17 per cent (Jones, 2004). Second, Tokyo which is declared as the most expensive city worldwide is located in Asia while in the same period, Karachi, one of the cheapest cities in the world is also located on the same continent (World Bank, 2009). Third, experiencing a relatively lower rate of urbanization, six out of ten largest cities worldwide in 2000 were located in Asia (Brockerhoff, 2000).

Table 3.1 Percentage of the Population Living in Urban Area by Major Area, 1950-2025

	1950	1975	2000	2025 (projected)
World	29.7	37.9	47.0	58.0
North Africa	24.7	38.7	50.8	63.9
Sub-Saharan Africa	11.5	21.0	34.2	49.0
Asia	18.4	24.7	36.7	50.6
Southeast Asia	14.8	22.3	37.2	53.2
Europe	52.4	67.3	74.8	81.3
Latin America *	41.4	61.2	75.3	82.1
North America	63.9	73.8	77.2	83.3
Oceania	61.6	71.8	70.2	73.3

* Including Caribbean

Source: United Nations (2001) in Jones (2002: 120)



Three facts mentioned above provide evidence that urbanization occurs at a different speed for different places in Asia or in other words, there is a significant imbalance in the pace of development on the continent.

However, there are some doubts about urbanization data accuracy released by the United Nations (UN) which is commonly used as the major source to illustrate any urbanization phenomena worldwide. Many scholars have been arguing on how urban and rural areas should be differentiated so there can be a better description of urbanization particularly in Asia compared to what has been described by the UN. Champion and Hugo (2004) challenge the UN explanation on the number of urban population since they strongly believe that dichotomization of urban and rural areas is not really relevant anymore. Correspondingly, Jones (2002) has shown the emergence of mega-urban regions in Southeast Asia in which the outer rings of these regions are still addressed as rural according to UN definition but actually they are pretty much urban in character. For this reason, He believes that urbanization in Asia or Southeast Asia in particular is much higher than what has been described by the UN in the world urbanization prospects assessed in 2001.

What Champion, Hugo, and Jones have pointed out, leading to a question of what is actually really happening in Asia's urbanization. Does it perform in a similar path with most developed countries in Western Europe and Northern America? If it does not, in what manner do the differences take place? Here begins a short explanation on how to define urbanization; the following parts discuss some empirical evidence to answer the 'what has been happening'; a question in regard to urbanization and rural-urban transition particularly in Asia.

3.1.2 What is Urbanization?

Rural-urban transition is actually identical even though not really congruent with urbanization terminology. That said, urbanization plays an important role in signifying how places actually defined as rural, transform to urban. According to a European Observation Network (ESPON) report (2006:12-13) and Hohenberg (1990:352-353), urbanization can be comprehended as derived from three different meanings. First it is simply considered based on the number of population categorized as living whether in urban or rural area. In this conventional definition, urbanization is also defined as urban growth (Clark, 1996:49). Three components known as demographic indicators commonly used to measure the urban growth rate. They are number of births, number of deaths and number of in/out migration. Among those indicators, migration rate contributes the most significant number in regard to urban growth mainly since most people are likely to move to places that might give



better employment opportunities which means people move from rural to urban region (Satterwaite and Tacoli, 2003). Unfortunately, it is not an easy task to record the real migration rate. Particularly in the case of developing countries in Asia, a large number of migrants circulate in repeated movement or as circular migrants (Clark, 1996: 53).

Secondly, urbanization is defined not only based on the population but also considering the activity of the people. Rural reflects food production or agrarian communities and as its counterparts, urban is acknowledged as industrial based or as service suppliers. Accordingly, urbanization could be indicated as movement of people between different activities in the economy. Regarding this, urbanization is understood as a process of structural transformation from agriculture to industry or service sector activities (Potter, 1999: 216).

Thirdly, urbanization in general is understood as social transformation. This includes behavioural patterns, norms, and lifestyles. It would be very complicated to measure rate of urbanization based on this definition. As Hohenberg (1990:353) points out, urbanization is obviously more than just counting the number of heads or not just identifying land conversion rates and calculates the increasing number of factories; hence it is a challenge to measure urbanization in a wider spectrum.

3.1.3 Urbanization and Its Implication to Rural-Urban Transition in Asian Developing Countries

As mentioned in previous part, there are various things attributed to urbanization. It may simply be viewed as a demographic phenomenon. In a different way, economic and social aspects are also considered as influential factors to define urbanization. Subsequently, in general conception, urbanization can be equated with modernization as well as transformation in a development context (Potter et al, 1999:216-217). Development in regard to urbanization relates inextricably to the transition phase of rural and urban areas or otherwise said, the process of urban changes as well as rural changes (Helmsing, 1985:39-57). Taking this into account, the following part elaborates the urbanization phenomenon into two points of view. There is urbanization as a form of urban development and urbanization as a form of rural development, transform from rural to urban features.

Particularly for most developing countries in Asia, urbanization as a part of urban development is strongly related to the existence of international capitalism. Gilbert and Gugler (1991: 42) called this as peripheral urbanization. In this form of urbanization, multinational corporations contribute a significant



role to force development of particular large urban areas. This can be indicated from the fact that manufacturing industries mostly based on foreign investment have become an engine of growth of many big cities in Asia at least since after World War II. These industries have attracted labourers to move either from rural or lower hierarchy urban centres to higher hierarchy or bigger urban areas. Moreover, in order to maintain a good economic performance, governments in most Asia's developing countries are likely to prioritize physical infrastructures development in big urban centres instead of in smaller cities or rural areas. As explained by the growth centres (unbalanced development) theory proposed by Hirschman (1958), Myrdal (1957), and Perroux (1955), the development of these centres is expected to spread over the surrounding regions (Hansen, 1981: 16-21). Thus, it is really unfortunate that what has happened is in reverse; the centres absorb most potential resources mainly labourers and natural resources from their surrounding rural areas and lower hierarchy urban regions.

Lack of success of urbanization centred on international capitalism essentially could be explained based on historical context. Historically as colonized countries, the position of most developing countries in international capitalism is in fact unequal. Inspired from the dependency theory, Santos (in Seligson and Passe-Smith, 2003: 277-287) proposes three deriving factors of the inequality which has influenced urbanization in these countries. They are (1) colonial dependence, (2) financial-industrial reliance, and (3) the emergence of multinational corporations which has led to innovation and technological dependence. These dependencies severely limit transformation or modernization process of the countries. Concerning Santos explanation on inequality that occurs in many developing countries, urbanization in Asia which is mainly derived from big multinationals industries located in large urban centres can be called dependent urbanization. This particular type of urbanization has been blamed as the main caused in creating poverty mainly urban poverty and more inequality among regions in developing countries (Mehmet, 1995; Gilbert and Gugler, 1991).

According to Ravalion (in United Nations Economic and Social Council – UNESCAP, 2007), urban poverty in Asia has been increasing while rural poverty is likely to decline. Regarding this fact, referring to Lo et. Al.'s (1981) argumentation, the transformation process from traditional to capitalist economy in most developing countries in Asia happens simultaneously with the existence of the informal sector in most urban areas. These informal sectors have appeared mainly due to lack of work opportunities in the urban centres compared to the number of workers who seek jobs in these areas. As particular



urban centres have grown very rapidly and give the impression of good quality of life and better job opportunities, these centres have attracted large number of immigrant people with various levels of skill and educational backgrounds. It has resulted on surplus labourers. These labourers are then considered poor people who work mostly in the informal sector.

Table 3.2 provides evidence of a significant gap between selected Asian developing countries and developed countries both in poverty level and urban annual growth. While most developing countries experienced relatively rapid urbanization, population living below the poverty line remained high. The reverse happened for developed countries; they experienced much lower urban annual growth but have zero population who live below the poverty line. Inequality which can be indicated from Gini¹ index also shows a significant difference between developing and developed countries. In average, Gini index in developing countries is more than 30, in some countries even reaching more than 40. Meanwhile, in most developed countries, Gini index is below 30. These facts may reveal a significant difference in the prosperity level between developed and developing countries.

Table 3. 2 Poverty, Inequality, and Urban Annual Growth in Selected Developing and Developed Countries

Countries	*Population Below Poverty Line (\$1 a day) (% of total)	**Gini Index	***Urban Annual Growth rate (%)			
			1996-2002	1990-1995	1995-2000	2000-2005
			Asian Developing Countries		3,2	3,0
Bangladesh	41.3 (2000)	31.8	4.0	3.6	3.6	
Nepal	24.1 (2004)	36.7	6.6	6.6	5.3	
Cambodia	66.0 (2004)	40.4	5.6	5.9	4.9	
Indonesia	7.5 (2002)	34.3	4.6	4.6	4.0	
Philippines	14.8 (2003)	46.1	4.3	3.7	3.5	
Developed Countries			0.7	0.6	0.6	
Norway	0	25.8	1.0	1.2	1.0	
Japan	0	24.9	0.8	0.4	0.4	
Germany	0	28.3	0.6	0.1	0.2	

Source: *United Nations, 2010; **World Bank, 2010; ***United Nations Population Division, 2010

Following some facts mentioned above, the data in Figure 3.1 and Figure 3.2 compare urbanization and GDP performance among developed, less and least developed countries. Figure 3.1 shows that urban annual growth rate in less and least developing countries is very significant compared to developed

¹ Gini index is a common measure to indicate inequality ranged from 0 to 1 or multiplied by 100 to range 0-100. 0 represents absolute equality and 1 or 100 represent absolute inequality.



countries, however, it does not really influence their contribution in GDP worldwide. As illustrated in Figure 3.2, 74 per cent of world GDP distribution in 2007 concentrated in high-income countries.

Brief illustrations in Table 3.2, Figure 3.1, and Figure 3.2 roughly indicate that rapid urbanization that has been experienced by many developing countries does not automatically make these countries have reasonably good economic performance. Urbanization as a part of urban development which is closely related to industrialization process in most developing countries, therefore, cannot always be considered as a good sign of development. Indeed, while there is rapid urban growth, poverty and inequality still persist and is even getting worst.

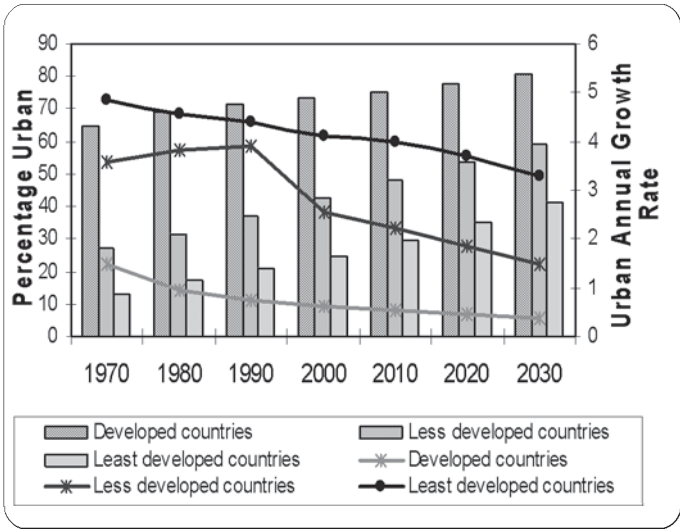


Figure 3.1 Percentage People Live in Urban Area and Urban Annual Growth Rate in Developed, Less and Least Developed Countries, 1970-2030

Source: United Nations Population Division (<http://esa.un.org/unup/>)
Notes: Designation of countries as developed, less, and least developed is according to UN definitions

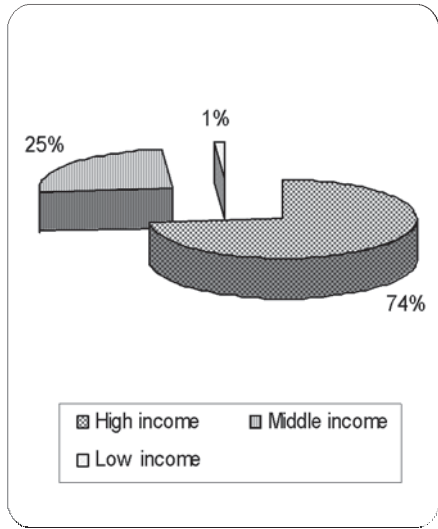


Figure 3.2 GDP Distribution in High, Middle, and Low Income Countries, 2007

Source: World Bank (<http://web.worldbank.org/>)
Notes: Designation of countries as high, middle, and low income is according to World Bank definitions

Subsequent to the undesired performance that has taken place due to urbanization that highly relies on international capitalism concentrated in urban centres, small and medium enterprises (SMEs) which are mostly based on local values centred in rural areas should be regarded as a potential generator of a new growth to alleviate poverty as well to reduce inequality among regions in Asian developing countries. As Giaoutzi et al (1988) points out, “small is beautiful”, and therefore small-local based industry also potentially contributes to the development process. Berry and Mazumdar (1991) reveal some evidence that SMEs have played an important role in most East and Southeast Asia countries’ development such as in Japan, Korea, Taiwan, Thailand, and Indonesia. Considering that SMEs are characterized as



labour intensive and distribution income among enterprises is relative more even. The dominant role of SMEs can be seen as a good sign because implicitly it indicates a more equal income distribution. Correspondingly, Weiss (2002: 119-120) and Tambunan (1992:59-60) believe that SMEs play a strategic function in most developing countries as they are very important for most rural households as a part of a survival strategy.

Different countries applied different policy to boost their SMEs. However, one common character that should be acknowledged is that developed SMEs are mostly rooted in indigenous resources (Barquero,2002:7; Giaoutzi et al, 1988). Particularly in developing countries, SMEs are characterized as rural industries. Even though, many rural industrialization programmes fail in many developing countries (Douglass, 1998; Saterwite and Tacolli, 2003), but they have performed very well in the Asian crisis period in the late 1990s (Berry et al, 2001). Nevertheless, Qadeer (2004) has revealed that there are many regions in Asia with density and settlement systems that are characterized as urban; he describes this as 'urbanization by implosion'. In the urban hierarchical perspective, these areas are located relatively far from the urban growth and most of the time they are classified as remote areas. McGee in Forbes (1997) explains these 'wet rice areas' as one form of 'endogenous urbanization'. In addition to that, Barquero (2002) has also argued, endogenous industrialization as an alternative of industrialization path is essential in developing countries. This means that urbanization (industrial development) does not necessarily initiate from big cities.

Table 3.3 shows some data on SMEs in selected Asian Countries in 1970s and 1980s. Despite there being various definitions to categorize size of industry based on number of workers, it is still a general circumstance which can be recognized that except for Thailand, cottage-small industry have absorbed significant numbers of employment in comparison to medium-large size industry in selected Asian countries. In Indonesia, the role of cottage and small industries in 1970s and 1980s employment exceeded medium and large industries. Undesirably, data on the table also indicates that there was a significant value added difference between cottage-small and medium-large industries. This leads to the fact that most cottage-small industries in Asia are attributed to low productive sector as can be seen in the productivity differential explained on the table.



Table 3.3 Small Manufacturing Enterprises in Selected Asian Countries

Country	Employment (%)			Value added (%)			Productivity differential (Small=100)		
	Mid 1970s	Late 1970s	Mid 1980s	Mid 1970s	Late 1970s	Mid 1980s	Mid 1970s	Late 1970s	Mid 1980s
Indonesia									
Cottage (<5)	79.5	62.2	52.4	13.5	13.6	11.0	13.7	46.0	45.9
Small (5-19)	7.0	18.4	14.9	8.7	8.8	6.8	100.0	100.0	100.0
Medium/Large (20>)	13.5	19.4	32.7	77.9	77.6	82.2	466.6	842.6	549.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	80.8	210.3	218.4
Thailand									
Small (10-19)	4.1	4.4	3.4	1.5	2.0	1.2	100.0	100.0	100.0
Medium/Large (20>)	95.9	95.6	95.6	98.5	98.0	98.8	274.7	220.8	296.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	267.5	215.5	289.5
Philippines									
Small (10-99)	46.6	18.4	18.1	17.2	7.5	5.0	100.0	100.0	100.0
Medium/Large (100>)	53.4	81.6	81.9	82.8	92.5	95.0	420.4	276.9	421.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	271.0	244.3	362.1
Malaysia									
Cottage (1-4)	3.9	18.9	Na	1.3	6.7	Na	48.9	39.1	Na
Small (5-49)*	26.0	32.4	16.2	17.0	29.3	9.5	100.0	100.0	100.0
Medium (50-199)	26.7	21.7	31.7	30.7	32.3	26.9	176.1	164.0	144.4
Large (200>)	43.4	26.9	52.2	51.0	31.7	63.6	179.4	130.2	207.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	152.7	110.5	170.3
*In 1984, 1-49 workers									
South Korea									
Small (5-19)	10.5	8.0	10.3	4.9	4.5	4.7	100.0	100.0	100.0
Medium (20-99)	16.0	19.4	26.8	11.5	13.6	16.5	153.5	125.1	136.5
Large (100>)	73.4	72.6	62.8	83.6	81.9	78.9	243.0	200.7	279.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	213.6	178.0	222.3
Japan									
Cottage (1-9)*	19.1	19.6	13.7	9.6	9.6	7.5	67.3	64.6	77.3
Small (10-49)	25.5	26.9	29.0	19.1	20.3	20.6	100.0	100.0	100.0
Medium (50-99)	11.1	11.4	12.6	9.4	9.7	10.7	113.2	112.5	119.3
Large (100>)	44.4	42.1	44.8	61.8	60.5	61.2	185.7	190.4	192.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	133.2	132.5	140.6
*In 1986, 4-9 workers									

Source: Berry and Mazumdar, 1991

However, even these small cottage industries or SMES are featured as low productive, Berry and Mazumdar (1991), and Giaoutzi et al (1988:4) still optimistically believe that SMEs should be regarded as a potential sources for future Asian industrialization. They propose at least five main arguments on the importance of SMEs so they should be accommodated into a development policy framework:

- (1) Flexibility. SMEs have ability to adapt changes of demand from market faster than LEs.
- (2) Contribution to export. They are potential to contribute in various export products mainly through sub-contracting mechanism.
- (3) Ability to absorb lots of labourers.



- (4) Their contribution to decentralization
- (5) Capacity to generate local entrepreneurial talent.

Indeed, Tybout (2000) and Berry and Mazumdar (1991) believe that government should pay more attention to SMEs industries as they believe that most governments mainly in Asia's developing countries do not proportionally favour the growth of foreign based large enterprises (LEs) in urban areas but instead of provide protection to SMEs located in towns or country sides. LEs are mostly considered more attractive because they have more ability to create multiplier effects and enforce economic growth. However, there are several industrial products such as footwear, metal, furniture and certain kind of clothing is proved to be more efficient produced by SMEs using simple technologies.

Another important point, SMEs based on an endogenous process of development, also may give positive contributions particularly in absorbing more labourers and more local based raw materials, innovation and technology. In this regard, the development of SMEs should be acknowledged as an important initial step to enforce rural development, to increase the role of intermediate cities, and to control migration rate in which those three things may lead to a more balanced development (Saterwite and Tacolli, 2003; Berry et al, 2001; Tambunan, 1991).

The brief explanation above leads to an understanding that the process of urban changes as well rural changes in Asian developing countries comes out with distinctive features. Despite the facts on poverty and inequality, there is also an obvious mixture of rural and urban features in the regions. Urban areas are growth with the combination of rural character. There are many rural job seekers in urban areas who have appeared as unemployed then work in the informal sector along with their rural life styles. In a different path, rural areas are potentially growth based on particular industrial activities in which industry is commonly used to portray urban area.

3.1.4 Spatial Implication: the Emergence of Mega Urban, Peri-Urban, and the Important Role of Small-Intermediate Urban Centres

As a process of transformation of human life and activity, urbanization or the transition phase of rural and urban areas are strongly related to spatial context. A rural area might become a town as well, towns change into cities and even metropolitan areas. In the process, there will be a dynamic transition period as stagnation seems impossible. Particularly in Asia, spatial conception of urbanization relates to at least three connected issues namely (1) the emergence of primate city and mega urban regions, (2) the appearance of peri-



urban regions, and (3) the proposal to enhancing role of towns or small-intermediate cities.

The emergence of a primate city and mega urban regions

Despite the fact that classification of urban areas is still arguable and there is lack of reliable data in developing countries (Cohen 2006; Jones, 2004), the appearance of more mega urban cities worldwide is still obvious. Table 3.4 shows the 10 biggest cities in the world. The biggest city when in 1970 had only 16.5 millions inhabitants has been increased to 28.2 million inhabitants in 2015. Following that incredible change, more than half cities worldwide are inhabited with more than 10 million people are in Asia (Population Bulletin, 2000).

Table 3.4 World's Largest Mega City, 1970 and 2015

Population (in millions)					
1970			2015		
1.	Tokyo, Japan	16.5	1.	Mumbai, India	28.2
2.	New York, United States	16.2	2.	Tokyo, Japan	26.4
3.	Shanghai, China	11.2	3.	Lagos, Nigeria	23.2
4.	Osaka, Japan	9.4	4.	Dhaka, Bangladesh	23.0
5.	Mexico City, Mexico	9.1	5.	São Paulo, Brazil	20.4
6.	London, England	8.6	6.	Karachi, Pakistan	19.8
7.	Paris, France	8.5	7.	Mexico City, Mexico	19.2
8.	Buenos Aires, Argentina	8.4	8.	Delhi, India	17.8
9.	Los Angeles, United States	8.4	9.	New York, United States	17.4
10.	Beijing, China	8.1	10.	Jakarta, Indonesia	17.3

Sources: Brockerhoff, 2000

Mega urban regions are significant mainly due to the globalization phenomenon. Globalization that has led to capitalism and the dominant role of New International Division of Labour (NIDL) requires spatial transformation as reflect in the growth of very large urban regions mainly in Asian Developing Countries (Douglass, 2000). Transportation and communication linkages become an important aspect. Subsequently, the ribbon pattern of development along the main corridor of big cities emerges as a fundamental feature of mega urban areas.

Douglass (2000) summarises the implication of the rapid emergence of mega urban regions into five areas. These are:

- (1) Governance. It relates to the complexity of managing any social, political, and economic issues that emerge accompanying the rapid growth of this type of region.
- (2) Liveable cities and environmental management. Rapid growth of industrial activities, mega-infrastructure projects as well the decreasing of open space



areas hold environmental consequences. Thus, shrinkage of environmental quality becomes an important agenda to be worked out.

- (3) Sustaining economies. As many developing countries give so much effort to attract foreign direct investment resulting in the rapid development of industrial activities, there will be a dilemma in maintaining a long-term environmental sustainability as well retaining the region for effectively competing for investment.
- (4) Urban poverty. Rural-urban migration remains as a basic cause of poverty in mega urban regions. Physically, it can be indicated from the appearance of slum areas. Over time, this area will spread as they start to reproduce.
- (5) Uneven spatial development and rural neglect. The emergence of mega urban regions is a result of unbalanced linkages of rural-urban regions. Urban areas take so many resources from rural ones in which will not sustain rural development. Besides, urban areas still depend on food, raw materials, energy and other natural resources from rural areas.

The significant emergence of peri-urban region

Allen (2003) and Laquinta and Drescher (2000) have stated that there is still no consensus on the definition of peri-urban regions. However, in general, this region is understood as an area mostly rural located in the surrounding urban centre which also has obvious urban character. In the case of Asia, peri-urban regions are mostly called 'Extended Metropolitan Regions (EMRs)' (Douglass, 2000; McGee, 1991). Even though, some peri-urban regions are not located geographically close to an urban area, peri-urban always relates to urbanization which obviously corresponds to the demographic process as well to the socio-cultural, economic, political, and environmental context. In this way, Allen (2003) and laquinta and Drescher (2000) believe this type of region contributes a significant in linking rural and urban ecological, economic, and social functions. The emergence of this region may also question the relevance of the rural-urban divide.

Focused on population context, Ford (1999) relates the emergence of peri-urban regions to four growth processes. These are suburbanization, counter urbanization, centripetal migration, and population retention. The basic idea of Ford's conceptual framework is that peri-urban regions emerge as a result of factors originating not only from metropolitan areas through suburbanization or counter urbanization. But also come from rural or small urban areas through centripetal migration and population retention. In this sense, the conceptual idea on peri-urban should be considered from two perspectives. First is peri-urban area emerges as a result of urban development or a form of extended



urban growth and, second peri-urban development is a natural processes of rural changes.

Considering institutional aspects as the most influential factors in regard to the existence of peri-urban regions, Laquinta and Drescher (2000) propose five types of peri-urban (PU) regions, as followed:

- (1) Village PU (or peri rural): this region refers to “rural places with urban consciousness”. Mostly located geographically not close to an urban area. Occur mainly due to remittance and out-migrant infusion of urban lifestyle/attitude.
- (2) Diffuse PU. Located in urban fringe and characterized by ethnic heterogeneity. Migrants are not necessarily from rural areas; they can be from other urban areas. Thus, it is likely that this type of PU emerges proximate to intermediate and big urban centres.
- (3) Chain PU. Derived from chain migration. Appear because many migrants are likely to take their relatives after they experience some achievement in the place of destination. Located in urban fringe and characterized by ethnic homogeneity.
- (4) In-place PU. It is derived more as natural expansion or most commonly formed as village PU combined with in-migration from other regions. This PU is not necessarily located in the urban fringe.
- (5) Absorbed PU. Located in the urban fringe and might be a combination between diffuse PU and Chain PU.

Figure 3.3 summarizes peri-urban regions in the context of spatial urbanization derived from Allen (2003) and Laquinta and Drescher (2000) framework.

In slightly different perspectives, Satterthwaite and Tacoli (2003) and Lynch (2005) also draw attention on the emergence of peri-urban regions. They regard these regions as a profound implication of urbanization in the context of environmental issue. Therefore, the emergence of this type of regions should be followed by adequate environmental management and planning. In this case, the importance of human networks, which is referred to social capital, is considered as the key point. They believe that a good understanding of social capital networks will effectively contribute some useful insights into how to manage the environment in a better way. Moreover, character of peri-urban regions is different either with urban or rural areas. The combination of urban and rural features makes the management of this region special. There is a more dynamic movement of people as well as a more problematic institutional development. Therefore, it needs particular attention to minimize the possibility of environment degradation as the negative impact of these regions' development.

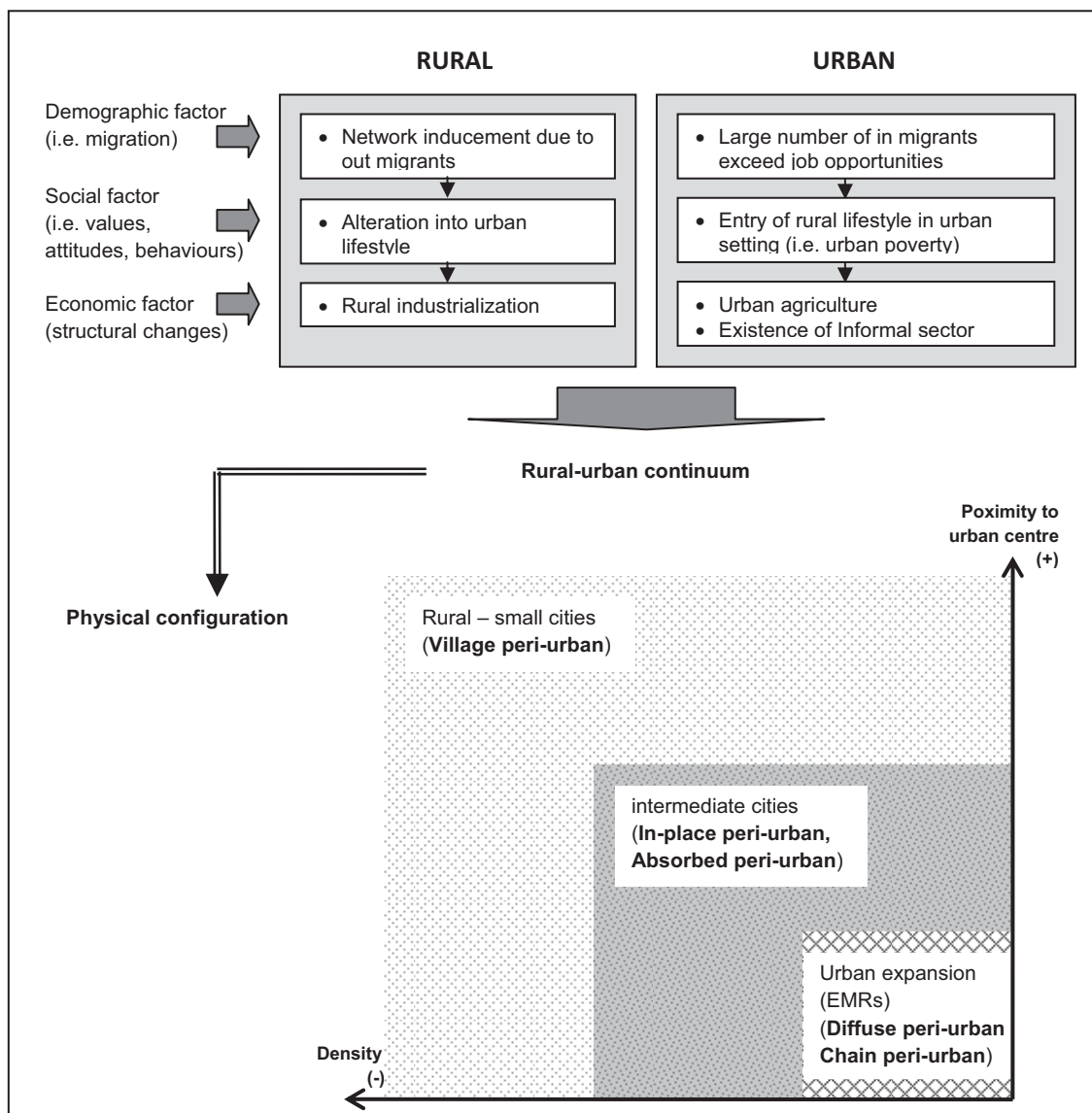


Figure 3.3 Peri-Urban Regions and Spatial Urbanization

The important role of intermediate urban centres

In a spatial context, the role of intermediate urban centres is very important to have a good rank in city-size distribution. However, as growth centre approach is likely to boost only on particular big centres. Most intermediate urban centres in Asia fail to contribute a significant role. On the other hand, more than half urban populations in developing countries live in places with less than half a million inhabitants (Satterthwaite and Tacoli, 2003). This can be categorized as not living in large urban centres, even though there is not a common acceptable definition to classify urban areas as small, medium /intermediate, or large size based on number of population.

The insufficient role of intermediate urban centres has led to the unbalanced spatial distribution in most of Asia’s developing countries. It can be clearly indicated from the over primacy of large growth centres as these large growth



centres have attracted huge numbers of in migrants which then have resulted in high numbers of urban poor. Regarding this, it is believed that by enforcing the role of intermediate urban regions, migration rates to large urban centres as well numbers of poor people will effectively decline. Since migration has become the main problem to be solved, Satterthwaite and Tacoli (2003) consider livelihood diversification and the development of non-farm activities as the core area that need special attention to enforce the development of intermediate urban regions. In connection with Satterthwaite and Tacoli's idea, more attention to local conditions such as appreciation of local knowledge and social capital become the next key problem to be worked out (Mehmet, 1995).

Essentially, intermediate urban centres have a significant position in regional development in various ways (Rondinelli, 1986). The first is their role as a marketplace for agricultural produce from their surrounding rural regions. The proximity of these centres to rural areas will help farmers to sell their crop. The second is as centres to produce as well to distribute goods and services to the surrounding rural regions. This includes access to healthcare, education, banks as well as to fulfil any agricultural input such as seeds and fertilizer. The third is as a centre for the growth of non-farm activities mainly small and medium size enterprises or as branches of such large enterprises. The fourth is as a place to prevent more migrants from moving to larger cities. Therefore, it is reasonably important to provide more job opportunities in these centre areas.

However, as mentioned above, such evidence has shown that many intermediate centres have failed to play their role. In the case of Indonesia, Douglass (1998) conducted research in Central Java town of Banjarnegara that provides evidence for the failure. Firstly, it was identified that most of local people in the intermediate cities of Banjarnegara as well the rural people from the surrounding region did not really make use of the facilities of the centres such as for shopping, accessing health care, education, and bank credit. The significant problem was because of the low purchasing power of the people so they could not afford even such basic needs as health care and education. Secondly, due to the low demand of the services, the expansion of job opportunities in this intermediate centre was very slow. As a result, people in this area were likely to go to bigger cities to find better job opportunities. Thirdly, this centre failed to play its role as a centre of distribution for agricultural products from the surrounding regions. Because of the dominant role of middlemen that mostly came directly to the farming area to take the crops, the distribution of many agricultural commodities fully bypassed this intermediate centre.



Beside the problem in enhancing the role of intermediate cities, there is also a problem in implementing rural or agriculture policy effectively. As Gilbert and Gugler (1991:226-227) points out, policy to provide credit to farmers or subsidize fertilizer and seeds most of the time only benefits rich farmers with a wide area of land to be cultivated. Most farmers in developing countries have only very limited land and therefore banks do not like to provide them credit as they consider those farmers are ineligible. Another issue, subsidies of agricultural activity are also considered as urban bias. Subsidies maintain the agricultural products at low prices and this in fact will benefit urban people instead of small farmers.

Considering problems explained above, it can be argued that spatial implication in relation to urbanization and rural-urban transition path is very complex and cross-sectoral in nature. Therefore, it is important to follow up with a more integrated and balanced development approach.

3.1.5 Disparities: Some Emerging Issues and Policy Distortion

As explained in the previous parts, urbanization in Asia performs mostly as a part of international capitalism. It has led to some unexpected outcomes as there are increasing numbers of poor and inequality among regions. The emerging forms of disparity provide empirical evidence that urbanization as well rural-urban transition in Asia's developing countries is not addressed in the right course of action yet.

Disparity exists not only between rural and urban but also between urban and urban areas as well as between regions as a whole. According to Gilbert and Gugler (1991:33-37), there are three forms of spatial disparities. The first is rural-urban disparity. It is indicated from huge different standard of living and lack of facilities in the rural compared to urban areas. Table 3.5. explains the World Bank report on rural-urban disparities in developed and developing countries. Based on the data in the table, at least two indications are revealed. Firstly, rural-urban disparity is higher in developing countries compared to developed countries. Secondly, disparity in Asia is relatively significant. To illustrate, 100 per cent of the area in Japan gets an access to water and sanitation while only less than 50 per cent of the rural population have access to the sanitation services in four other countries in Asia.

The second form of disparity is regional disparity. It could be indicated as certain regions have shown superiority compared to the others. As an illustration, per capita income of Shanghai Province – China in 1994 is 10 times higher than the poorest Ghuzhou Province (Fujita and Hu, 2001). As well, Java Island in Indonesia occupies 60 per cent GDP of the total country comprised of



Table 3.5 Rural-urban Disparities in Selected Country Indicated from Water Access and Sanitation Services in 2004

Country	% of urban population with water access	% of rural population with water access	% of urban population with sanitation services	% of rural population with sanitation services
Developing countries				
Bangladesh	82	72	51	35
Cambodja	64	35	53	8
China	93	67	69	28
Indonesia	87	69	73	40
Developed countries				
Australia	100	100	100	100
Germany	100	100	100	100
Japan	100	100	100	100

Source: World Bank, 2009

thousand islands (CBS, 2008). Even though Gilbert and Gugler (1991) believe that regional disparity is worse in developing countries. Regional disparity also exists in developed country. In the United States, three states (California, New York, and Texas) contribute 21 per cent of national GDP in 2005 (World Bank, 2009:39). In EU-25 in 2003, Glasson and Marshall (2007:257) show that inner London (UK) have seven times higher GDP per capita compared to the lowest Del-Alfold (HU). Particularly in developing countries, the pattern of colonialism which is likely concentrated in coastal regions also becomes one critical factor in explaining why most inner regions are less developed compared to the coastal areas.

The third form of disparity appears as urban primacy or primate city. It is a phenomenon where there is a domination role of particular major city in terms of number of population and economic activities compared to other cities in the region (country). Gilbert and Gugler (1991:58-61) believe that the role of multinational companies which has led to the New International Division of Labour (NIDL) contribute significantly to the appearance of these primate cities. Many multinational industries do their manufacturing works in particular urban growth centres, which have relatively good investment climates and low rates of labour wages. As the manufacturing activities require high demand for low educated and cheap labourers, they attract so many migrants not only from the surrounding regions but also from almost all lagging regions across the country. In addition to that, international trade has also forced major coastal cities in many developing countries to grow faster than other urban regions. Due to the role as a place to assemble various kinds of mass production industrial activities, ports in developing countries play as a very important factor. Thus, major coastal cities which are initially already developed due to colonialism then predominate with a lot of manufacturing industries facilitated by a big



port with an appropriate service growth , which rapidly leave behind other growth centres.

Hugo (in Gugler, 1996:142) also considers that improvement in communication technology contributes significantly in creating the primate city. His argumentation is based on some facts from Indonesia. He has created the primacy index based on four biggest cities in Indonesia. The index is much higher during the times when transportation and technology in communication is in much better condition. Furthermore, if the urban definition is also included, the extended urban regions, which most of the time are still acknowledged as rural, then the primacy index is considerably higher than at the earlier times (see Table 3.6).

Table 3.6 Four-City Primacy* Index for Indonesia

Year	Index	Year	Index
1890	0.39	1971	1.16
1905	0.59	1980	1.25
1920	0.69	1990**	1.09
1930	0.73	1990***	1.49
1955	0.87	2000**	1.4.1.
1961	1.17	2000***	1.4.2.

Source: Hugo in Gugler (1996:144)

* The population of the largest city (Jakarta), divided by the combined population of the three next largest centres.

** Index based on official municipality and provincial boundaries.

*** Index based upon contiguous urban area including overspill area.

Three types of disparity that have been emerging in the current situation are especially related to development policies that have been applied. Urbanization that has already taken place in developed countries is not necessary to have the same pattern with developing countries. Different historical background and current rapid development in communication and transportation technology are two major factors, which may explain different features of urbanization patterns worldwide (Gilbert and Guggler, 1991).

3.2 Theoretical Perspective on Urbanization and Rural-Urban Transition

As the previous part has described some empirical evidence related to urbanization and rural-urban transition particularly in Asia, this part is focused on theoretical perspectives regarding those two terminologies. There are two main theoretical parts. The first part discusses understanding urbanization and rural-urban transition in the perspective of development economics. Second part discusses understanding urbanization and rural-urban transition in the perspective of regional development.



3.2.1 Perspectives on Development Economics

Urbanization as well as rural-urban transition is essentially a changing process in which it is expected to attain an improved situation called development. There are so many means to comprehend the word 'development'. In a general economic point of view, development is regarded as classical Kuznets terminology, "modern economic growth", or growth in modern industrial urban economy (Syrquin, 1988: 205; Meier and Rauch, 2000: 72). In this terminology, agricultural rural economy is appreciated as something traditional that leads to the existence of low-income people. Thus, according to this standpoint, development denotes structural transformation from an agricultural rural based economy to industrial urban based which indicates as a transition process from lower to higher per capita income.

However, it is also believed that development is not solely a matter of process of economic growth. As a matter of fact, high economic growth, which refers to high per capita income, does not automatically take place simultaneously with rational distribution and expected quality of life (Sen, 1988). To illustrate the problem, in 1984, South Africa experienced about seven times higher the Gross National Product (GNP) per capita but in the same time had a lower life expectancy compared to China and Sri Lanka (World Bank in Sen, 1988:12). This example may give simple evidence that good economic growth might lead to high per capita income but it is not automatically followed by an expected living condition. Economic growth is largely concerned only with GNP as the main indicator, and therefore it is likely to ignore the issue of equality and quality of life. Besides, there is also a considerable doubt whether the development process experienced by current developed countries is necessarily takes a similar path with most colonial-less developed countries that currently stand still in their transitional periods. For these reasons, development economics which initially was declared at the end of World War II was addressed as a particular subject in economics study dealing with harmony between growth and equality focused on less developed countries (Lewis in Syrquin, 1988:205; Meier and Rauch, 2000: 69-70).

With regard to urbanization and rural-urban transition, development economics, then, is considered to be relevant for further examination mainly since these two terminologies also indicate a structural change in economic development perspective. Related to this, following parts explain some thought on dualism and agricultural transformation as a critical element in development economic theory. This is substantial to understanding urbanization and rural-urban transition in a wider spectrum.



3.2.1.1 Dualism in Development Economics

The concept of dualism in urbanization and rural-urban transition perspectives is closely related to the notion of agriculture and non-agriculture. According to Ranis (1988: 76-77), dualism defined as a situation where there are dominant roles in agricultural activities in dispersed rural areas while there are also non-agricultural activities which play a significant role in a concentrated particular urban centres. In the most common situation in developing countries, the agricultural sector contributes a substantial proportion to employment while non-agricultural mostly industrial followed by service sector, contribute more to any economic attributes namely Gross National/Domestic Products (GDP or GNP) and investments.

To understand dualism clearly both in an economic point of view as well in a spatial context, it is crucial to admit an “asymmetrical-and thus dualistic” relation between agriculture and industry (Ranis, 1988: 74). Agriculture is something characterized by more “fixed” inputs of land, not really capital intensive with significant numbers of pre-existing labourer. Differently, modern industry is featured by capital intensiveness without any compulsory requirement of particular land conditions, and labourers are only absorbed as needed. Other differences are also indicated in the deployment of the activities and also on the way they play a role in the labour market and technology applied. There are also different product characteristics of agriculture and industry. As a matter of fact, agriculture is compulsory for industrialization at least for two reasons, agricultural products are very important to feed the industrial workers in urban areas and as a crucial input in particular industries. On the contrary, industrial activities are not really a requirement to develop agriculture. Moreover, particularly in developing countries where labour is not really an urgent issue, various industrial products in farming that are used for labour efficiency are not really necessary. This particular relation leads to the inevitable fact that agriculture and industry are something different and cannot be acknowledged, as there is a mutual relation between them.

An unbalanced relation between agriculture and industry is really a concern in analytics of dualism in development economics. In one point of view, as agricultural is characterized as a primary sector it is likely to have primacy over industrial activities. On the other hand, this primary sector is attributed as a traditional and low-income sector and therefore it is not favourable for employment. Accordingly, in classical economic paradigms, Kuznets (1955 in Seligson and Passe-Smith, 2003: 61-75) argues that dualism is the main reason of transition from agrarianism into more modern (industrial) economy. This could be indicated from agricultural decline in the same time with the



increasing role in industry and service sectors at least in terms of labourer allocation in most European countries in the earlier stage of their development immediately after industrial revolution. Thus, considering the phenomena in a spatial context, urbanization and rural-urban transition are regarded as an expected and inevitable process since people like to have a progression in nature and therefore industry in this case would continually take primacy over agriculture.

Following problems in the relation between agriculture and non-agriculture (industry), the main issue on dualism in development economics then leads to the notion of unbalanced and balanced development. As explained above, agriculture and industry are not placed in a mutual positioned but Ranis (1988: 83) believes that balanced growth could still be achieved at least by considering two criteria. First, the employment movement from agricultural to non-agricultural activities due to the increasing agricultural productivity must not exceed employment opportunities in non-agriculture activities. Second, there is a relatively established market for both, agricultural and non-agricultural goods. However, it is not an easy task to achieve both criteria in the real world. At least, for most policy makers, there would be a time to prioritize industrialization since it explicitly leads to better performance in per capita income. Accordingly, unbalanced development is then proposed with the idea that industrialization could be effective to growth first, and in the end it will provide its trickle down effects to the development of other sectors including agriculture (Stimson et al, 2006: 18-19). The idea of unbalanced development very much is discussed in the way agricultural activities transform into non-agricultural ones. Indeed, it is still believed that dualism or typical dualistic economies do and will always exist. In the end, it is basically a matter on how to make the difference lead to the success of the development path.

3.2.1.2 Agricultural Transformation

As economic development has been appreciated as a process of transformation from dominantly agricultural or rural character into modern industrial or urban character (Mellor, 1986:67), the agricultural transformation process has been becoming a critical issue in development economics discussions particular for developing countries. However, Lewis (1954 in Timmer, 1988: 276) has argued, “economies in which agriculture is stagnant do not show industrial development”. Correspondingly, Mundle (in Dutt, 1990) and Timmer (1988) also have pointed out, no industrialization succeeds without sufficient support from the agricultural sector. According to those assertions, discussions on agricultural transformation in this section are based on the notion that agricultural transformation does not aim to diminish the role of the agricultural



sector replaced by more industrial or service sector activities but, it is aimed to place agricultural activities in its optimum position in the economy.

Timmer (1988: 279-291) proposes four phases of agricultural transformation. It begins with the increasing of per worker agricultural productivity. The increased productivity creates a surplus in which it becomes a source of financing of non-agricultural activities through rural-urban trade as well as taxation. This second phase has been appreciated as the “dual economy model of development”. The third phase starts when there is a significant progression role of agricultural sector in the macro economy. Finally, the end of transformation process is assigned the a noticeable role of agriculture in the industrialized economy or when there is not any significant different treatment between the agricultural sector and other sectors like housing, insurance and many others.

The evolving stages are considered as the most challenging phases as there is a general agreement that agriculture is a declining sector during the economic growth process. It requires a particular policy approach which may accommodate an optimal allocation for all sectoral development as well for public infrastructures. The theory says that a smaller share of agricultural sector takes place due to the fact that a lot of investments are diverted into various industrial sectors (Syrquin, 1988). Kuznets (1966 in Ranis, 1988:75-76) considers the phenomenon as a predictable situation as he studied the phenomenon of dualism in Western Europe and United States. He argues that agricultural sectors had declined first before they rose again with particular facilitation of appropriate policies. Even though, Kuznets (1955 in Seligson and Passe-Smith, 2003) also warned about carefully translating what had happened in the western developed countries which would not simply lead to a repetition of the presently developing countries. Rostow (1990 in Seligson and Passe-Smith, 2003) with his five stages of economic growth also believe that there will be a stage when agriculture (traditional sector) develops and may limit industrialization (modern sector).

However, some scholars (Lynch, 2005; Champion and Hugo, 2004; Potter et al, 1999; Clark, 1996; Gugler, 1996; Mehmet, 1995; Gilbert and Gugler, 1991; McGee, 1991; Lo et al, 1981) believe that the development path of current developing countries (or third world countries) is not practically taking place in a similar way to what has happened in developed countries. Mehmet (1995) even strongly argues that current extreme poverty and inequality experienced by a lot of poor developing countries which actually could be defined as the failure of development, take place due to “Eurocentricity” of economic development. Following his sceptical point of view on the idea of applying



western (European) economic thought in the developing country development process, he proposes the concept of endogenous development and social capital as a more suitable framework to be applied in current developing countries. Based on a more in historical perspective, Gugler (1996) and (Gilbert and Gugler, 1996) believe that the transition that might lead to the full transformation process in most third world countries should be seen in a wider spectrums since ideas, people and goods currently travel faster with different international and political pressure. In a different point of view, Potter et al (1999) and Lynch (2005) argue that the dualism that has become a concern in development economic theory would be more effective to be comprehended as a compatible companion through rural-urban linkage terminology.

The arguments as explained above are reasonable since in the current situation there are many developing countries trapped in their transition period. Based on Timmer's phases of agricultural transformation, many developing countries fail to leave the third phase and move into the final phase. There are at least two main explanatory factors. Firstly, it is due to a different historical background of the countries. As many developing countries are historically colonized, clearly explained by dependency theory, these countries have problems with technological development and innovations, which are needed to develop strong, based industries. Accordingly, surplus in agriculture which is actually used as the main source to finance these industries is not sufficient to develop both sectors on a companion basis. Instead, it becomes agricultural exploitation since it takes a lot of investments to acquire necessary technology for industrialization. Secondly, it relates to globalization and free trade. As now the world is becoming borderless and the market plays a significant role, competitive advantages become a key subject to promote commodities in the global market. Mainly caused by many limitations in farming technology, problems in land tenure, as well policies that are likely to be pro industry, it is very difficult for agricultural sectors to develop proportionally as might have happened in developed countries.

3.2.2 Perspectives on Regional Development Approaches

3.2.2.1 What is Regional Development?

Development in regard to regional development should take into account at least three interconnected aspects. First is regional development as a development process in supra urban areas (Glasson and Marshall, 2007:6-12; Faridad, 1981:86). Why should it be focused on supra urban? According to Glasson and Marshall, (2007:6) and Dawkins (2003:132), the term region could be understood in various ways and there is still no agreement on how to define region appropriately. However, some common approaches that have been



used to defining region always refer to the area consisting of several points. For example, Christaller (1933) and Losch (1954) explain regions as hierarchical systems of places. This means that regions always relate to a set of lower hierarchy up to the highest hierarchy of places. Another illustration, Hoover and Giarratani (1985) and also Richardson (1979) define regions as nodal regions, which consist of several nodes, functioned as centres surrounded by peripheral areas. Based on these two approaches, region then can be comprehended as an area laid down between urban and national territories.

Secondly, regional development is acknowledged as the direct allocation of resources. In this sense, it can be understood that regional development is pretty much economic oriented (Edgington and Fernandez 2001:3-5; Simon 1990:4). In addition, Edgington and Fernandez (2001:3-5) and Faridad (1981: 86-89) also draw attention to the idea that human welfare would be one critical factor in the regional development process. Regarding this, economic growth is one common term to explain development of a region. According to Fik (2000:21), economic growth indicates how goods and services are produced in a region, whether it leads to a significant increase of employment opportunities and wages or not. Hence, the problem appears when it is so apparent that growth does not happen equally in all places. There are places which growth faster compared to the other, depending on so many internal and external factors. Thus, it is a very prominent agenda in regional development discourse to carefully examine how growth could be achieved simultaneously with equity.

The third aspect, regional development, should be comprehended as location of economic activities. It is quite obvious that in this part, regional development is spatially oriented. As Dawkins (2003:132) clearly mentions "space matters". He believes that the processes of development that are generally understood as economic growth are essentially spatial in character. It will take into account land use allocation and hard infrastructure planning such as roads and various utilities. As many theories in regional development are likely economic in character, the location theory is considered as the earliest theory that concerns spatial aspect (Dawkins, 2003: 136). Walter Isard's model of transportation cost (1956), and central place theory proposed by Christaller (1933) and Losch (1954) are only a few examples of a famous location theory which are considerably influenced later regional development approaches.

Afterwards, how to position and comprehend regional development would be quite complicated since colonialism history, globalization process and ideology of capitalism have played important roles in countries' development both for developed and developing countries. At least, it is clearly obvious that regional



development policies play a significant role in urbanization patterns and rural-urban transition of a region. The changing approaches in regional development and how they influence the urbanization and transition process is explained in the following parts.

3.2.2.2 Top-Down Approach: Balanced and Unbalanced Development

Top-down development policies have turned out to be popular since the end of World War II in the situation where many western countries urgently need some supporting policies to recover their economy after the war (Weaver in Stöhr and Taylor, 1981:73). Similarly, in most developing countries, top-down regional development policies have played an important role since early 1960's when most of the countries achieve their independence and began to consider how to boost economic performance and to cope with extreme poverty as a result of colonialism (Simon, 1990: 3-4). According to this situation, in the first decade of regional development policy implementation both in the developed and developing countries, economic growth is an important factor to be achieved. As a result, regional development in its beginning process is highly urban oriented and focused on industrial sector development. It favours urban because urban areas offer better location and facilities. It focuses on industry, as explained by developing economics theory, mostly because the industrial sector is generally associated with high-earning activities, generates significant employment opportunities and can create considerable multiplier effects. Thus, it is likely that development in regional development discourse is just the same as industrialization.

In theoretical perspective, the regional development approach that leads to industry led- development strategies is closely related to the debate on balanced and unbalanced development. In principle, balanced development advocates believe that development that is then reflected on the investment allocation should address all industries simultaneously in the region. Each industry will generate their own market and in the same time will create a linkage among industries. As an example, firms producing yarns will generate a link with the cloths industry. In this way, the economy of the region will growth faster, since it will absorb more labourers and each labourer will also become a potential consumer for the developed industries in the region. Furthermore, it is also believed that with the simultaneously allocation of investment in all sectors then the spread of growth will occur evenly in the region (Hansen in Stöhr and Taylor, 1981:15-16).

However, there are several counter arguments against this idea. Firstly, it is argued that the theory is likely to ignore the fact that there are many regions , which still lack capital mainly skilled labour and technology. In that case, it will



hardly be possible for all industries to develop and compete in the market. Consequently, the investment would be unfeasible. Secondly, to make the investment feasible, the government should subsidize a very large amount of money at least to undertake infrastructure investments, to increase the quality of labour, and to develop the required technology. Because of these matters then it is assumed that balanced development is mostly not applicable for poor regions (Fleming in Stöhr and Taylor, 1981:15-16). In addition to that, as Enke (in Stöhr and Taylor, 1981:16) point out that balanced development implied a closed economy which is really unrealistic in today's economic system.

Following such critiques for balanced development, Hansen (in Stöhr and Taylor, 1981:16-21) reveals that unbalanced development strategy is then proposed by at least three well-known theorists. They are Hirschman (1958) with the polarization and trickle down effect concept, Myrdal (1957) with the theory of circular causation, and Perroux (1955) with the growth pole theory. They make criticism on balanced development by arguing that in principle, spread of development would be achieved effectively based on only several leading industries. They developed the theory independently but by concur in their principle concept of unbalanced development which is very similar. Following are the main ideas of the unbalanced development concept:

- Development strategies only focused on few sectors
- These key sectors will create backward-forward linkages effectively. In this way, it is believed that the spread of activities will be integrated compared to the balanced development concept.
- It emphasizes on the benefit of external economies from the clustering of investment.
- In the beginning, due to the investment policy, it is likely that development only concentrate in certain sector. But, in long-term period, the development will spread to other regions.
- People and capital flow and trade among places becomes a central point since this approach emphasizes mutual relations between agricultural sector or raw materials producer and industrial or service sectors.

The concept explained above is based on neoclassical economics whereas the spatial dimension was not really considered as an important part. The idea of unbalanced development which is then offer a useful insight into the spatial aspect is proposed by Friedman (1966) with the centre-periphery model. Friedman's model is a remarkable impetus to make regional development then become spatial oriented. According to Gilbert and Gugler (1991: 37-38), the centre-periphery models includes the idea of Myrdal (1957) and Hirschman (1958) about inequalities in market forces, Rostow (1960) and Prebich (1950)



about stages in economic development, and as the follow-up of Isard (1960) and Rodwin (1973) advise producing a simple normative model of spatial development in developing countries.

Friedman proposes four stages in the spatial development process (Figure 3.4). The first stage shows independent local centres it indicates as unexploited regions. The second stage is the beginning of industrialization marked by the growing single strong centre as the result of investment allocation. In this stage, disparities occur as resources (mainly potential labourers) are likely to move to more productive regions. Third stage is the period of increasing industrial maturity. In this stage, regional development policies are very crucial to create a more dynamic economy mainly in the periphery regions whereas in this stages should get benefit from the development of the centre. In the fourth stage, integrated national development should be emerging. Friedman believes that in the final stage, a balance urban-size distribution with effective resource allocation occurs.

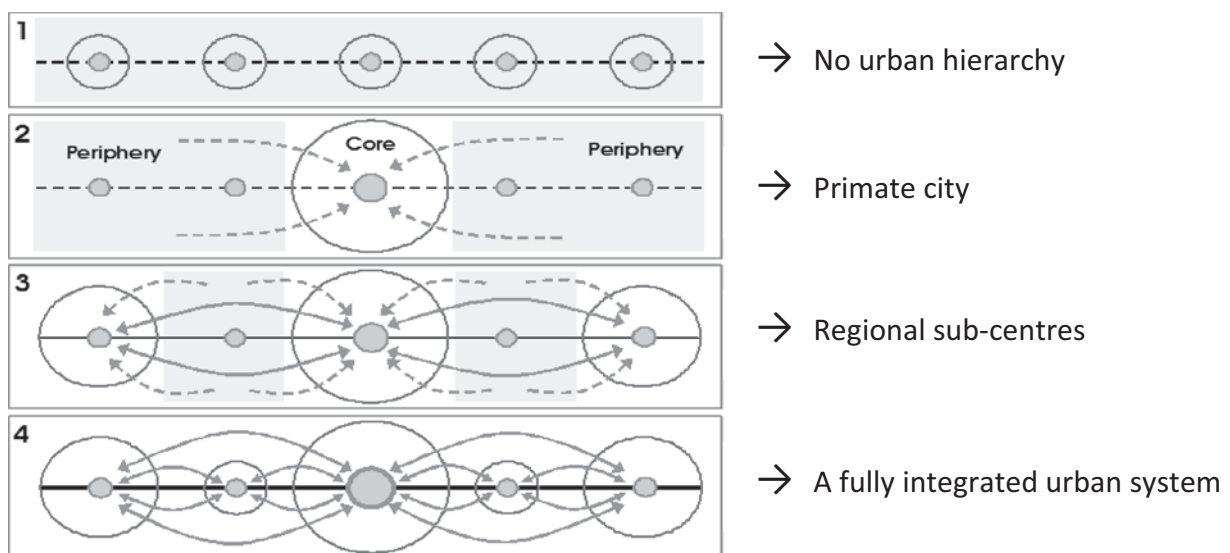


Figure 3.4 Spatial Development Process

Source: Friedman (1966 in Potter et al, 1999: 57)

Similar to Friedman's point of view, Boudeville (1966) also develop a concept of development strategies into spatial features. He interprets Perroux's idea (1955) which is more concerned with interactions among sector into geographical growth centres. Unfortunately, both Friedman's and Boudeville's concepts are created based on developed countries' experience. Thus, it is considered as mostly not realistic for developing countries. Gilbert and Gugler (1991: 40-41) argue that both concepts ignore the fact that population dispersion in developing countries is completely different with those in developed countries. Friedman's model does not really think about a dense population in developing countries which most of them live in the lack of



facilities and resources area. The model also ignores the role of foreign influence which is very essential in developing countries since these countries still largely depend on foreign technology and innovation. Similarly, Simon (1990:8) also argues that the Boudeville's model is unrealistic because it does not really explain about number and size of the growth centres.

Debates on the top-down approach do not come to the closing stages yet. However, the implementation of this approach which has been adopted mostly in developing countries since 1960's, obviously comes to two interrelated issues. They are disparity and dependency. Disparity takes place as the spread effect that in the beginning is expected to develop in the hinterland does not really occur. This situation is practically related to the dependency problem. Simon (1990:9-11) and Gilbert and Gugler (1991: 20) believe that economic dependency of many developing countries to the developed countries is one critical factor of disparity in many developing countries. Most development activities in developing countries that are largely based on foreign investment do not generate significant multiplier effects to the local economy. In this situation, then the bottom-up approach come out as an idea to respond to the failure of the top-down approach.

3.2.2.3 Bottom-up Approach: Response to the Failure of Growth-Centre Approach

According to Hansen (1981:43), the main failure of the growth-centre approach is due to the fact that the growth-centre cannot control the backwash effect. The spread effects that expectedly take place are very inadequate while the centre takes so much of their resources (mostly raw materials and potential human resources). Douglass (1998) and Simon (1990:11) describe this failure as an exploitative relation between the centre and the hinterland. The peripheral regions impoverish while the core region growth very fast. As a result, a bottom-up approach appears as a new paradigm with its two main principles.

First is to ensure that all people can fulfil their basic needs. It is then well known as the basic needs strategies. The basic objective of this approach is to provide all people mainly the poor with sufficient food, shelter and other needs so the poor may not only be able to survive but also to have a better opportunity for they future.

Secondly, is the idea called selective spatial closure proposed by Stöhr and Tödling (1978). They argue that every region should carefully control the transfer of their resources which may lead to lessen their capability for self-reliant development. At least two factors should be considered; they are raw materials flow and people movement. Raw materials flow may lead to unfair



trade. For many regions that mostly function as raw materials producers without sufficient capital and technology to generate multiplier effects from the commodity, will have a negative effect of the trade. Secondly, still related to the previous one is people flow. It is believed that labourers are likely to find regions that can provide job opportunities with the highest salary. Regions which solely function as raw material producers will only offer lower rates of salary. In this situation, potential labourers will move to other regions and the original region will experienced brain-drain.

Following those two strategies, particularly in Asia, the most phenomenon bottom-up approach is called as agropolitan development proposed by Friedman and Douglass (1978). It is a process of development which is considerably spatial and rural oriented. The basic idea of the agropolitan concept is to link the rural and urban character at the local level. In this way, Friedman and Douglass argue that it would be sensible to make agriculture as the leading sector of the economy by generating significant backward and forward industrial linkages related to agricultural activities. In order to create strong linkages, rural areas should be introduced to the urban setting mainly through any kind of infrastructure to support the agricultural activity. Besides, Friedman and Douglass (in Douglass, 1998) also propose three critical preconditions. First is to ensure that there are adequate agricultural lands to be cultivated with good accessibility to water resources for each farmer. Second is administrative authority at the local level which should have enough power to supervise the area. Third is there a supporting development policy in national level to diversify agricultural production.

However, as can be seen in the current situation, implementation of bottom-up development does not significantly reduce the disparity level among regions. Potter et al (1999:69) argues that many bottom-up approaches that have been applied do not appropriately acknowledged endogenous resources, local needs, and social capital of the society as they are still strongly influenced by direction and control based on centralized government mechanisms. Hence, these approaches are likely to prioritize local people participation in the development process. Unfortunately, this requirement is mostly considered as a particular drawback for many policy makers since it implies slower development process. At last, despite the advantages or disadvantages of either top-down or bottom-up approaches, the dynamics of regional development should not be acknowledged as a universal process. There are many different indigenous as well as exogenous factors addressed differently for different regions. In addition to that, the differences between the two approaches are not simply about in which level the decision should be made but it essentially lies in the idea how development could proceed.



3.2.2.4 The Changing Paradigm: Local Economic Development and Sustainable Development Concept

Globalization has been influencing development processes worldwide. Production systems and consumption is now operating beyond state's boundary in which it then comes to a question of locality. Accordingly, the role of New International Division of Labourers (NIDL) and the existence of multinational corporations have compelled fundamental revision of regional development approaches. Stimson et al (2006: 37) point out four major dimensions that should be considered in examining further regional development strategies:

- (1) Geographic scale. In the current situation, development strategy should consider that economic activities encompass multiple jurisdictions. Firm linkages or value chains industrial cluster cover borderless region.
- (2) Industrial organization. It is now not really relevant anymore to focus only on the sector level. Due the advanced development in transportation and communication technology, there are now many inter-sectoral alliances among firms in global level.
- (3) Economic input. Material costs, labour, land and taxes were recognized as the most influential factor in classical economic perspective. Now, with the principle of competitive advantages, efficiency, technology applications, skills placement and leadership play as the most significant role for development.
- (4) Sustainability. As development has been performing rapidly since the end of the Second World War, which leads to environmental issues, unfulfilled quality of live and many other social-economic problems. Accordingly, current regional development strategy is not fully essential to emphasize only on economic outcomes. It is now very important to put together the issue of sustainable development and also social equity and cohesion integrated with economic agenda.

Related to four changing dimensions mentioned above, Blakely (1994:62) proposes some revision on regional economic development strategy. The principle idea is to move toward "thinking global while acting local" in managing and allocating endogenous resources. Table 3.7 shows some comparisons between old and new concept proposed by Blakely to enhance regional/local economic development.

**Table 3.7 Old and New Concept in Regional/Local Economic Development**

Component	Old Concept	New Concept
Employment	More firms=more jobs	Firms that build quality jobs that fit the local population
Development Base	Building economic sectors	Building new economic institutions
Location Assets	Comparative advantage based on physical assets	Competitive advantage based on quality environment
Knowledge Resource	Available workforce	Knowledge as economic generator

Source: Blakely (1994:62)

However, according to Stimson (2006: 55), as many nations have applied the new concept mentioned on the table, there is still a question on the consistency of word 'locality'. Even though, as Potter et al (1999: 67) have argued, there has been a changing stress on development from exogenous to endogenous orientation after the top-down approach had failed in the implementation level, it is still a discussion to uniformly define locality mostly in terms of utilization of endogenous factors so they will contribute to an optimum outcome in the development process. Particular for the case of developing countries, Potter et al (1999) and Blakely (1994) believes that regional economic development which now has been moving toward another development pattern focused more on decentralized and localized forms and are still facing a lot of challenges.

Following the issue related to locality in regional/local economic development, there is also a growing concern on environmental issues. Development in the context of urbanization and rural-urban transition creates a variety of impacts both on urban and rural areas. As cities practically depend on various kinds of resources from rural areas, environment becomes one crucial factor to be comprehended. Moreover, industrial and other urbanized activities are likely to produce pollution which also affects rural areas. Table 3.8 explains briefly various ways in which urban development will significantly influence rural areas in regard to environmental issues.

Table 3.8 Environmental Issues in Urban-Rural Relations

Ways of urban area affect the environment	Implication to rural areas
(1) Expansion of the built up area	Stagnation of rural development » rural population growth rates decline
(2) Demand from city	The excessive use of pesticides and chemical fertilizers to raise agricultural output
(3) Waste generated within the city	Loss of environmental quality

Sources: Lynch (2005), Desta (1999), Potter et al (1999)

Rees (1997 in Lynch, 2005) also has explained the relation between urbanization and environment regarded as the ecological footprint principle.



Ecological footprint explains that urban development is likely to spread the environmental burden to distant locations including rural areas. As an illustration, Vancouver in Canada requires 180 times wider area compared to its own as the cost of urbanize activities in the area. Even though Rees also explains that developing countries create smaller ecological footprint, however, it does not mean that the environmental burden issue is less important in these countries. The concern for developing countries is mainly in regard to conflict of interest between poverty reduction schemes and the importance of environmental improvement. Besides, Lynch (2005) believes that current rapid urbanization experienced by many developing and less develop countries need substantial resources from rural areas in which they affects quality of environment on a macro context.

As there is more apprehension on environmental issues, rural-urban discussions come to the notion of sustainable rural-urban development. International Federations of Surveyors (in UN-Habitat, 2005) proposes three pillars in order to improve sustainable rural-urban development in the scheme of rural-urban interrelationship (see Figure 3.5):

- (1) Institutional and Governance. It is reasonably important as well-built institutions and good governance will lead to mutually interaction of complex politic, social, economic, environmental issues, planning controls and other aspects between urban and rural areas
- (2) Land and Natural Resource Infrastructure. As build up areas spread over the urban centre very fast and more people categorized as urban inhabitants, there is a problem of land shortages and resource scarcity. Thus, it is a challenge to design such infrastructures coherent in all its aspects including institutional, physical, legal and technical that are have ability to works based on sustainable development principle. In this regard, good land policy is considered as essential to achieve a more balance between the economic and environmental forces.
- (3) Capacity assessment and development. This is closely related to human resources development mainly through education and training. UNDP defines capacity as “the ability of individuals and organizations or organizational units to perform functions effectively, efficiently and sustainably”. It has two dimensions. Capacity assessment as an essential basis to formulate a coherent strategy for capacity development. Capacity development, broader than HRD. It includes the overall system, the human resource and the organization as well broader environment.

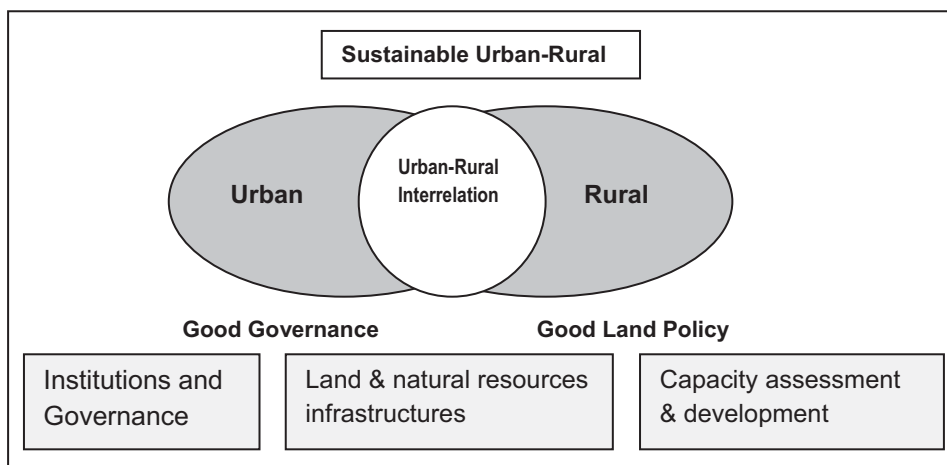


Figure 3.5 Three Pillars of Sustainable Urban-Rural Interrelationship

Source: International Federations of Surveyors (2005:101)

The issue of locality and sustainable development brings some urgent thought for regional development policy revision. Questions on locality leave the idea of development in a smaller geographical concern compared to previous thought on region as supra-urban in nature. Therefore, the idea of decentralization and local competitiveness appears as two critical points for further consideration. Besides, growing concern on environment issues leads to extra homework in creating conducive governance and land policy. As Stimson et al (2006) have argued, the rapidly changing world needs a new paradigm and the most challenging issues would be how to ensure more sustainable development and reducing the gaps between the wealthy and the poor.

3.2.2.5 Rural-Urban Linkages: Scopes and Issues in Regional Development Planning

Along with the growing concern about local based (endogenous) form of development and environmental issues, rural-urban linkage terminology appears as an essential point of interest in regional development discourse. Lynch (2005) points out that in the past, development approaches are likely to focus on either urban or rural regions and have led to urban bias policy. Accordingly, as explained in the initial part of this chapter, there is an undesired outcome of development in most developing countries. Considered as critical factors in current development process, flows and network between rural and urban areas occur as a significant element to succeed regional development in decreasing inequality or to create balanced between rural and urban area. However, as mentioned in EPSON report (2006: 88), there is very limited scholarly literature focused on interactions between rural and urban regions. Most theory or concepts explain both rural and urban development but not really put emphasis on the linkages between them.



According to UNDP report, there are four types of flows that lead to form of rural-urban linkages (UNDP, 2000). They are demographic flows, the flow of raw materials or natural resources, the flow of capital, and the flow of information. Almost similar, Lynch (2005) and International Federation of Surveyors (2005) proposes five types of linkages namely food, natural flows, people, ideas, and finance. Slightly different, Douglass (1998) classified rural-urban linkages and interdependencies into seven categories that are people, productions, commodities, capital/income, information, natural resources, waste and pollution. Focused on European context, Preston (1975 in ESPON report, 2006) divides urban-rural linkages into six categories. They are in the forms of transfer of people, goods, services and energy, financial, assets, and information.

Among the flows, UNDP emphasizes people flows as a key force that has created rural-urban linkages (UNDP, 2000) as it is argued that current the migration pattern has created severe unbalanced interactions between rural and urban areas. Mainly in developing countries, migration plays as an important role in creating rapid 'false' urban growth and depleting rural areas. Tacoli (1998) considers that industrial growth-led macroeconomic policy is the major driving force in generating huge number of people flow from rural to urban areas. Structural adjustment proposed by many donor agencies, has forced government in developing countries to lessen their subsidy of basic need sector and therefore, many small-farming households then have fallen into worse economic conditions. This situation has exceeded numbers of migrants and created unemployment and urban poverty.

In a slightly different viewpoint, Lynch (2005) focused on food (categorized as raw materials or natural resources in UNDP classification) as the main issue in rural-urban interaction. Lynch (2005) highlights food security issue. As urban population grows very fast, there will be more demand for food and less area to be cultivated as well fewer people eager to work as a farmer. In this regard, he believes that research related to food systems is essential not only to secure the food supply but also to ensure that both urban and rural occupy an equal responsibility and benefit in the system.

More in spatial context, Douglass (1998) proposes a model of rural-urban interdependencies in the form of regional cluster/networks model. With this model, he revises growth pole/centre model as he believes that the cluster approach which is largely considered network development, is more effective to create a more balanced and integrated rural and urban development. Table 3.9 explains the comparison between growth pole/centre and regional cluster/network model.

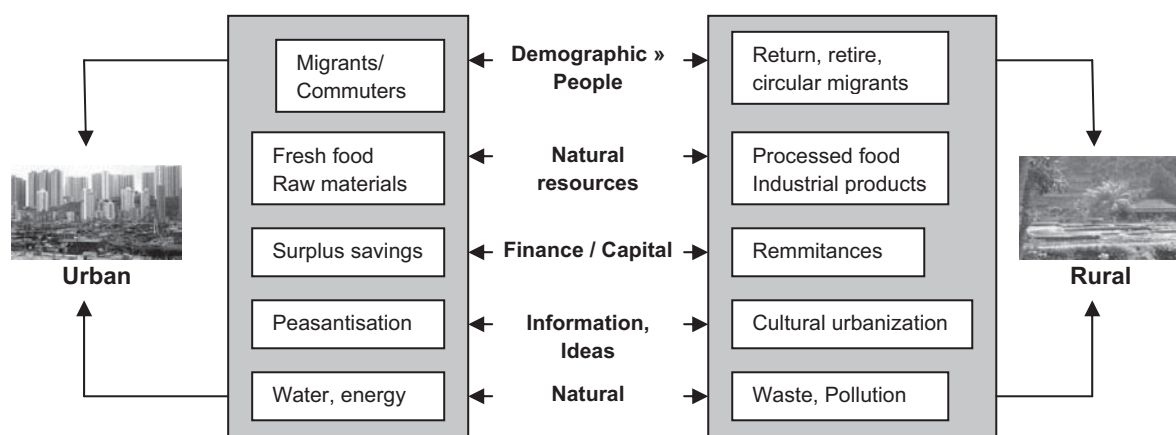


Figure 3.6 Types of Rural-Urban Linkages

Sources: ESPON (2006), Lynch (2005), UN-Habitat (2005), UNDP (2000), Douglass (1998)

Table 3.9 Growth Pole/Centre and Regional Network Models Compared

Component	Growth Pole/Centre Model	Regional Cluster/Network Model
Basis sector	Urban-based manufacturing; mostly dominated with large-scale 'propulsive' industries and 'footloose' production.	All sectors, depending on local regional endowments and conditions; emphasis on local SMEs
Urban system	Hierarchical with a single dominant centre.	Horizontal, composed of a number of centers and their hinterlands, each with own specializations.
Rural-urban relations	Image of diffusion processes moving down the urban hierarchy and outward from the city/town to its rural periphery.	Image of a complex rural-urban field of activities, with growth stimuli emanating from both rural and urban areas and with the intensity increasing along regional inter-settlement transportation corridors.
Planning style	Usually top-down via sectoral planning agencies and their field offices.	Implies the need of decentralized planning systems, with integration and coordination of multi-sectoral and rural and urban activities at the local level.
Major policy areas	Industrial decentralization incentives: tax holidays, industrial estates, national transportation trunk roads.	Agricultural diversification, agro-industry, resource based manufacturing, urban services, manpower training, inter-settlement transportation network.

Source: Douglass, 1998

Douglass idea explained in the Table 3.9 is actually very similar with the policentricity model that is largely applied in developed countries. It addresses decentralization in development process and puts forward balanced and integrated rural-urban development as the essential aspect. However, as will be explain in the following part, differences mainly in transportation and communication technology achievement make regional cluster/network model appear with a different format of policentricity.



3.3 International Experiences to Promote Balanced Development

3.3.1 Polycentric Development

As Davoudi (2003) and Kloosterman and Musterd (2001) have revealed, polycentricity is a major spatial planning agenda in many countries described as advanced economies. The European Union (EU) with its European Security and Defence Policy (ESDP) proposes polycentric spatial development as a policy option to strengthen partnerships between rural and urban areas as well as to create more balanced urban systems (Glasson and Marshall, 2007). In one of ESDP reports, it is also further mentioned that polycentricity is one of ESDP concerns “to reconcile the social and economic claims for spatial development with the area’s ecological and cultural function and hence contribute to a sustainable, and balanced territorial development” (ESDP, 1999 in Davoudi, 2003: 988). As EU has been dealing with significant disparity due to the widening membership, the polycentricity model is expected to be effective enough in reducing the gap between the rich and the poor regions.

For many developed countries, the polycentric model has appeared to be more relevant compared to monocentric models due to several reasons. Firstly, in polycentric model, economic activities are likely to decentralize as a result of advanced transportation technology. The technology has created easier accessibility as it leads to a more mobile society. In spatial context, polycentricity is then characterized as fragmentation of spatial distribution of activities with various forms of travel patterns. Secondly, the changes in household structure and lifestyle influence people’s behaviour in doing their activities; it leads to a cross-commuting pattern as one obvious character of polycentricity (Davoudi, 2003). Hague and Kirk (2003) clearly illustrate the differences between mono-centric and polycentric development (see Figure 3.7).

However, there are many ways to comprehend polycentricity (Davoudi, 2003). For policy makers, polycentricity is mostly understood as socio-economic policy aimed at reducing regional disparity. Differently, urban planners comprehend polycentricity more as a concept of spatial planning. Polycentricity can be also applied to different spatial scales ranges from intra-urban, inter-urban to interregional scales. Thus, there is still no common agreement to define what polycentricity is precisely. Questions such as ‘reasonable proximity’ and how actually idealized interdependencies among centres are still arise among researchers and policy makers. There is no adequate empirical evidence yet

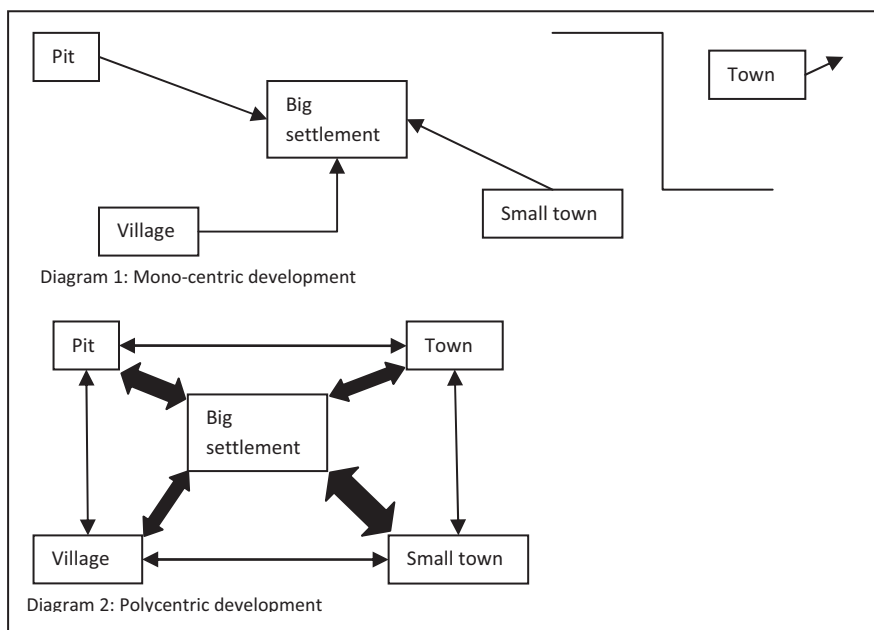


Figure 3.7 Mono-Centric and Polycentric Development

Source: Hague and Kirk (2003 in Glasson and Marshall, 2007: 80)

showing the effectiveness of polycentricity (Davoudi, 2003). Despite this fact, up to the present time, polycentricity is still appreciated as an ideal type of regional spatial structure and also as socio-economy policy to achieve more balanced development in most developed countries.

3.3.2 Rural Based Development

While developed countries focused on polycentric development, balancing policies in developing countries closely related to effort in facilitating rural areas with such urban functions and to push the development of industrial activities in rural regions. Following are some illustration of the policies implementation.

The first example is an approach that had been applied in the 1970s conducted by USAID as a response to the earlier development policies in developing countries that had been considered as urban bias. The basic idea of this approach was to create growth poles and service centres in smaller cities or in potential rural areas. The approach is called Urban Functions in Rural Development (UFRD), in which UFRD highly focused on the development of rural towns. As Johnson (1970 in Douglass 1998) argued that the development of rural towns may decrease the gap between big city and the rural areas, correspondingly, Rondinelli (1979 in Douglass 1998) proposed seven functions as the role of the rural towns as the basic concept in promoting UFRD. They were:

- Consumer convenience centres for purchasing durable and non-durable goods



- Centres for higher order public and private services
- Linkage to (inter-) national markets for selling rural products
- Production supply and support centres
- Agro- and resource-processing centres
- Non-agricultural employment for rural labour
- Centres of information and knowledge

Nevertheless, there were some arguments mentioning that the expectation roles of the rural towns are too abstract. Moreover, rural could not be defined as one homogenous character. For example, rural areas that were located in the urban fringe must be different from the rural in the remote area. Thus, one difficulty in applying UFRD in policy recommendations was to increase the role of the rural town in a more concrete meaning. Another problem was in selecting the most appropriate village to be developed as rural towns. It led to a question of how to define a potential village. Furthermore, based on some research in Thailand, Indonesia, and the Philippines, Douglass (1998) has revealed that most urban functions that were already developed in certain rural towns did not benefit the whole rural people. As mentioned earlier, many urban facilities in such rural areas could not be utilized by all levels of the rural society.

Quite similar with UFRD, the second approach released in Asia Pacific in late 1970s called as Integrated Rural Development (IRD). The main idea of this approach was to improve living conditions of rural people by providing them an integrated program including basic needs such as electricity and clean water, facilities related to agricultural activities such as storage facilities and marketing, network improvement mainly road and public transport, and also strengthening local institutions. However, this approach was also considered as not very successful. Not only because this approach considerably ignored the mutual interaction between rural and urban areas, but also because of several other reasons namely:

- There are problems in coordination among related stakeholders mainly since this approach was mostly implemented by central government together with foreign donor agencies,
- The approach was likely to ignore local knowledge mainly in assessing local conditions.
- There was lack of commitment to sustain programs both from the central government as well from the donor agencies.
- There were planner's failures in addressing sources of poverty.

(Satterthwaite and Tacoli, 2003; Belsky and Karaska, 1990; Rondinelli, 1986).



Learning from two examples explained above, it can be acknowledged that balancing (rural oriented) policies implementation in developing countries was implemented incompletely. The approaches were likely to be project oriented with significant donor agency intervention and unclear in continuity. These have become significant obstacles to be further worked out.

3.3.3 Success Story of Rural-Urban Transformation in Asia: 'East Asian Model'

Urbanization as mentioned before, mostly acknowledged as development, in which there is a transformation from agricultural to an industrial based economy. Related to this, successful industrialization is likely to be appreciated as taking place along with the decline in agriculture. This concept has created a complexity in defining successful development for most Asian countries that are largely defined as agrarian countries. However, three countries in East Asia namely Japan, Korea, and Taiwan have shown that industrialization has been taking place successfully along with significant agricultural sector development.

Japan, Korea, and Taiwan have been appreciated as the most successful countries in their transformation process mostly in terms of speed as they have achieved the stage as industrialized countries faster than many western developed countries have before. Their road to industrialization is acknowledged also as very particular or different from those of developed countries in Western Europe and Northern America. They are likely to be outward orientation and involved actively in the free trade but in some degree they succeed in protecting unnecessary local resource leakages as well as maintaining their local market. In addition to that, they have succeeded in achieving industrialization with appropriate support or protection in the agricultural sector (Francks et al, 1999).

Even though there is a general agreement on considering these three Asian countries as the most successful industrializing countries, explanation on how and why they achieve the success is still arguable. In general, Francks et al (1999:4-6) proposes three deriving factors that might explain development strategy in these three countries:

- (1) "The East Asian industrialization has not resulted in the kinds of dualistic inequalities". Industrialization in these countries is characterized by labour-intensive instead of capital-intensive industries. This leads to a more balanced level of wages and resulted in more adequate distribution of wealth.
- (2) All three countries' industrialization is very much related to the outside world. As they are relatively small countries, most of their products are export oriented with quite significant contributions in outsourcing



technology. However, these countries have succeeded in taking advantage instead of disadvantage of their adhesiveness to the world economy.

- (3) The countries are supported by a good combination of authoritarian leadership and liberal ideology. Under a very centralized government, the economic policies operate within a framework of ad hoc, pragmatic, sometimes informal and therefore are very flexible with dynamic changing of the outside world.

Despite three factors mentioned above, particular attention also is paid to the role of small industries in their industrial structure. Through subcontracting schemes mainly in Japan and Taiwan, many small industries which have absorbed significant numbers of workers exist due to their vertical as well horizontal relationship with larger industries. The existence of these small industries is very effective in creating competitive export products as well as to absorb more employment compared to exclusively large and capital intensive industries (Berry and Mazumdar, 1991).

Along with the existence of small industries as potential working opportunities, technology in farming which might lead to the consequence of reducing employment in agriculture were really carefully taken into account. Good technology should be applied under the consideration of abundant labour supply and therefore labour intensive technology has become a critical factor for developing their limited land that is suitable for arable cultivation.

These countries have succeeded in maintaining their agricultural activities based on two key strategies. First, they are really put emphasis on the role of farm households instead of large farming operated by formal enterprises. With households as the working unit, they likely avoid domination of particular players as well as keeping price of agricultural commodities to be remained relatively stable. To create an economically feasible farm household, secondly, land tenure was considered as a strategy to be worked out. Therefore, it is believed that their success in implementing their land reform policy has become another key factor to maintaining the agriculture contribution in the economy (Francks et al, 1999; Oshima, 1986).

The success in involving significant numbers of small industries in the industrialization process and the dominant role of farm households have resulted in the emerging pattern of more balanced transformation patterns that have not happened in many developed countries in Europe and North America. Because of these two critical factors, the mechanism of labour transfer from agricultural workers into industrial employment has taken place more gradually as this has led to a more controlled migration rate. The existence of small industries located in a more dispersed area has proved to be



very effective in controlling development patterns as it has created a more balanced relation between industry and agriculture or in a spatial context between urban and rural. Despite this general circumstance, there are of course several differences that takes place as each country has their particular characteristics as well as in most cases there is also competition among these countries in the global market (Francks et al, 1999; Bradford, 1986). However, a general description of the success story of these East Asian countries may give a framework that promoting 'growth with equity' or 'balanced growth' is something achievable.

3.3.4 Endogenous Growth and Decentralization Policy in Asian Developing Countries

As mentioned before, urbanization in Asia has been performing in a very particular way. Rapid urbanization characterized by rapid growth of urban population leads to an unbalanced spatial distribution as reflected by the existence of primate cities and mega urban regions. This rapid urbanization takes place by highly utilized exogenous resources under the principle of the so-called neoclassical model of growth. The significant contribution of the exogenous resources can be indicated from the dominant role of foreign direct investment and international assistance in the development process in these countries. Nevertheless, the implementation of the neoclassical economics has resulted in a significant economic growth simultaneously with worsening disparity in Asia. Accordingly, the effectiveness of model implementation has brought a controversy of the concept of regional convergence. Some scholars (Pike et al, 2006; Armstrong and Taylor, 2000; Martin and Sunley, 1998; Barro and Sala-i-Martin, 1991) further believe that convergence in the regional development process will not be easily accomplished.

Starting at least in the beginning of 1980s, particularly in East Asia, the concept of endogenous growth then appears with the expectation of reducing the disparity resulted from the implementation of unbalanced development policy under the perspective of the neo-classical economy (Romer, 1994). Relatively open markets with a strong role of exogenous economic factor policy orientation gradually transforms into a more inward looking development policy. In the case of East Asian model (including Japan, Korea, and Taiwan), the policy was generally performed by enforcing economic linkages between local based industrialization and Foreign Direct Investments (FDI). It was believed that the linkages would effectively generate knowledge and technological spillover to strengthen local based industries with the spirit of competitiveness. Even though, international trade has been at the top of the important agenda to promote economic growth, local based innovation and technological



development were always continually acknowledged as the key policy options to maintain industries competitiveness in these countries. This may explain why these East Asian countries are able to play a consistent significant role in the Asian economy as well as in the world economy (McGee, 2008; Francks et al, 1999) compared to such South East Asian countries. Even though some South East Asian countries such as Indonesia, Thailand, and Vietnam may perform relatively rapid economic growth (World Bank, 2009), the industrialization in these countries does not have a strong based local foundation as great disparity and the high number of population in poverty are still there in addition to the fact that the economy easily fell into a great economic crisis in 1990s.

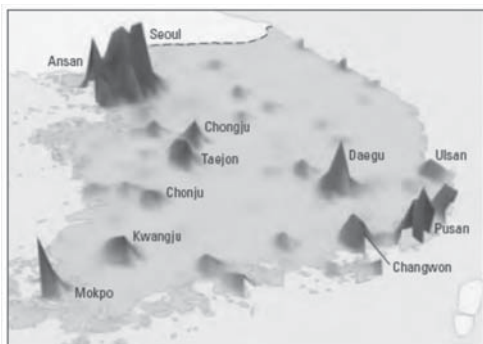
Along with the emerging concept of endogenous growth, there is also a transition phase of the development pattern from the so-called centralization change into the format of decentralization. The decentralization spirit mostly emerged due to the fact the there were not sufficient local services and public infrastructure provided by local regions under centralization (Rondinelli et al, 1989). On the other hand, there are also problems in developing countries decentralization as local governments in these countries often have lack of capability due to limited qualified human resources and funding to provide public infrastructure and better public services. Therefore, the transition from centralization to decentralization in most Asian countries has taken place with a lot of challenges. Mostly, issues emerge in regard to local institutional capability and regulation for budget allocation to promote investment fairly at the local level.

Japan would be the best example to argue the dilemma of fiscal decentralization (Ichimura and Bahl, 2009; Tanaka, 2001) as the country has been continuously revising the fiscal relations between central and local governments and among local governments to find a win-win solution of funding resources under the spirit of decentralization. Lack of natural resources, Japan mostly undergoes its development based on high technology industrialization. Most of the industrialization initially took place through introduction of foreign technologies in which were only concentrated in certain regions. Even though Japan succeeded to take advantage from the foreign technologies by creating the economic link between high technology industries and local based ones with lower levels of applied technology industries (Francks et al, 1999), there is still a problem regarding financial status among regions under the principle of decentralization (Ihori, 2009). To illustrate, tax revenue was considerably different between regions with high concentration of high technology industry and region with a lack of potential high technology industries. Concerning the phenomena, fiscal decentralization policy that was



focused on a subsidy principle and co-operation instead of competition among regions was released. However, there were a lot of challenges to make decentralization play a reasonable role as local regions have different local institutional capacities to execute development. Most of the time, the subsidy principle may not easily lead to a better performance of lagging regions in the country in reducing gaps between developed and under developed regions. Indeed, the Japan experience provides a lesson learned that knowledge and technology spillover will not simply reduce problems towards decentralization.

Apart from fiscal decentralization, South Korea is considered to have the best experience of promoting a balanced national development strategy. As has been revealed by Pike et al (2006), Koresawa and Konvitz (2001), and Lee (1989), the government of South Korea could be acknowledged as one of the Asian countries that has had an initial significant breakthrough to gradually change its policy strategy into a more decentralized approach. Even though, there was a significant push from international institutions such as the IMF to the Korean government for promoting growth by allocating more space for FDI, the government has succeeded in committing to the balanced national development policy under spirit of participatory local economy (Pike et al, 2006). The policy was not only focuses on local based industry allocation but also included the process of reducing number of government agencies located in Seoul, the capital city. An important balanced national development strategy in South Korea was the promotion of innovation cities in 2001. The main intention of the strategy is to reduce spatial disparities among local regions in the country. There are three main characteristics of the strategies including regional innovation bases, liveable communities, and self-sufficient localization. Even though, there is also a pessimistic perspective that believes innovation cities are likely to be created only as a 'political slogan' (Seo, 2009). In fact, the dominant role of Seoul was gradually decreased simultaneously with an increasing role of another big urban centre such as Pusan in the current decade (Pike et al, 2006). It is also important to admit that the primacy of Seoul is relatively lower compared to other capital cities in Asia (see Figure 3.8).



With the concept of Innovation City, Each City has regional strategic industries supported by related research centers, public enterprises, and government agencies (Seo, 2009).

Seoul's population had started to stabilize in 1980s (World Bank, 2009)

Figure 3.8 Economic Density in South Korea, 2005

Source: World Bank, 2009



3.4 Concluding Remarks: the Existence of Rural-Urban Regions as Particular form of Urbanization and Rural-Urban Transition in Asia’s Developing Countries

It is reasonable to state that urbanization is not a homogenous process worldwide. As explained in the first part of this chapter, the process of urban changes as well as rural changes in Asian developing countries comes out with distinctive features. Despite emerging issues on poverty and inequality, there is also an obvious mixture of rural and urban features in the regions. In theoretical perspectives, one comes to discussions on dualism and agricultural transformation as a critical element in the development economics point of view. As well, there is also an ongoing debate on how balanced or unbalanced development should be applied in developing countries. Four international experiences that are explained on the third part have shown that despite historical background and technology in transportation and communication factors, political interventions through public policies play a significant role in giving direction to the urbanization path and transition process in both developed and developing countries. Figure 2.9 briefly illustrates rural-urban features located in a ‘grey area’ that are likely to become a particular type of region in Asia’s developing countries.

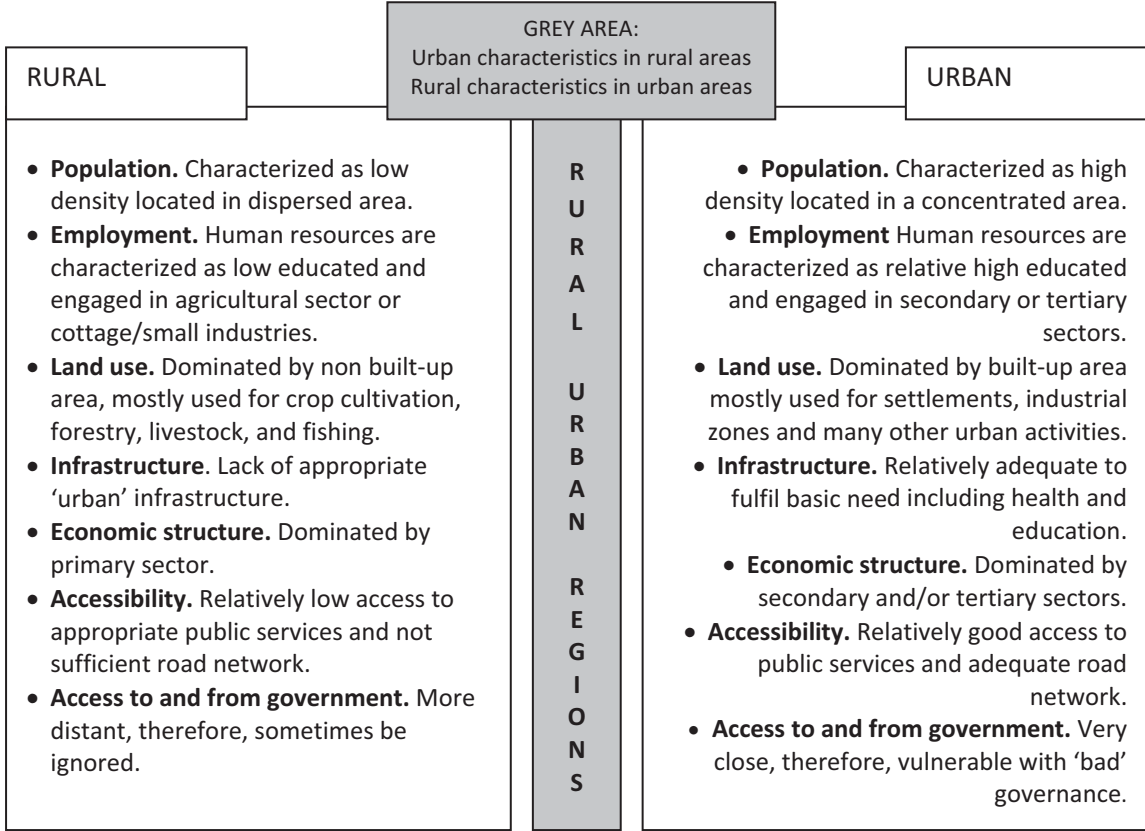


Figure 3.9 Rural-Urban Features



4 Development Planning Policies Implementation in Indonesia: From Unbalanced to Balanced Development Approaches

This chapter briefly discusses development planning policies in Indonesia. The discussion is divided into three main parts. The first part demonstrates government hierarchy particularly in the decentralization era. In the second part, the current development planning policy system in Indonesia is shortly explained. The third part criticizes the historical context of Indonesia's balancing policies. The discussion in the third part is further divided into two sub chapters namely balancing policies in the new order era and balancing policies in the decentralization era. The chapter is concluded with a brief summary on policy outcome and trends for the future.

4.1 Government Hierarchy

After more than 30 years in a highly centralized government, starting effectively on January 1st 2001, Indonesia made significant changes in its political and administrative system. Under the Law No. 22, 1999 concerning local government, Indonesia has moved to a more decentralized government in which the act has extended the authority of local governments to initiate policies that expectedly leads to a more balanced development path.

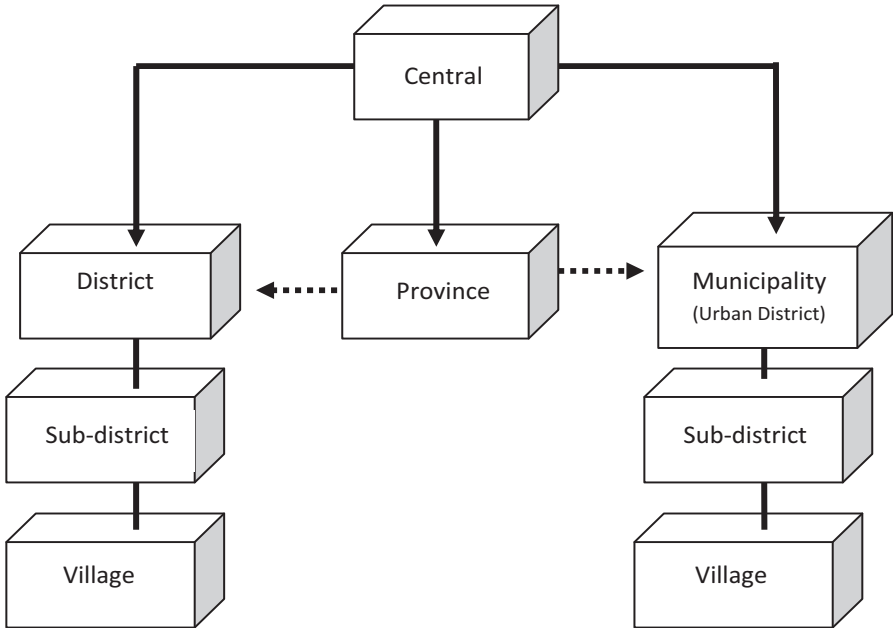


Figure 4.1 Hierarchy of Government according to Law No. 22, 1999

Source: World Bank, 2003; Usman, 2001

Note: —> Decentralization - - - -> Non hierarchical, coordination line



Figure 4.1 explains the framework of government hierarchy according to law No. 22, 1999. As explained in the figure, Indonesia's territory is divided into autonomous provinces, districts, and municipalities. Technically, the law eliminates hierarchical relationship between province and district/municipality. Districts and municipalities are in the same level. The distinction is only based on whether the government administration is located in an area defined as rural or urban. In the lower hierarchy of districts and municipalities, there are sub-districts which are then divided further into villages. Villages in rural areas are called as *desa* and in urban areas are called as *kelurahan*.

Basically, the decentralization policy under the law No. 22, 1999 determines that except for security and defence, foreign affairs, fiscal and monetary, justice, and religious affairs, all other authorities are decentralized. To be more specific, authorities related to public works, education, agricultures, trade and industry, investment, environment, labour affairs, and land administration become the responsibility of local government (Government of Indonesia, 1999b). Under this principle, it is very obvious that in the decentralization era, local government plays as the most significant position in guiding the development path in the region. Consequently, budgeting becomes an important concern. Budgeting regulation is very critical to reduce as well as to manage a significant development and institutional capacity gap among local governments. Similar with the case of Germany (BBR, 2000), through balancing fund policy and subsidy scheme, budgeting allocation in an era of decentralization in Indonesia is favour local regions (World Bank, 2003). To briefly illustrate, according to Law No. 25, 1999 concerning fiscal balance (Government of Indonesia, 1999a), local regions get the right to have a bigger share of particular types of tax. For example, shared revenue from land and property tax is only 10 per cent for the central government while the rest is for provincial and local government (16.2 per cent for provinces and 64.8 per cent for local governments). In addition to shared revenues regulation, the local regions also have new authority that is for establishing particular new (local based) tax scheme (World Bank, 2003).

Unfortunately, this new situation does not take place as smoothly as expected and has been dealing with several problems. According to Rasyid (2002), the main problems faced by the central government are in regard to regulations and technical guidelines to share their authorities. From the local government side, problems occur in regard to limited institutional capacities including lack of potential human resources and weaknesses in policy implementation as well as in control mechanism. However, even with a lot of constraints, it is still



optimistic that in the long run, the decentralization has potential to bring Indonesia better conditions.

4.2 Development Planning Policies

4.2.1 Sectoral Development Planning Towards Integrated Spatial Development Planning Policies

Development planning is basically a concept regarding investment allocation that includes ideas of activity and space. Activity is closely related to sectors in the economy whilst space leads to a requirement of geographical territory understanding. The statements imply that integration between activities and spaces as well as integration among spaces and among sectoral (economic) activities are very important in regard to development planning (Koresawa and Konvitz in OECD, 2001; Logan 1972). Despite the importance of the integration, development planning also contributes a very important function to ensure that the benefits of any economic activities within a region are passed on to the majority people (Logan, 1972).

Sectoral planning in Indonesia as well as in many other countries is mostly executed by using a strategic planning approach. The approach was commonly used in the private sector but then at least since 1970s started to be applied in the public sector in the USA due to its effectiveness in addressing particular issues in a sector of economy. Following the common use of strategic planning in development, strategic spatial planning then arose as an issue to integrate spatial and non-spatial aspects in the development planning (Albrechts, 2004). It is clearly not an easy task mainly since integrated strategic spatial planning requires involvement of various development actors supported by good coordination. Accordingly, there are at least two challenges to deal with ideal integrated spatial planning; those are developing partnership and coping with cross-border or cross-sector issues (Koresawa and Konvitz, 2001). Coordination and partnership closely related. Coordination is critical in pursuing integrated development as only within good co-ordination then partnerships may lead to an optimum outcome. Apart from co-ordination, integrated development planning should also be able to cover cross-border or cross-sector issues. To illustrate, development issues such as poverty and disparity are obviously cross-border as well as cross-sector in character. Thus, despite the importance of taking into account substantial aspects of product of development planning policies, institutional capacity to support policy implementation and to develop partnership and coordination would be another thing that contributes a significant role to successful integration in a process of development planning. Despite the emerging trend of strategic spatial planning to integrate spatial and non-spatial aspects of development, in the traditional way, spatial planning

mostly regards land use planning. Land use planning is basically concerned with “the location, intensity, form, amount, and harmonization of land development” (Chapin in Albrechts: 2004) . Land use planning policies are assumed to cover the spatial aspect of development planning. However, Albrechts (2004) believes that there are differences among the two approaches and he further argued that strategic spatial planning is more flexible and adaptive in dealing with dynamic change that commonly happen in a planning process (see Figure 4.2).

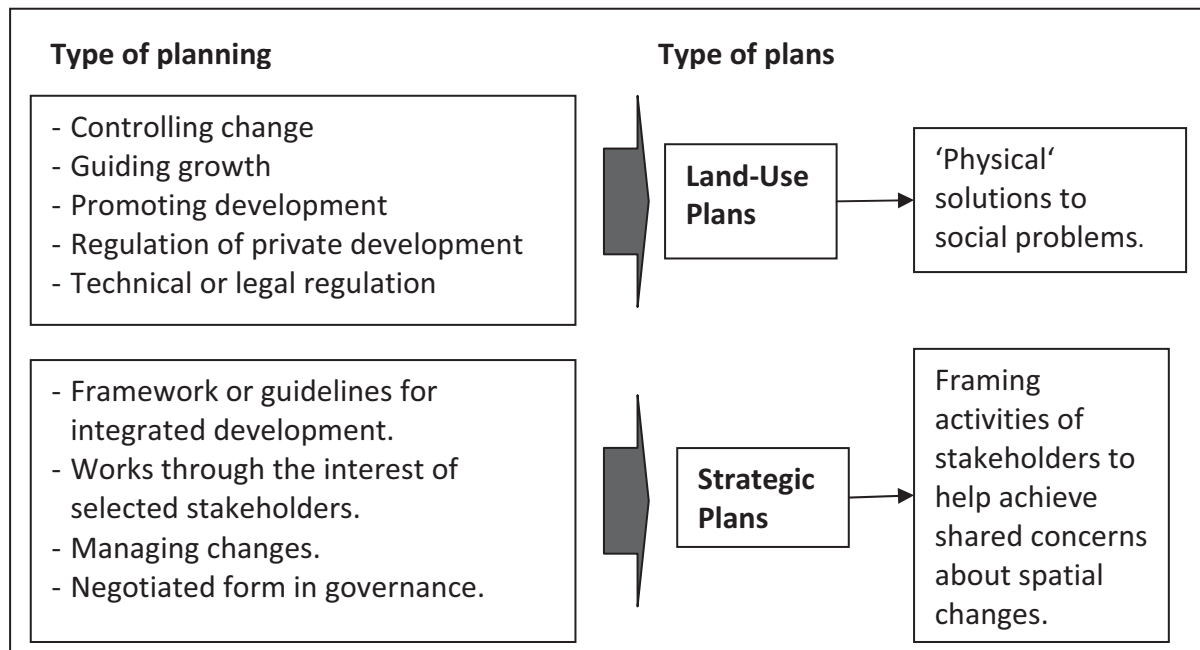


Figure 4.2 Land-Use Plans and Strategic Plans

Source: adopted from Albrecht, 2004

According to Koresawa and Konvitz (2001), there are four critical objectives regarding spatial planning:

1. Spatial planning aims at correcting existing spatial, or regional disparities within countries
2. Spatial planning is increasingly concerned with achieving sustainable development.
3. Spatial planning is a tool to co-ordinate various sectoral policies in pursuit of common spatial development objectives.
4. Spatial planning is understood as a mechanism of co-ordination.

Referring to four critical objectives proposed by Koresawa and Konvitz above, the respective role of different tiers of government is very important to be understood. Under a decentralized government, local actors would have more power to formulate, to implement, as well as to control the development plan. Consequently, co-ordination among different level of government as well as



among sectoral government will become more important. Rivalry and competition is another potentially arising issue as it leads to bigger challenges to promote good partnerships among local regions. Coping with this problem, several countries have made several breakthroughs. For example, Japan has introduced and implements a project called “Strategic Local Plan” and UK promotes partnership under the “Central-Local Partnership” framework (Koresawa and Konvitz, 2001). Given the fact that co-ordination is essential in development planning, extra effort is considerably important to design a system in a development process that is able to accommodate collaboration rather than conflict among local regions and in the end may also accommodate a particular form of the grey area (rural-urban) regions.

4.2.2 Development Planning Policies in Indonesia

Similar to Dutch planning systems (OECD, 2001), Indonesian development planning policy is comprehensive. It includes planning in local (district/municipality), provincial, island, and national level. Local plans contribute as the most significant role in the decentralization era in which the local plans should refer to national plan as well as provincial plan. There is now dispute in the provincial level under the autonomy as the district/municipality has greater power in budgeting to manage and to allocate investment and therefore likely to disregard provincial level policy and bureaucracy. Provincial government is also likely not to have enough power to co-ordinate any such cross-border issues involving several local regions within the province. Indeed, there are still problems in both horizontal and vertical co-ordination among levels of government.

Development planning policies in Indonesia are divided into two major parts; there are spatial and socio-economic (non-spatial) policies. Law No.26, 2007 explains the newest version of the spatial planning system in Indonesia and law No. 25, 2004 gives details on the non-spatial aspect (see Figure 4.2 and 4.3). As the development policies in Indonesia are separated into two categories, coordination between these two policies plays an important role increasing an integrated policy. Figure 4.4 describes the relationship between spatial and non-spatial development planning policies in Indonesia. Basically, these two policies are placed in the same hierarchy in the national system. Therefore, the principle relations between the two policies are to accompany one to another.

Some considerable challenges have emerged in the interpretation and implementation of the spatial and non-spatial development planning Law. The most significant one, as discussed in the previous part, is in regard to conflict of interest among sectors as well as among regions to achieve a more balanced



and integrated development. Moreover, there is a rapid growth of urban population concentrated in Java Island. It clearly needs particular attention such as incentive and disincentive regulation to control the rapidity of urbanization to more equally take place all over the country. Another important issue is related to food security and environment degradation problems. Deviation in the implementation of the policies and weaknesses in the control mechanism in addition to the high rate of land conversion due to high demand for physical development have resulted on a serious problem in allocating space for food supply and ecological purposes. Therefore, it is very crucial to raise the awareness of all related actors (stakeholders) including civil society to comprehend and solve the problems by actively being involved in the development process.

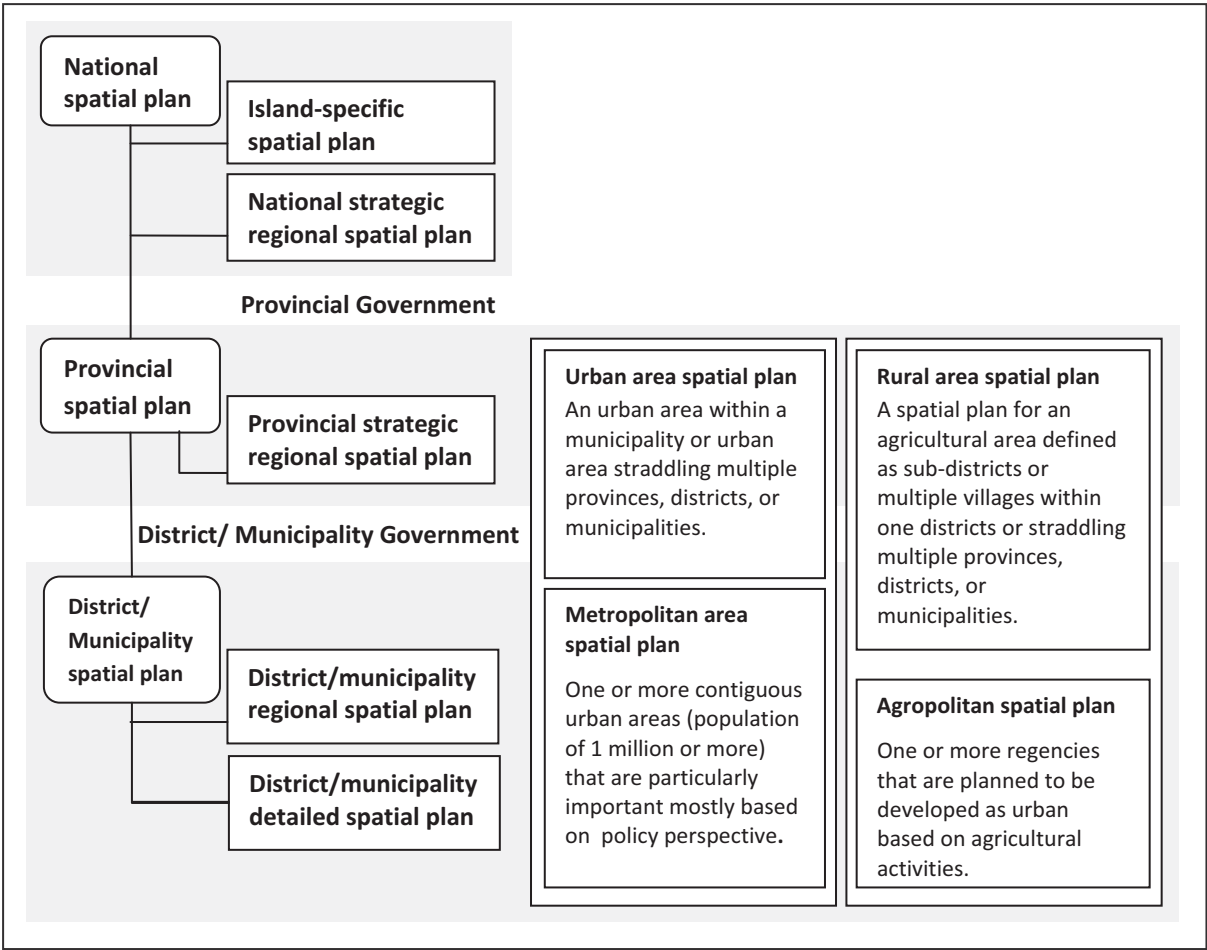


Figure 4.3 Spatial Planning System in Indonesia
Source: adopted from the Spatial Planning Law, UU No. 26, 2007; Ministry of Land, Infrastructure, Transport and Tourism,

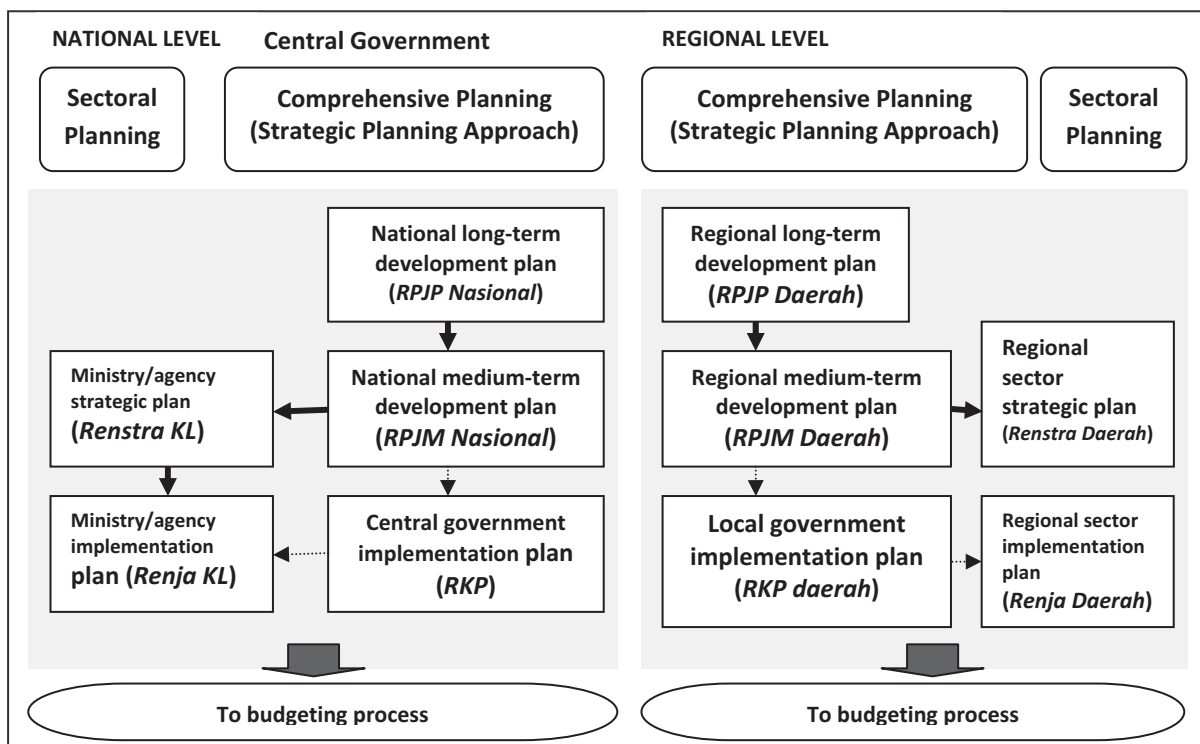


Figure 4.4 Development Policy (Non-Spatial Planning) System in Indonesia

Source: adopted from the Development Planning Law, UU No. 25, 2004; Ministry of Land, Infrastructure, Transport and Tourism, Japan: 2010

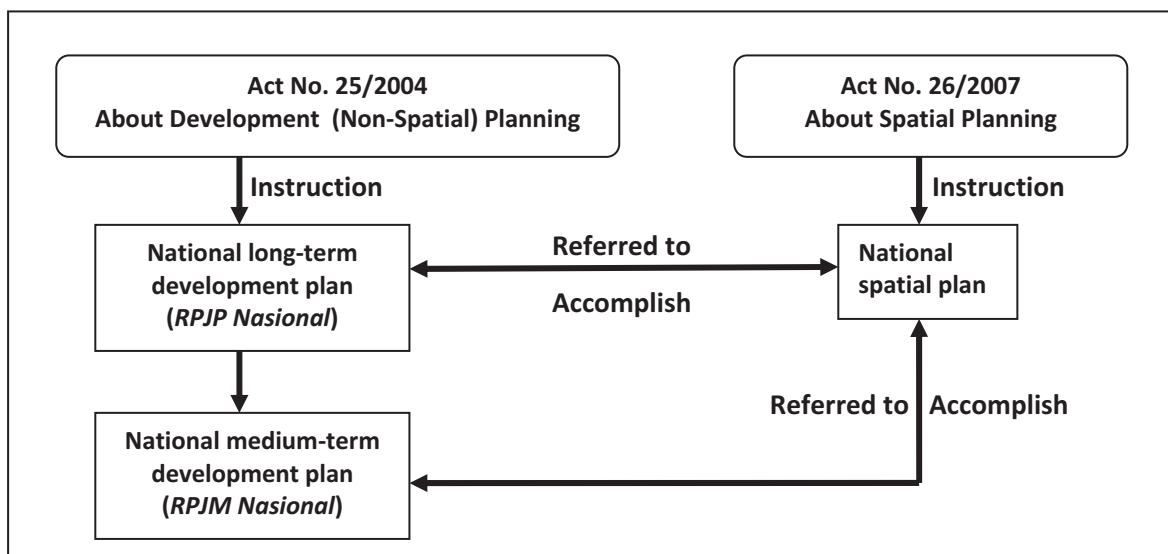


Figure 4.5 The Relationship between Development (Non-Spatial) and Spatial Plans

Source: adopted from the Development Planning Law, UU No. 25, 2004; Ministry of Land Infrastructure, Transport and Tourism, Japan:2010

4.3 Historical Context: Indonesia Towards a Balanced Development

4.3.1 New Order Era: Unbalanced Development

After gaining its independence in 1945, Indonesia began its development path under the old order or generally called as Soekarno era until 1965. Mostly due to political instability, this era has been blamed for bringing this country's development to its ruin. Therefore, when the new order era commenced in



1966, economic rehabilitation became a very important theme in the national development agenda. The first five-year development plan (*Repelita I*) was released in 1969 with economic growth as the major goal. To achieve targeted economic growth, the new order regime under Soeharto government welcomed foreign investment as well as foreign assistance to revitalizing the economy. According to Suryadinata et al (1981:8-9), 50 per cent of Indonesian's development expenditure in the first five-year development plan (1969-1974) came from external resources. It was only reduced to 33 per cent in the second five-year development plan (1974-1979) and still contributed a significant amount in the following five-year development plans (1979-1998). In addition to the policy on external investors and assistance, the government also designed a set of regulation to open the import of raw materials and therefore the inflow of foreign capital also increased substantially (Asra, 2000).

To support the national economic growth that was largely funded by foreign resources, as Mulyana (2005) pointed out, physical development became an important part in the earlier phase of Indonesia's development in the new order era. Most of foreign assistance was allocated to build infrastructures in urban areas mostly in Jakarta and Surabaya that were elected to become the growth centre at the national level. These infrastructure developments were considered crucial to boost industrialization that was concentrated in these urban centres. It was expected that the centres would be effective in performing as the engine of national economic development by spreading the development outcome to the whole part of the country. As a result of this approach, it was not surprising that Indonesia achieved a dramatic economic growth in the middle of 1970s. As in the 1960s annual GDP per capita growth was only 1,42 per cent, in 1970s the growth had increased significantly to 5,32 per cent (World Bank, 2008). Accordingly, Indonesia has been appreciated as one of the Asia's miracles since the country performed reasonably well in economic performance in that era (Hill, 2000).

However, the rapid growth that took place in 1970s could not fully be acknowledged as the success story of Indonesia's development history. Unfortunately, this growth was not followed by significant increasing wealth of the population. As Lo et al (1981) pointed out, the modern industrialization under the industrial-led growth paradigm that was applied in most Asian countries was likely to have little or almost no benefit to the majority of people. The industrialization which was highly centralized in certain urban centres and directed by an exceedingly centralized government had led to significant disparity. This at least could be indicated from Indonesia Gini Coefficients in 1970s which was above 0.4 level (World Bank, 2008).



The disparity that occurs due to the unbalanced approach in the initial national development conceptual framework under the new order era then has resulted in the promotion of a Development Trilogy in the third five-year development plan (*Repelita III*) in 1979. Development Trilogy consists of (1) Equity, (2) Economic growth, (3) Politic stability. This Development Trilogy could be acknowledged as the first explicit formal assertion of the Indonesian government on the importance of equity in the development policy. Following that, import-substitution industrialization policy also changed into an export-promotion approach. It was argued that import substitution industrialization that was applied was no longer suitable due to the limitation on domestic capital accumulation and highly technological dependence on the foreign resources. Subsequently, export promotion was chosen in which only industry with high comparative advantages were considered to be developed. It was expected that export-promotion industrialization approach would decreased further exploitation of the agricultural sector to finance the required import for import-substituting industry (Lo et al, 1981).

Concerning the agricultural sector, Timmer (2002) considers that most East and South East Asian countries actually have a high concern for agricultural development in their national plans compared to other developing countries. In the case of Indonesia, the concern was followed by the success of this country in self-supporting rice (the staple food) in the beginning of 1980s. The green revolution movement and the dominant role of government to control rice prices in the domestic market contributed a significant part to achieving good performance in paddy-rice fields. Unfortunately, the Indonesian government has failed to maintain this achievement. The first relates to land tenure problems. Lack of regulations and support related to land reform policy has led to a significant disparity between small amounts of large farmers and large amounts of small farmers. This situation then resulted on a dilemmatic circumstance for the government. In a way the government was likely to protect the agricultural sector, it was only beneficial for large farmers while most of Indonesian farmers are actually categorized as small since they have a very limited land to be cultivated. The second is an institutional problem. In the Japan and Taiwan cases, cooperatives have played a significant role in maintaining price, distributing commodities, and also in developing suitable technology (Francks et al, 1999). Meanwhile, the dominant role of the middleman that has overpowered cooperative institutions and lack of technological potential to diversify as well intensify the commodities have limited agricultural sector development in Indonesia.

Despite some issues in agricultural development, it was also not really astounding that the trilogy unfortunately only functioned as political jargon. At



the implementation level, the government, with the assistance of some donor agencies, mainly the World Bank and Asian Development Bank (ADB) remained to show its interest in allocating the foreign debt largely to urban projects. Called the National Urban Development Project (NUDS), a significant amount of investment in the urban sectors was still believed to be more effective in maintaining good economic performance than allocating a considerable budget for agricultural development in rural areas. Thus, it was so adverse that the export-promotion industrialization approach did not bring a better outcome to the economy. Mostly due to relatively low industrial competitiveness at the global level, Indonesia was still highly dominant as a raw materials exporter instead of consumer goods exporter as expected in the export-promotion approach. Moreover, in the beginning of 1980s, the oil price had dropped significantly and it had influenced Indonesia's economic performance which highly relies on the oil and gas sector. Mostly due to these reasons, in this dire period, it was very important to maintain good economic performance by again showing that economic growth was one critical factor to be achieved and it had taken primacy over equity. Thus, great disparity as a result of the failure of unbalanced development approach had been yet unsolved.

In the middle of the 1980s, where the Indonesian economy had become more established after being shaken by the decrease of the oil price, the awareness on the importance of an equal and integrated development approach came up again. To achieve a considerable balance between growth and equity, significant foreign assistances was allocated not only focused on physical development in urban areas but also gave more attention to organizational improvement and local peoples needs. The fact that there was a significant disparity between regions mainly between the western and the eastern part of Indonesia or between Java and non-Java had provoked the announcement of National Urban Development Strategies (NUDS) focusing on urban development in eastern part of Indonesia and Integrated Urban Infrastructure Development Program (IUIDP). The main idea of these programmes was to decentralize responsibility for public service provision. The previous development policies that had been applied in a highly centralized government proved to be inefficient and could not cope with a significant increase of urbanization (United Nations, 1995). Thus, the programmes were aimed to deliver public services that were expected to be more suitable to the local needs and to distribute economic growth more evenly.

The NUDS project was applied by selecting potential urban centres mostly not located in Java to be developed as new urban centres. Seven urban centres were chosen namely Palembang and Padang in Sumatra, Pontianak, Banjarmasin and Samarinda in Kalimantan, Denpasar in Bali, and Ujung Padang



in Sulawesi. In fact, the implementation of NUDS project in this era has shown explicitly that Indonesian development policy in this period was actually still urban (unbalanced) oriented and relies highly on the effectiveness of spreading effect power from the centre to achieve equity. However, a more decentralized NUDS project as well as IUIDP should be acknowledged as a good sign since it indicated that development policies in the implementation level had been moved one step ahead. In any case, it has put the importance of equity under consideration.

Following the NUDS project, urban infrastructures development under the principle of integration with a more bottom-up approach was implemented under IUIDP program. Principally, the IUIDP provided integrated (cross-sector) planning, financial planning, and capacity-building at the municipality level (United Nations, 1995). This program along with the assistance of some donor agencies mainly the United Nations Development Program (UNDP) and ADB was applied simultaneously in the entire municipalities in the country. It was expected that more involvement of stakeholders at the municipality level would lead to a more integrated program or not be excessively sector oriented and would be reasonably on target. The main idea of this IUIDP program was that more investment mainly in infrastructures in lower hierarchy urban centres could be more effective in spreading wealth to the surrounding regions. However, it was clearly not an easy task to achieve the objective of the program mainly due to lack of local companion funding and good capability of human resources in the lagging urban regions.

Many scholars have assumed that NUDS was not more than a form of political approach to maintain the integrity of Indonesia and to facilitate more foreign assistances. As Rasyid (2002) argued, there was not enough concrete commitment of the central government to decentralize the authority. Procedures of bureaucracy, regulations and technical guidelines were not prepared sufficiently to guide the policy implementation in the local level. In addition to that, there were also not sufficient capabilities of the respective local governments. Consequently, the aim of this project to create less disparity was not achieved. Similarly, many intellectuals also categorized the IUIDP as a failure. The fundamental problem was the coordination among institutions at the municipality level. Besides, the bad attitude of the government employees expressed as corruption and illegal charges became significant obstacles to succeed in almost all Indonesian development policies (Hart, 2001).

The failure of the NUDS project and IUIDP program followed by the global (Asia) monetary crisis in 1997 has resulted on the fall of the new order era. Political pressure to build a more decentralized government and the incidence



of economic crisis really lead Indonesian development into new chapter called as decentralization era.

4.3.2 Decentralization Era: Course to Balanced Development

The decentralization era has begun with bad macro economic performance in addition to a significant disparity profile. In the 1998, the annual GDP growth rate considerably dropped it to –13.1 per cent (see Figure 4.5). As well, the income distribution performed unsatisfactorily. In 2000, 20 per cent of the highest income people earned 41.1 per cent of the total income while only nine per cent of the total income went to 20 per cent of the poorest population (World Bank, 2008). Concerning the economic profile and a need to achieve political stability after the fall of the Suharto regime, the main aim of the new government in decentralization era was economic rehabilitation under the principle of full decentralization.

Learning from the failure in the past, development policies in the decentralization era aimed to achieve more integrated and balanced development based on the spirit of good governance and people empowerment principles. The five-year sectoral development plans (*Repelita*) that were established in the new order era were changed into strategic development plans (see Figure 4.3). The strategic planning approach was considered as more comprehensive and integrated and therefore more suitable to minimize conflict of interest among sectors which had realized as a significant problems in the earlier era. Accordingly, as the unbalanced development approach that had been applied was blamed as the main caused of disparity, a balanced development with human development as the major deriving factor was argued to be the counter in ensuring all population to participate in, to contribute to, and to take benefit from development process (United Nations, 2001).

Clean government under the good governance² principles followed by capacity building program to empower local people was believed a key factor to success in implementation of the decentralization policies (Keith, 2005; Usman, 2001). In addition to that, agricultural activities and small (rural based) industries had begun to be considered as potential development resources instead of only focusing on facilitating big manufacturing industries in the urban areas. Subsequently, a range of programmes at the national level or project based for particular regions focused on rural development and public participation were applied.

² Good governance defined as government interaction with the citizen as well with other social organizations and refers to how decision making processes are taken (Graham et al, 2003).

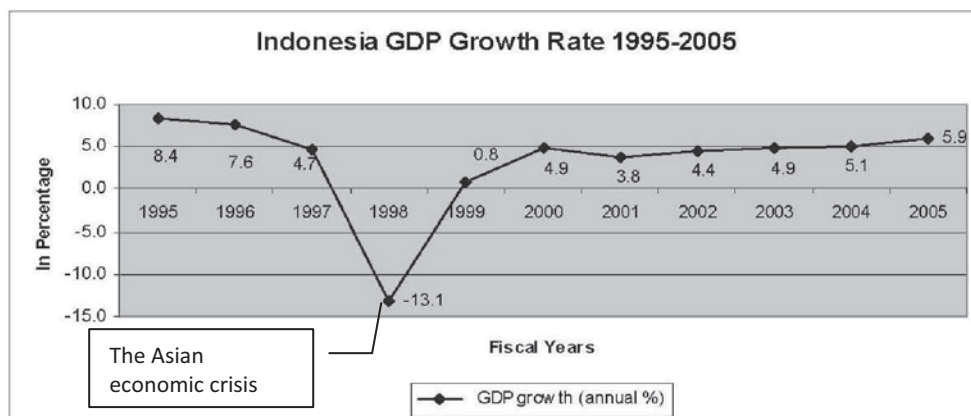


Figure 4.6 Indonesia Annual GDP Growth Rate (%)

Source: World Bank, 2008

NUDS began in the new order era continued with NUDS II focusing on capacity building in urban infrastructures management. Different from the earlier NUDS, NUDS II concerned with urban agglomeration and linkage patterns among cities as well as between rural and urban regions. Accordingly, a national urban system developed with a high consideration for urban agglomeration and rural-urban linkage principles. As a result, NUDS II recommended the development of an Integrated Economic Development Zone particularly in the eastern part of Indonesia and Strategic Economic Zone nationally which were expectedly performed as a more effective growth centre. However, this particular growth centres also had to deal with a lot of constraints. In the implementation level, it was controlled by a highly centralized government. The failure was like a repetition of the earlier approach which had been applied.

Viewing other programmes that were significantly influential in the decentralization era called agropolitan, rural growth centres, and National Program for Community Empowerment (NPCE). Agropolitan³ could be considered as the first spatial-rural based approach that was applied in Indonesia. Announced in 2002, agropolitan combined the agro business principles and Christaller-Central Place theory. Accordingly, the agropolitan policy then was very concerned with backward and forward linkages within the agricultural sector supported by hierarchical infrastructure provisions in rural areas mostly to distribute the agriculture as well the agro industry products. In regard to its character as multi-sector and spatial based development, it was not surprising that agropolitan implementation has had a lot of obstacles. The main obstacle was in coordination and conflict of interest among the stakeholders. Under the responsibility of two ministries namely the Ministry of

³ Agropolitan was first introduced by Friedman and Douglass in 1975. The term derived from word 'agro' for agriculture and 'polis' for cities. Therefore, agropolitan can be simply understood as cities that are dominated with agricultural based activities.



Agriculture and Ministry of Settlement and Regional Infrastructure, agropolitan programmes were very susceptible to be trapped into sectoral programs. Moreover, the basic concept that requires developing a particular type of agro industry also had involved another important institution, the Ministry of Industry and Trade. Until the recent time, it has been still arguable whether agropolitan policy has succeeded in upgrading rural areas or not. Rural poverty has reached 17.35 per cent of total Indonesian population in 2009 (CBS, 2010). Following that, urban population is still likely to grow rapidly as at least 53.7 per cent of total Indonesian population live in urban area in 2010 and it will reach 68.9 per cent in 2030 (UN Population Division, 2010). These facts may further question the programme's effectiveness. Nevertheless, there are still ongoing agropolitan programmes in at least one agropolitan district in each province all over the country.

Along with the implementation of agropolitan, Rural Growth Centre (RGC) programmes were applied nationally. Essentially, RGC was similar with IUIDP programs. It was only RGC that was designed as rural based. The program aimed to force rural development by facilitating potential villages with proper infrastructure and facilities. There were several criteria to choose potential villages. The main criterion was distance to the closest urban centre and to the surrounding villages. Adopted from the growth centre approach and again Christaller-Central Place theory, these rural growth centres were designed to perform as a centre of public services and particular facilities in the lowest level. It was optimistic to think this approach would be effective to push development of many lagging and isolated regions. Unfortunately, because of having considerably long experience performed under a centralized government where the people had contributed only as objects of the development, it was not an easy task to motivate local people to participate in the RGC programmes. Many of the programmes were not really on target. Some infrastructure mostly related to agricultural activities that had been built such as modern rice milling, high technology sawmills and many others could not be used as they were not suited to rural people skills as well those things were not what the local people really need.

The balanced development program then revisited and has resulted in the announcement of the National Program for Community Empowerment (NPCE) in 2007. Initially, begun in 2000, it was called the Sub-district Development Program and Urban Poverty Alleviation Program that had been applied only in selected impoverished sub-districts and municipalities. Due to its success, the program then expanded into national level called NPCE. Currently, NPCE have been developing into various sub programmes. Some major programmes called urban based NPCE, rural based NPCE and lagging regions based NPCE. The main



aim of the entire programmes in NPCE is to improve local capacity by empowering local people and ensuring that the local government has performed under the good governance principles. In the end, it was expected that NPCE would be effective to reduce poverty and overcome other social economic problems as targeted in Millennium Development Goals (MDGs).

There are five principles in NPCE implementation:

- (1) Planning, implementation and evaluation of the programme coordinate in the sub-district level.
- (2) Local people role as the decision maker and the main stakeholder
- (3) Based on local endogenous values.
- (4) Based on community empowerment which are represent local cultures
- (5) Based on empowerment principles consist of learning process, self reliance and sustainable.

The NPCE programmes have been running only less than half as planned. It would be very premature to evaluate the program at the current situation. An important note to be addressed is the understanding of decentralization as evolutionary in nature (United Nations, 1995). It requires time as it needs a gradual transfer of responsibility accompanied by encouraging social capital and willingness of the entire related stakeholders.

4.4 Concluding Remarks: Policy Outcome and Trend for the Future

The previous part has explained development planning policy implementation in Indonesia (see the summary in Table 4.1). It is clear that both the central government as well as the local government have been facing many problems in coping with the changing paradigm from centralization to decentralization. Despite this fact, urbanization, disparity, and poverty remain performed as the main development issues to be worked out. Moreover, external pressure due to globalization and free trade become significant threats for the country to be more carefully managing the resources. In conclusion, unbalanced or balanced development is not only a matter of a solely development issue. The political aspect has been contributing a significant role and therefore this is really a complex arena to play with.

Table 4.1 Summary of Indonesian Development Policies Implementation in New Order and Decentralization Era

Period	National Development Plans	Characteristics	Main Strategies	Outcome
Beginning of the New Order Era 1966 - 1979	1 st and 2 nd Five-Year Development Plan (<i>Rencana Pembangunan Lima tahun I dan II</i>)	<ul style="list-style-type: none"> • Sectoral approach • Urban (Growth) Oriented 	Unbalanced development approach by selecting some urban centres (as the growth centres) and expanding physical infrastructure in those centres mainly for industrial activities.	<ul style="list-style-type: none"> • High economic growth • Disparity i.e. Urban primacy
1980s	3 rd and 4 th Five-Year Development Plan (<i>Rencana Pembangunan Lima tahun III dan IV</i>)	<ul style="list-style-type: none"> • Begin to be more concerned on the balanced of growth and equity • More attention to spatial aspect of development • More attention to apply integrated development approach. • More attention on environmental issues 	<p>Still based on unbalanced (growth centres) approach but the centres more evenly spread under the “Development Trilogy” principles (equity, growth and politic stability).</p> <p>Main approaches:</p> <ul style="list-style-type: none"> • NUDS - National Urban Development Strategies • IUIDP – Integrated Urban Infrastructures Development Programmes 	<p>Primacy index 2 for big city</p> <p>Primacy index 3 for metropolitan</p> <p>Equity and integrated development were fail to be achieved due to:</p> <ul style="list-style-type: none"> • Weak coordination among institutions • The limitation of local institutional capacities • External factors that is the significant fall of oil price globally in 1980s which influenced the stability of Indonesian macro economy
1990s	<ul style="list-style-type: none"> • 5th and 6th Five-Year Development Plan (<i>Rencana Pembangunan Lima tahun V dan VI</i>) • National Spatial Development Plan according to Law No. 24, 1992 concerning Spatial Development 		<ul style="list-style-type: none"> • Developing a more rural/agricultural based development approach namely: Agropolitan • Rural Growth Centres (RGC) • Maintaining growth centre approach under the principle of urban agglomeration and rural-urban linkages patterns mainly in eastern part of the country through Integrated Economic Development Zone and Strategic Economic Zone 	
Decentralization era 2000s	<ul style="list-style-type: none"> • Comprehensive National Development Plan according to Law No. 25, 2004 concerning Non-Spatial Planning system • National Spatial Development Plan according to Law No. 26, 2007 concerning Spatial Development 	<ul style="list-style-type: none"> • Public participation in the development process (Bottom-up approach) • More integrated by using strategic planning and action planning approach 	<ul style="list-style-type: none"> • National Program for Community Empowerment (NPCE) 	<ul style="list-style-type: none"> • On going approach lead to more public involvement in development process • On going decentralization process



5 Brief View of Urbanization in Central Java Province: Inter and Intra - Regional Perspectives

This chapter briefly discusses urbanization in Central Java Province both in inter and intra regional perspectives. In inter regional perspective, urbanization in the study area is explained in comparison with the national average and other provinces in Java Island. In the intra regional perspective, urbanization is explained by comparing urban and non-urban districts located in the province. Three main aspects are used to describe the urbanization phenomenon; they are population, physical environment, and economic performance.

The first part describes urbanization in terms of population including numbers of urban population and density. The second part is focused on physical environment by using the share of built-up areas and land conversion as the main indicators. The third part gives detail in an economic perspective namely performance of GDP, employment, and profile of unemployment. The final part shows general comparison between static and dynamic indicators to describe urbanization in urban and non-urban districts.

5.1 Urban Population and Density

Population and density are the most common indicators to measure urbanization (Clark, 1996:49-53). Mostly because of better access to various public facilities and also the general fact that job opportunities are higher and more diverse in urban areas compared to rural places, inhabitants and density in urban areas are considerably higher than region categorized as rural. Numbers of urban population and density in Indonesia distributes unevenly. As described in Table 5.1, urban population in this country is highly concentrated on Java Island. In the period of 1980-2000, almost 70 per cent of the urban population is located on Java while this Island is only has 6.75 per cent of the total area of Indonesia. The table also shows that the superiority of Java compared to other Islands is substantial since during these periods urban population growth in outer Islands was only slightly higher than in Java. Even though there was a tendency of lower annual growth rate of urban population in the period of 1990-2000 compared to the earlier period, the policies which have were implemented to spread urban activities more equally to the whole Island were not presenting satisfying results since there were not any significant changes in the formation of national urban population distribution.



Table 5.1 Share of Urban Population, Indonesia 1980-2000

	Share of Urban Population			Annual rate of urban population growth		
	Java	Outer Islands	Indonesia	Java	Outer Islands	Indonesia
1980	69.8	30.2	100			
1990	69.2	30.8	100	1980-1990	5.95	5.37
2000	69.1	30.9	100	1990-2000	4.43	4.40

Source: CBS, 1991,1992, 2001a in Firman, 2004

Subsequently, Java has become the densest Island in Indonesia for more than four decades. Population density in Java is more than 500 times higher compared to national average whilst density of Jakarta as the capital city of Indonesia even exceeds 12.000 inhabitants/km²; leaving behind other provinces including provinces located in Java significantly (see Figure 5.1 and Table 5.2). The rapid growth of Jakarta took place between 1970s until 1990s, in the period when Indonesia began its centralized industrialization under the New Order Era (see Chapter Three). As described in Figure 5.1, while density in national average as well as in other provinces in Java between 1971 and 1990 grew at a relatively slow rate, density in Jakarta increased significantly, and almost doubled within two decades. It was only since 1990, due to the limited success of the transmigration program, that the density in Jakarta then slightly increased at a lower rate.

Table 5.2 Population Density in Selected Provinces 1971-2005 (People per Km²)

Province	Density				
	1971	1980	1990	2000	2005
Indonesia	63	78	95	108	116
Jakarta	6897	9794	12439	12592	13344
West Java	625	794	1023	1033	1126
Central Java	672	780	876	959	982
DI Yogyakarta	781	863	914	980	1049
East Java	532	609	678	725	757
Banten	-	-	-	936	1044

Source: CBS, 2010

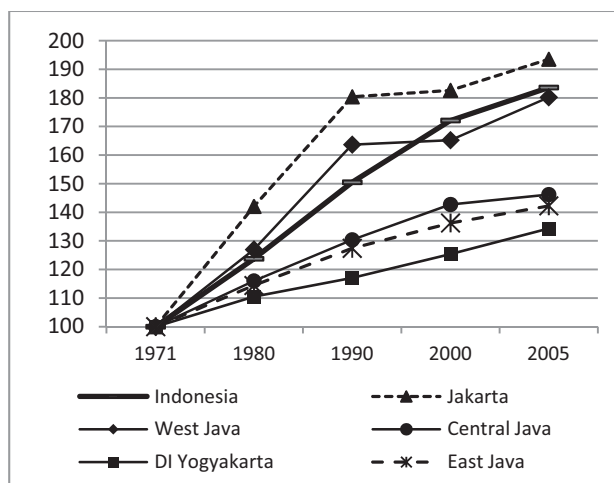


Figure 5.1 Population Density in Selected Provinces 1971-2005 (normalize values, 1971=100)

Source: CBS, 2010

Concerning Java, distribution of urban population and density are illustrated in Figure 5.2 and Figure 5.3. In 2005, 48.6 per cent of the total population in Central Java Province is categorized as living in urban region. Compared to other Provinces in Java Island, this number is relatively low. Figure 4.2 shows that share of urban population in Central Java Province as the lowest in the Island, slightly lower than East Java which has reached 48.9 per cent. Along



with the share of urban population, density in Central Java Province is also reasonably low compared to other provinces in the Island (see Figure 4.3).

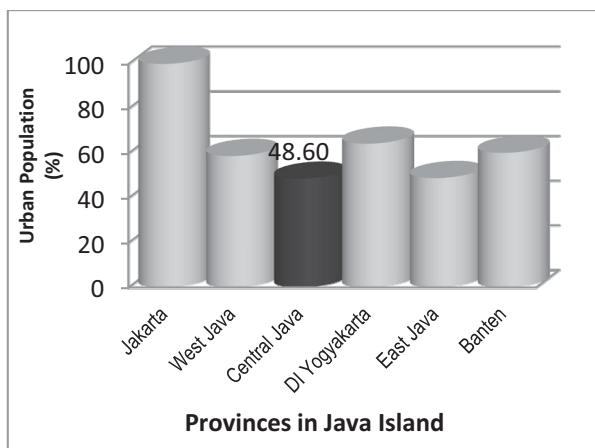


Figure 5.2 Urban Population in Java Island, 2005

Source: CBS, 2005b

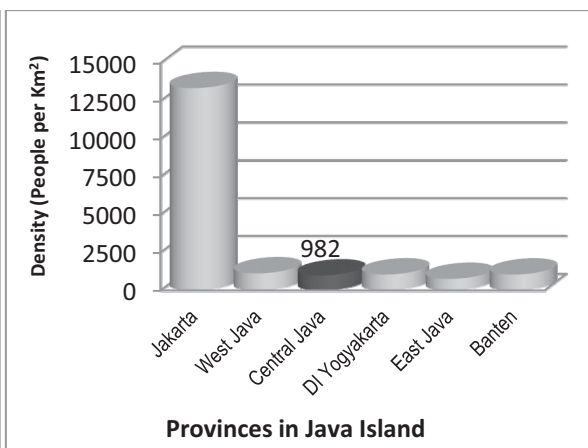


Figure 5.3 Density in Java Island, 2006

Source: CBS, 2006b

Examining all data mentioned above, it was found out that there is a very obvious primate city phenomenon in the Island. Jakarta that has become the engine of growth for the national level for more than four decades, has been dominating the development path in Java as well as in Indonesia. In addition to that, Central Java is located between two big and developed Provinces namely West Java and East Java and relatively close to the capital city. Around 35 per cent of the area lie in a moderately hilly site and therefore are sensitive to various kinds of disaster such as floods and landslides. Most relatively flat areas are utilized for agricultural protection zones. Those facts might lead to a reasonable explanation of the low contribution of urban population as well as low density experienced by the province compared to others on the Island.

Looking inside in the Province, one obvious phenomenon that occurs is in regard to the urban population distribution. There is a significant gap in the share of the urban population among districts, mostly between districts categorized as urban and 'ordinary' districts. In 2007, while there were six districts with 100 per cent of the population categorized as living in urban areas, the average of urban population in 'ordinary' 29 other districts reached only 32.26 per cent. However, as explained in Figure 5.4, population categorized as living in urban areas in the 'ordinary' districts growth quite significant. In 1980, there are only 12.80 per cent of people live in urban area. This increases considerably to 21.07 per cent in 1990 and 32.26 per cent in 2007. Bad distribution also occurs by using density as the indicator. Figure 5.5 demonstrates a significant density difference between six urban districts and average density of 'ordinary' districts. While the average density of non-urban districts is only 1001, the density in urban districts ranges from 3234 to 11649.

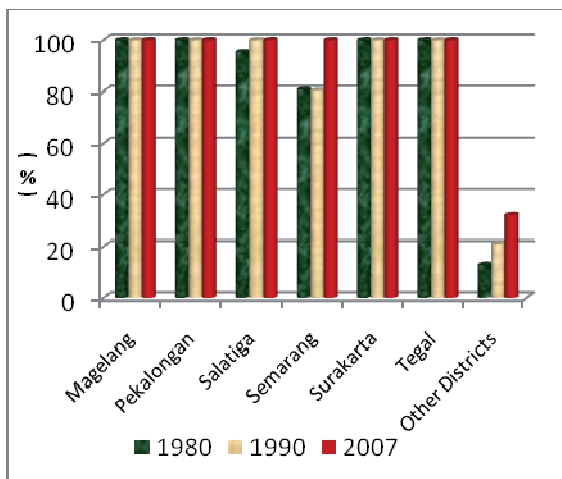


Figure 5.4 Urban Population in Urban Districts and Non Districts, 1980, 1990, and 2007

Source: CBS, 1980, 1990, and 2007

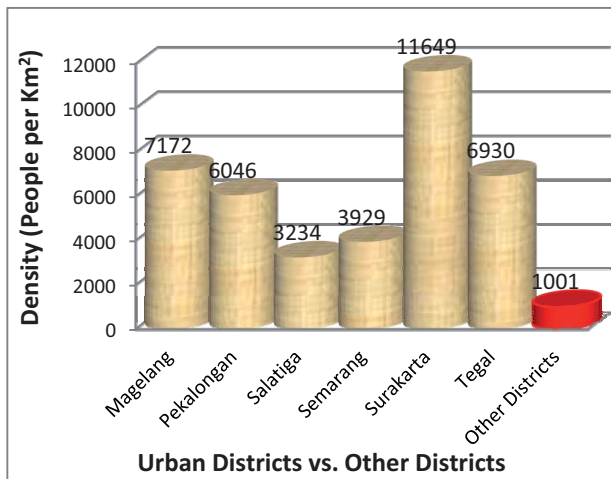


Figure 5.5 Density in Urban Districts and Non-Urban Districts, 2007

Source: CBS, 2007

Note: other districts indicates the average condition of 29 non-urban districts

In addition to a disparity phenomenon between urban and non-urban districts illustrated in previous Figures, Figure 5.6 demonstrates urban population rank-size among urban areas in the whole province. There are at least two noticeable features. First is similar with phenomenon at the national - island level, a primate city also takes place at the provincial level. It is mainly because Semarang, the capital city occupies very significant inhabitants compared to other cities in the province. Second is related to gap in the growth rate. Comparing the trend line among 1990, 2000, and 2030, it is identified that Semarang is likely to grow relatively rapidly while most of all small urban areas remain stagnant. Even though there are several intermediate cities namely Pemalang, Brebes, and Salatiga growth is slightly faster than the stagnant urban area but it is not significant in improving urban population distribution.

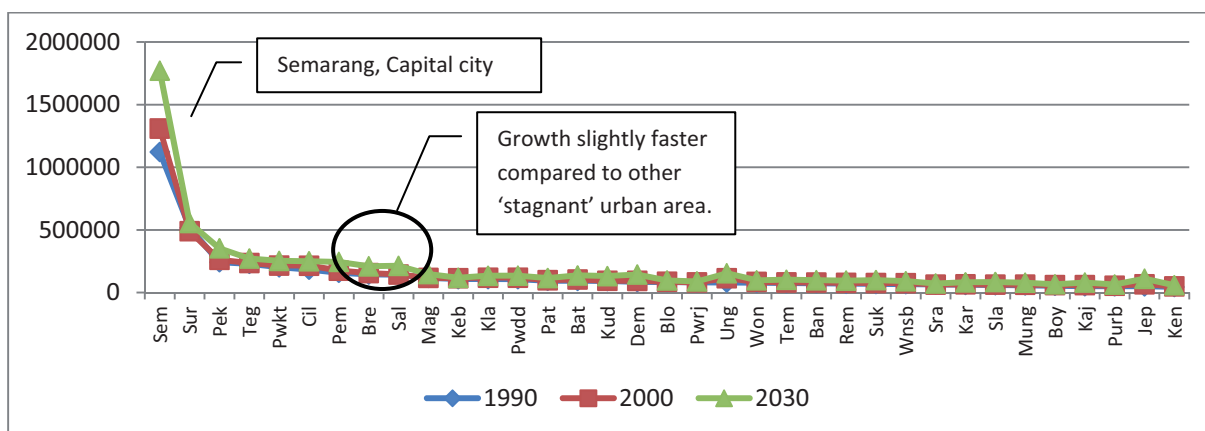


Figure 5.6 Urban Population Rank-Size 1990, 2000, 2030

Source: CBS, 1990, 2000b

Note: Data for 2030 is projected population based on assumption explained in Provincial Spatial Plan Document



By using numbers of population and density as the indicators, in brief, it is revealed that as generally happen in most developing regions, urbanization occurs unevenly in the research area. However, it is a tendency that the lower hierarchy ‘ordinary’ districts grow relatively rapidly in which expectedly, this will lead to a more balanced population distribution in the future.

5.2 Share of Built-up Areas and Land Conversion

Focused on physical environment, urbanization can be indicated from the performance of land use utilization (ESPON, 2006). Share of built-up areas or rates of land conversion may explain how urban activities develop in such regions. As a matter of fact, growth of built-up areas worldwide is much faster than population growth. It should be acknowledged as a sign of putting more awareness on environmental degradation issues. In Central Java Province, built-up area annual growth is ten times higher than population growth (See Table 5.3). It should be carefully taken into account for further land use development planning since at the moment Indonesia or Central Java in particular is still in the second stage of the demographic transition. According to CBS data (2007), Central Java Province still experiences a slightly high Total Fertility Rate (TFR) that is 2.35 in 2005 and a significant decrease on Crude Death Rate (CDR) from 17 in 1970 to 6 in 2007. As a result, in this stage, the population in the province disregards the potential number of in-migration is still likely to increase even at a lower rate of growth. Thus, based on this basic assumption, built-up areas in the province would potentially grow at a significantly high rate for the following decades.

Table 5.3 Population and Built-Up Annual Growth

	Population	Built-up Area
1994	29,674,076	2,426.85 km ²
2006	32,177,730	4,263.37 km ²
Annual Growth	0.7 %	6.31 %

Source: National Land Agency (1994), Provincial Planning Board and Development Agency (2006) processed by ArcGIS 9.3

Concerning land use allocation, Figure 5.7 shows share of five land use types in the province in 1994 and 2006. Agriculture still dominates the land use even though due to the force of urbanization, the percentage of the contribution decreasing from 70.74 per cent in 1994 to 63.32 per cent in 2006. Differently, by reason of high utilization of forest product as input for many industrial activities, share of forest slightly increased from 19.76 per cent in 1994 to 20.05 per cent in 2006. One interesting fact is that while in West Germany it took 50 years to double the contribution of built-up areas (Fischer et al, 2009), the share of built-up area in Central Java Province increased almost 80 per cent



within only a 12 years period or around 6.3 per cent annually. Considering the provinces is dominated by high-sloped areas and experience a relative high population growth rate, it then becomes a prominent agenda to develop such sustainable land use concepts in the region.

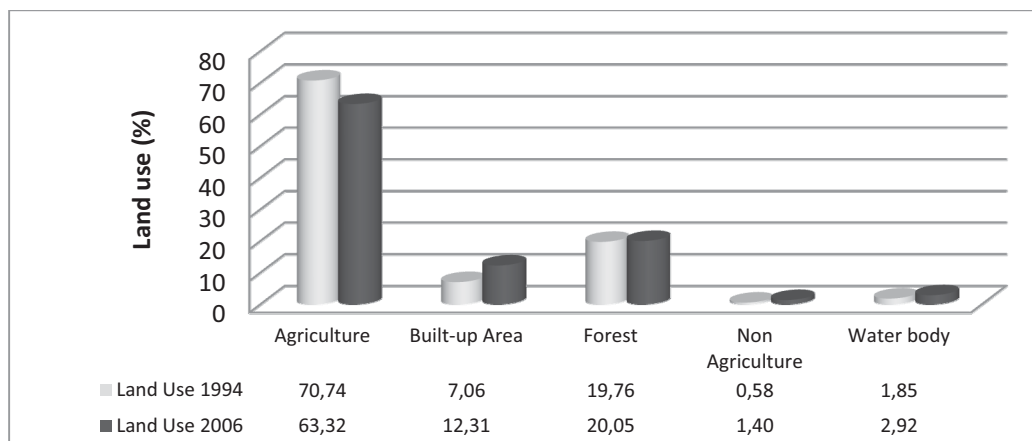


Figure 5.7 Share of Land Use by Type in Central Java Province, 1994 and 2006

Sources: National Land Agency (1994), Provincial Planning Board and Development Agency (2006); processed by ArcGIS 9.3

As explained in previous part that growth of urban population and density do not take place evenly in the whole region, related to that, high growth of built-up areas also happen only in certain parts of the province. As can be seen in Figure 5.8, except for Pekalongan, other districts' average built-up annual growth of 'ordinary' districts is relatively higher compared to the urban districts. Thus, it is an interesting indication that urbanization does not necessarily take place as a part of extended large urban development. As an illustration, Semarang (Capital city of the province), which actually performs as the highest hierarchy urban centre, has a lower percentage growth of built-up areas compared to lower hierarchy urban centres (See Figure 5.8). In fact, as described in Figure 5.9, even in radius of 0.5 km from the city centre, agriculture (non built-up area) still occupies around 20 per cent of the land use in all urban areas in the province.

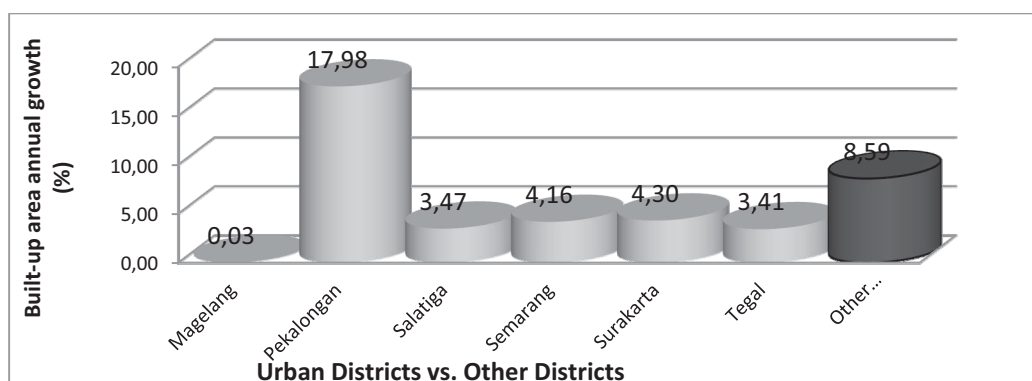


Figure 5.8 Built-up Area Average Annual Growth in Urban Districts and Non-Urban Districts in Central Java Province, 1994-2006

Source: National Land Agency (1994), Provincial Planning Board and Development Agency (2006); processed by ArcGIS 9.3

Note: other districts built-up area annual growth is the average of 29 non urban districts built-up area annual growth

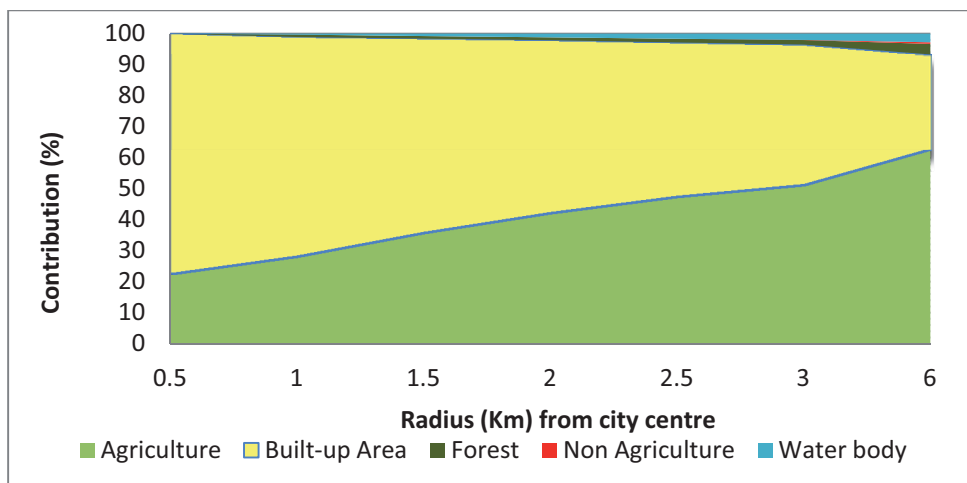


Figure 5.9 Percentage of Each Land Use Type Based on Ring Pattern in Central Java Province, 2006

Source: Provincial Planning Board and Development Agency, 2006 processed by ArcGIS 9.3

The map in Figure 5.10 shows the land conversion for each district in the whole region. There are several noticeable patterns in regard to land use development in the Province.

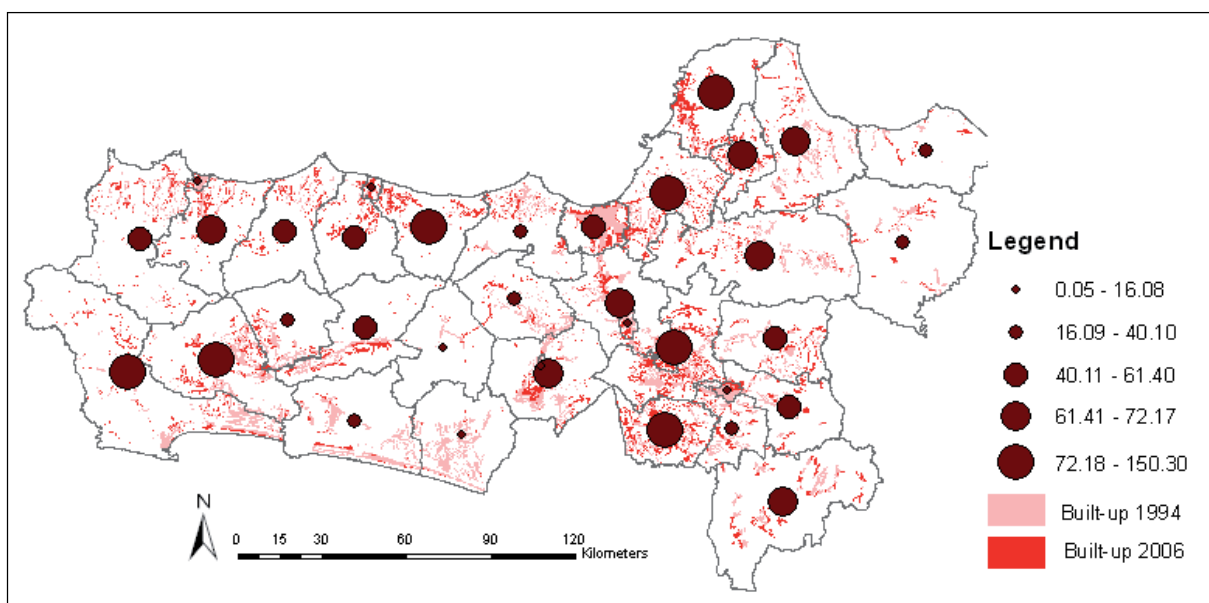


Figure 5.10 Land Conversion per District 1994-2006 (in Km²) in Central Java Province

Source: National Land Agency (1994), Provincial Planning Board and Development Agency (2006) processed by ArcGIS 9.3

Note: average is 2,857 Km² per district

Firstly, the highest growth of land conversion does not take place as part of capital city development which has performed as the highest hierarchy urban centre. Rapid growth of land conversion happens around and in the neighboring districts of certain second hierarchy urban districts. Good accessibility followed by low physical limitation and rapid development in the neighboring province (DI Yogyakarta) could explain the phenomenon. Secondly, there are also indications that high growth of land conversion takes place in 'ordinary' districts which are relatively far from urban districts or fast growing



urban centres. It can be acknowledged as a sign that forms of endogenous factors have become an essential part of this growth pattern. Third, high slope or other kinds of high physical limitation areas may explain certain districts that experience low growth of land conversion. Hence, land use patterns which may indicate the development pace of such regions is really an accumulation of many influential factors.

To sum up, it is a slightly contradictory finding between share of built areas and land conversion patterns in comparison with distribution of people categorized as living in urban areas and density in Central Java. People who are categorized as living in urban areas in the province still concentrate in certain urban districts with a significant density difference with non-urban districts. On the contrary, these urban districts experience lower land conversion rates compared to non-urban districts in the situation where actually there are still plenty of non-built up areas near the urban centre of urban districts (see Figure 5.8). Considering those facts, it is a tendency that rapid development growth or development in non-agricultural activities actually could take place in lower hierarchy districts. In another words, there is a propensity of an increasing role of secondary regions in the province.

5.3 Performance of GDP, Employment, and Unemployment

The economic characteristic is a very common and substantial factor in examining urbanization. Structural change in the economic performance from primary to non-primary is a key indicator that leads to the brief depiction of the urbanization pace of the region.

Central Java, as a province with a significant share of population to the island, contributes a significant employment in the non-primary sectors compared to other neighbouring Provinces. Unlikely, mainly by considering the number of the employment, the province's contribution to non-primary GDP is relatively low (See Figure 5.11). It indicates low productivity that most of the time happens in a region with significant contribution of small-medium scale enterprises instead of large enterprises that are generally characterized as more efficient. However, these findings are reasonably contradictive with the internal dynamic situation since actually Central Java Province has experienced significant growth rates in GDP non-primary compared to the employment non-primary. While GDP annual growth between 1994-2006 reached 25.15 per cent, employment in non-primary sectors growth only 2.84 per cent (calculated based on data from CBS, 1994 and 2006).

Figure 5.12 shows GDP non-primary and employment non-primary for each district in the province. All districts experience a relatively much higher growth



in GDP non-primary compared to employment non-primary. Some districts even experience a negative annual growth rate in employment non-primary.

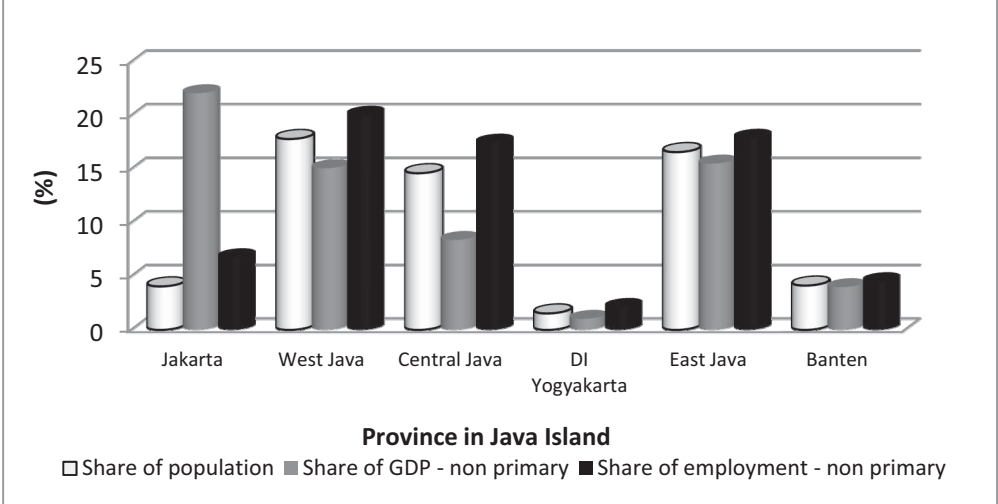


Figure 5.11 Share of Population, GDP Non-Primary, and Employment Non-primary in Java Island, 2005

Source: CBS, 2005b

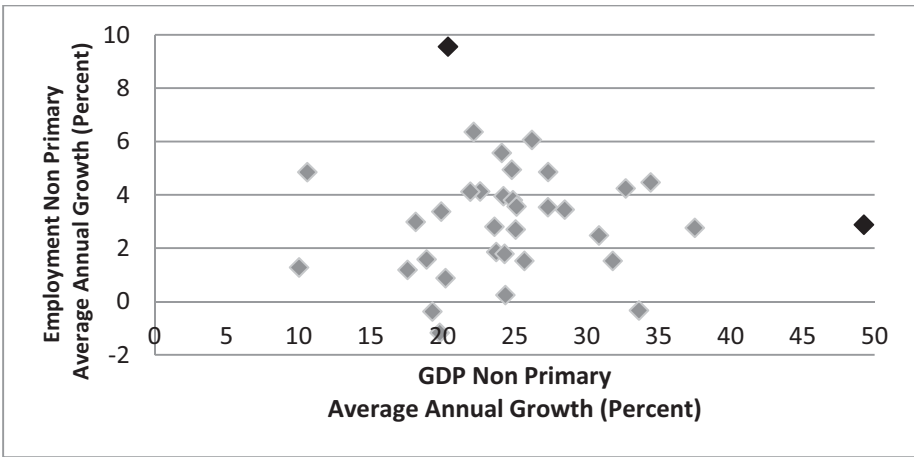


Figure 5.12 Non-Primary GDP and Non-primary Employment Average Annual Growth in Central Java Province, 1994-2006

Source: CBS, 1994-2006

Even though, there are at least two obvious outliers. First, one district named Temanggung, performs a significant annual growth of employment in the non-primary sector which reached almost 10 per cent with only an average GDP growth rate. Second, the district named Cilacap, performs the highest growth of GDP non-primary but occupies relatively low employment non-primary annual growth. The first outlier relates to the international migration issue. In Temanggung, there are many local people who work in foreign countries as low-level workers. Unfortunately, this migration pattern does not really influence the local economy of the district since this district does not experience a positive change in its GDP composition. The second outlier takes



place due to the existence of footloose industry. In Cilacap, there are few large industries that contribute significantly to the GDP but unfortunately it is footloose in character. This means, these large industries cannot contribute considerably to improve the local economy.

Concerning bad distribution that is present by using population and land use as the indicators to examine urbanization in the research area, there is also a significant gap in GDP contribution among districts. In average, each district contributes from one to three per cent to the Provincial GDP. However, three districts contribute beyond the average. First, the capital city which is dominated by various big manufacturing industries, contributes 15 per cent to the total GDP. Second is Cilacap with the oil industry as the leading sector that contributes 16 per cent. Third is Kudus with the cigarette industry as the leading sector contributing around nine per cent to the GDP. In this sense, it is clear that propulsive industries play an important role to accelerate economic growth of the region. As believed by unbalanced development followers i.e. Hirschman (1958), Myrdal (1957), and Perroux (1955) that spread of development would be achieved effectively based on only a few leading industries. Regrettably, this growth is not adequately followed by equity.

Following some unfortunate performance of GDP and employment in non-primary sectors, there is also an indication that industry activities in the country or in Central Java in particular is not appropriate enough to absorb all available labour force. The unemployment rate in the region has been remaining high as one obvious feature of urbanization in developing countries is the fact that the structural change process in these countries always is in accordance with high levels of unemployment (Lo et al, 1981). To illustrate, 66.02 per cent of National GDP in the non-primary sector comes from provinces in Java Island, 6.8 million unemployment out of 10.85 unemployment in the country is also located in the island. In Central Java Province, unemployment reached almost 1.45 million people, increase 464.79 per cent from 1990 to 2005. Rondinelli (1986: 264) actually has revealed his concern in addressing this issue. He mentioned that urbanization in most Asian countries had led to many social problems mostly in regard to employment and poverty. Industrialization that had taken place in many Asian urban regions had forced a very high number of low educated people into migration. It has resulted in high rates of unemployment of low level workers in the urban area, higher rates of urban poverty, greater intra and inter urban disparity, and a lack of appropriate public services for the lower level society which then generate other problem such as slums and health care issues. Furthermore, this in migration movement also has led to a stagnation of many rural regions in Asia.



As Firman (2004) mentions, urbanization in Asia however is very particular in character. Firstly, it happens in a lower per capita income group compared to urbanization in developed countries. Secondly, force of globalization as reflected in such free trade agreements and the existence of many foreign large industries make urbanization growth faster and lead to a worst disparity among regions.

5.4 Concluding Remarks: Urbanization in Urban and Non-Urban Districts in Central Java Province

Previous parts have explained the general overview on urbanization by using variables derived from three main aspects namely population, land use, and several economic variables. Based on examination on those aspects, considered as common phenomenon that happen in many developing regions worldwide, urbanization occurs unevenly in the research area. Though, urbanization in Central Java Province in general is not really remarkable compared to other provinces on Java Island. Located between two big Provinces namely West Java and East Java, 35 per cent of the area lies in a moderately hilly site, and significant area is utilized as an agricultural protection zone which has created particular limitations for the province to accelerate its development.

However, there is a positive tendency that speeds growth for several indicators of non-urban districts is faster than urban districts. This should be considered as a positive sign to reduce disparity in the future. There are three indications, which lead to the significant escalating contribution role of lower hierarchy districts in the region. These are, by using average annual growth rate of GDP non-primary, average annual growth rate of non-primary employment, and average annual growth rate of built-up areas between 1994 and 2006 as the indicators.

By comparing static and dynamic performance of the selected indicators in the study area, it is identified that the contribution of non-primary sectors of lower hierarchy districts in the regions likely to escalate. The average annual growth rate of GDP non-primary, average annual growth rate of employment non-primary, and average annual growth rate of built-up areas from 1994 to 2006 in non-urban districts are considerably higher than in urban districts (see Figure 5.13). Even though based on the statistical situation the share is still higher in urban district (see Figure 5.14), however, rapid growth of non-primary GDP in many non-urban districts may be considered as a sign of more equitable development processes in the region. Correspondingly, annual average growth of non-primary employment in non-urban districts is also higher than non-



primary employment in urban districts. It is interesting in a sense that there is an obvious tendency that more people in the region who were actually still dominated by agricultural activities have moved from their main livelihood in the primary sector to the secondary or tertiary sectors. Lastly, average annual growth of built up areas in non-urban districts also pass through the urban districts while actually there is still plenty of available non built-up area in the urban districts (see Figure 5.9). These three dynamic features may specify a typical rural-urban transition that leads to a particular combination of rural-urban interface in the region. Thus, as mentioned before, those figures may illustrate that uneven features of urbanization are still there but it is expected that in the future the inequality could be reduced as it has been indicated by a rapid growth of certain development indicators that takes place in non-urban districts.

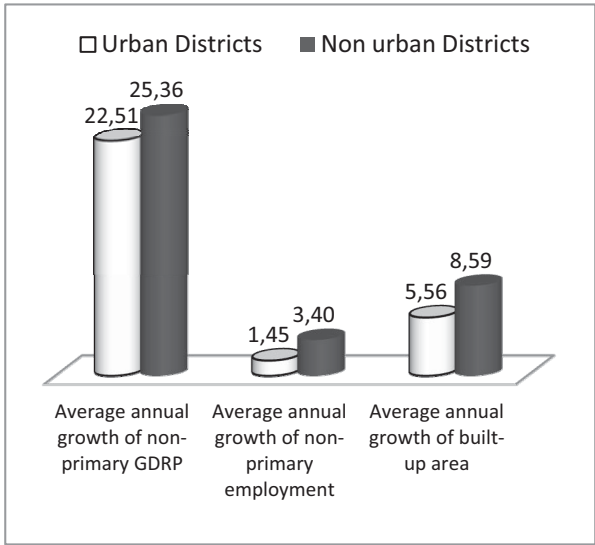


Figure 5.13
Dynamic Features of Urban Districts and Non Urban Districts in Central Java Province, 1994-2006 (%)
Source: CBS, 1994-2006

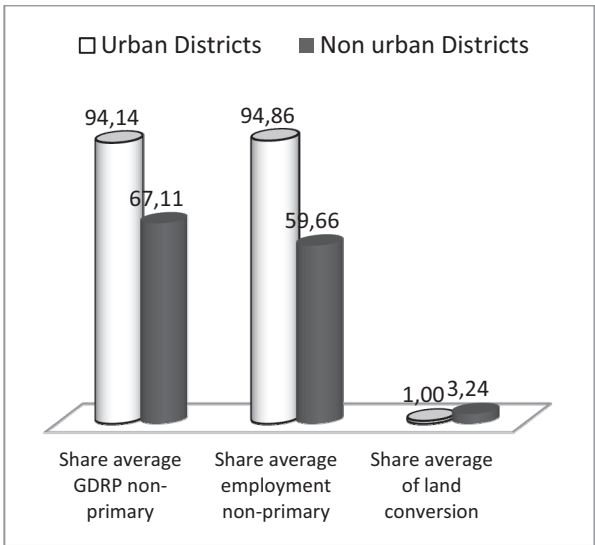


Figure 5.14
Static Features of Urban Districts and Non Urban Districts in Central Java Province, 2006 (%)
Source: CBS, 2006



6 Applying Cluster Analysis to Create Rural-Urban Typology in Central Java Province

This chapter outlines cluster analysis to create rural-urban typology in the research area. It begins with the explanation regarding the steps that is applied. The second to the fifth parts give details on the clustering application and consists of assessment of the variables, cluster solutions and interpretation, cluster validation, and short descriptions concerning robustness of the final clustering result. In the final part, there are some discussions on rural-urban transition in the study area as a detailed interpretation of the clustering result.

6.1 Steps of Clustering Analysis

Five main steps are necessarily taken to create a typology using cluster analysis. Figure 6.1 illustrates steps of clustering analysis that is used to create rural-urban typology in the study area.

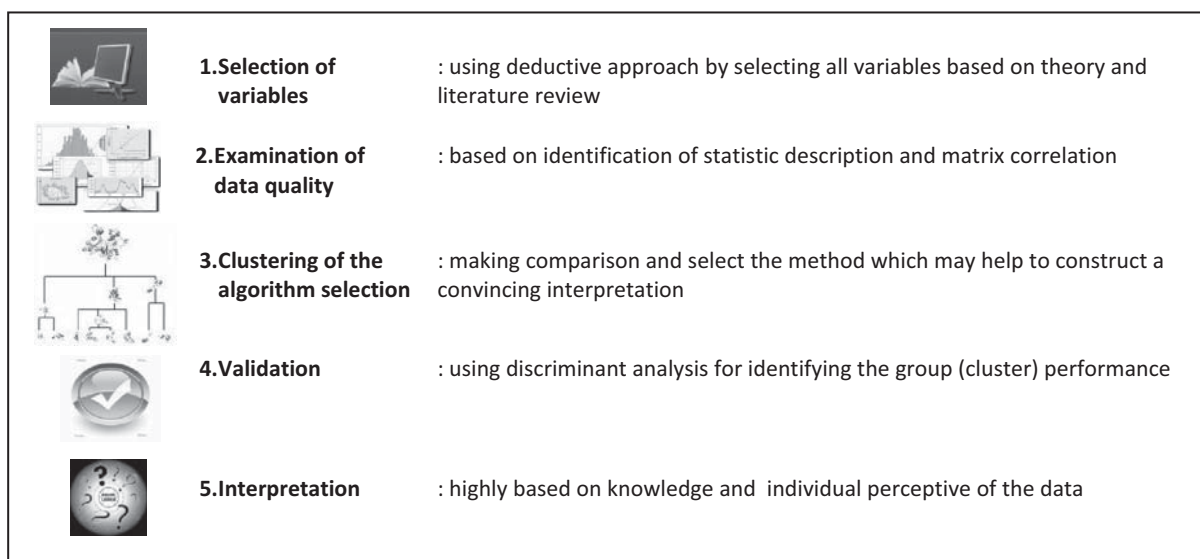


Figure 6.1 Steps of Clustering Analysis

Following are some brief explanations on how each step mentioned in Figure 6.1 is applied in this research.

1. In general, the variables are divided into four aspects namely physical environment, economy, social, and politic. In general, the variables are classified as static if they are only based on one exact period and dynamic if changes between two time series are indicated (in detail, see Table 6.1).
2. A stepwise analysis is used to examine the quality of the data. The analysis is mainly derived from:



2. A stepwise analysis is used to examine the quality of the data. The analysis is mainly derived from:
 - A calculation of the range, standard deviation, variance, skewness and kurtosis. They are used to analyze the distribution of the data and to identify outliers.
 - A matrix correlation in order to minimize multicollinearity.
3. Clustering algorithm selection was used to produce the most expected cluster. As there is no single agreement as to which is the best algorithm to be used, comparison of all possible algorithms with all possible distance measurements was applied.
4. To check the validation of the dendrogram, two types of discriminant analysis are used. The first is to apply all the variables into the analysis. The second is to use a stepwise approach in which only selected variables are used to validate the clustering result. As Huberty (1994: 96-98) explains, to have a valid hit-rate estimation, the number of sample size (case → counties) should be large enough or $n \geq 5p$ or number of cases should be five times higher than the number of variables. Correspondingly, stepwise approach was used to fulfill this criterion.
5. When interpreting the clustering result, a differentiation of the urban and the rural character in each district was highly considered. Therefore, sub-groups in the cluster are defined based on a combination of rural and urban character.

6.2 Stepwise Analysis: Assessment of the Variables

Initially, there were 35 districts and 72 variables to be examined (see appendix C). This included static and dynamic variables which then were divided further into four categories namely physical environment, economy, social, and politic that were applied for six urban districts and 29 non-urban districts. In order to produce robust and statistically convincing indicators, stepwise analysis was used to examine the quality of the data. The examination was mainly derived from two main steps. First was by making assessment on statistic description namely calculation of range, standard deviation, variance, skewness and kurtosis. They were employed to analyze the distribution of the data and to identify outliers. Second was by using matrix correlation to minimize multicollinearity. In eliminating those variables, representation of each category is greatly considered.

As mentioned in the previous part, disparity does exist in the research area, therefore, outliers were significant in several variables. In the first iteration, outliers were identified due to six small area districts (categorized as urban



districts) contribute significantly in almost all development indicators. Following that, certain variables namely GDRP, employment, and density also occupy a very bad distribution or contain outliers.

Another issue was multicollinearity, which was inevitable since many of variables initially analyzed may have been interconnected. For example, the number of employment in industries could be highly correlated with the number of industries, and the GDP industry also have a potential to be highly correlated with the number of large industries. It was also difficult to apply time series data since for some variables such as education attainment; the situation in 1994 was similar with the situation in 2006, as reflected in the relatively high correlation between the two variables. Figure 6.2 explains the selection process of the variables in the analysis and Table 6.1 shows the list of variables that were finally used in the cluster analysis.

Table 6.1 is the final result of stepwise analysis which is used as the indicators to evaluate emerging rural-urban interface in the study area at a district level. In principle, these indicators are derived from literature reviews (see Figure 3.9) as well as consideration of data availability. Following are some relevance explanations for using the indicators to describe rural-urban typology in the research area.

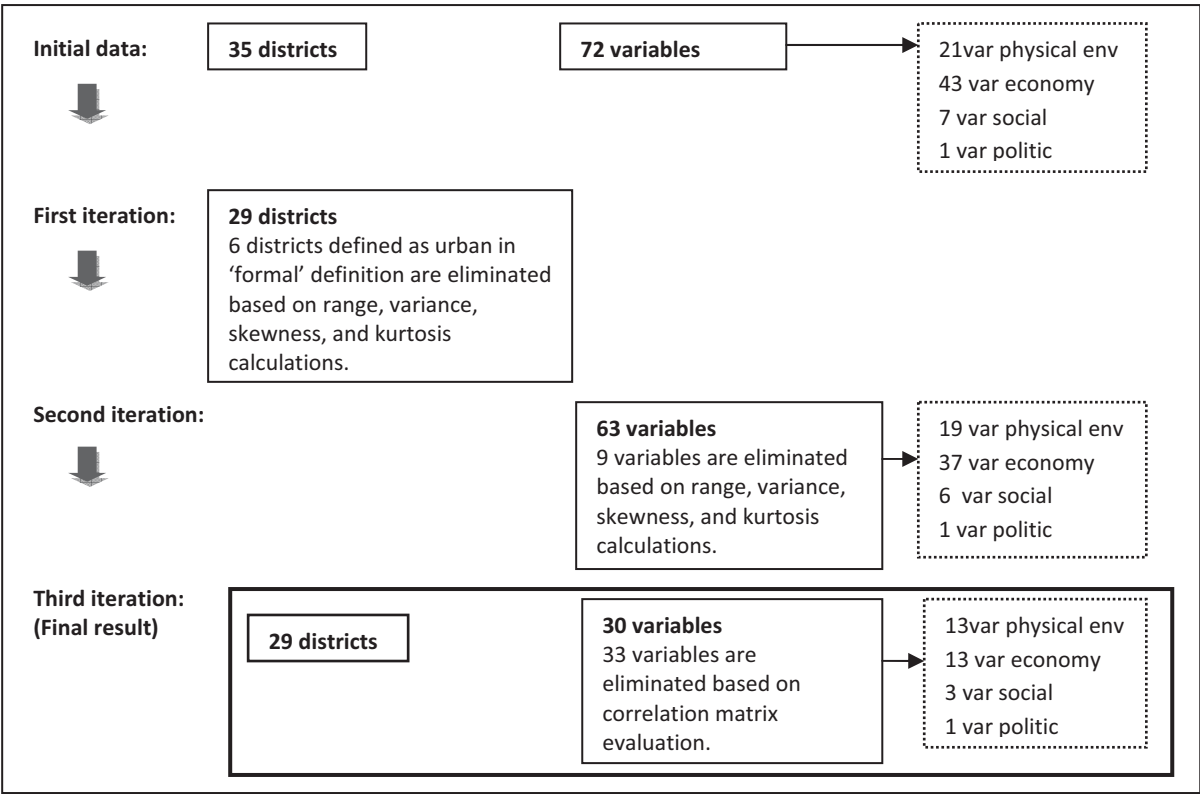


Figure 6.2 Selections of Variables by Stepwise Analysis



In the very classical meaning, population is commonly used to measure urbanization. High population growth followed by high density indicates urban features while low population growth followed by low density is a sign of rural character. As density in the research area is distributed unevenly and proven by creating outliers, the number of urban population is considered to be relevant to represent features of the population in the research area. Following are characteristics of population, land use which are

Defined as the physical setting of human intervention on land (ESPON, 2006:34-35), it is very crucial to examine place configuration in physical environment terms. High density signifies large numbers of inhabitants who need places to live, work, and to perform other activities. In this viewpoint, the high share of built-up area and high rate of land conversion may indicate high urbanization, as vice versa; low share of built-up area and low rate of land conversion may indicate low urbanization. Accordingly, accessibility which is considered as an influential factor to push development of a region, is also noteworthy to measure urbanization. High accessibility leads to more opportunities for higher speeds of urbanization. Distance averages to closest urban centre and to closest airport represent accessibility of each district. It is assumed that districts with a closer distance average to urban centres and to airport facilities have a higher opportunity to be urbanized faster. Urban centres which are commonly equipped with more adequate public facilities are very essential in developing particular industrial or non-agricultural based activities. Other than that, in the current situation where technology in transportation and communication has been developing very past, airport facilities have been playing a more important role compared to the former era.

Table 6.1 Indicators as Final Result of Stepwise Analysis

Indicators	Description	Year	Unit
Physical Environment	Slope	1 S Slope 0-8%	2006 Per cent
		2 S Slope 8-15%	2006 Per cent
		3 S Slope 15-25%	2006 Per cent
		4 S Slope 25-40%	2006 Per cent
		5 S Slope > 40%	2006 Per cent
	Build up area	6 S Share of built-up area	2006 Km ²
		7 D Built-up area annual growth	1994-2006 Per cent
	Accessibility (based on GIS calculation)	8 S Distance average to the closest urban centre	2006 Km
		9 S Distance average to the closest airport	2006 Km
	Limitation Area	10 S Environment protection area	2007 Per cent
		11 S Agriculture protection area	2007 Per cent
		12 S Disaster prone area	2007 Per cent
	Population	13 S Urban population	2007 Per cent
Economic	GDRP	14 S GDRP industry	2006 Per cent
		15 S GDRP service	2006 Per cent
	16 S Share GDRP in non-primary sectors	2006 Per cent	
	17 D Growth of GDRP share in non-primary sector	1994-2006 Per cent	



Indicators	Description	Year	Unit		
Employment	18 D	GDRP non-primary sectors annual growth	1994-2006	Per cent	
	19 S	Population engaged in industrial sector	2006	Per cent	
	20 S	Share of population engaged in industrial sector	2006	Per cent	
	21 D	Growth of population share engaged in industrial sector	1994-2006	Per cent	
	22 D	Population engaged in industrial sector annual growth	1994-2006	Per cent	
	23 S	Population engaged in service sector	2006	Per cent	
	24 S	Share of population engaged in service sector	2006	Per cent	
	25 D	Growth of population share engaged in service sector	1994-2006	Per cent	
	26 D	Population engaged in service sector annual growth	1994-2006	Per cent	
Social	Population by education attainment	27 S	Share of population graduated from high school and university	2006	Per cent
	Unemployment	28 D	Unemployment annual growth	1994-2006	Per cent
		29 S	Employment rate	2006	Per cent
Political	Political intervention	30 S	Rank of political intervention		

Note.

S: static (is situation in one exact period)

D: dynamic (indicates changes between two time series)

Detailed indicators and data compilation can be seen in appendix C

Geographical conditions should also be considered as an important factor to examine speed of urbanization. Regions with a lot of physical constraint namely disaster prone areas, protection zones for agricultural as well environmental purposes, and located in hilly areas normally indicated by a slope >25 per cent are considered to have significant physical constraints and not suitable to be developed for particular urban activities.

In economic terminology, urbanization is highly related to measurement in GDRP, employment as well as industrialization (Fik, 2000: 31-39). Performance of the non-primary sector in GDRP, contribution of people engaged in non-primary activities as well as growth of industries indicates urbanization that is taking place. The high share of non-primary sector activities shows a dominant urban character. In contrast, the high contribution of primary sectors (mainly agriculture) both in GDRP and employment as well as low growth of industrial activities indicates main features of rural.

In the third category, education attainment and unemployment level is used to represent the social category. The share of people with high education attainment in employment are likely to show more opportunities that employment is being absorbed in the non-primary sector (industrial and service sector) as many people engaged in agricultural activities have low education



levels. Unemployment is also considered as important to identify the rural or urban character of places. A high rate of unemployment indicates that industrialization (a main sign of urbanization) that occurred in such area is not adequate enough to absorb a labour force that is initially supposed to work in agricultural activities.

Political intervention, the last category, considered as a prominent indicator as it was found out that policies which are derived from political value contribute a significant role in driving the pace and giving direction to urbanization. As politics is acknowledged more in a qualitative value, dummy variables are used to indicate political intervention in the clustering analysis. More political intervention indicated from any related policy documents to force development in a particular region is appreciated by a higher value in the analysis (the highest value is 2), and vice versa, less political intervention is appreciated by lower value (the lowest value is 0).

6.3 Cluster Solution and Dendogram Interpretation

After comparing the methods of hierarchical with single linkage clustering, complete linkage clustering, group-average clustering, centroid clustering, median clustering, Wards' clustering, and K-means (non hierarchical) clustering, it was determined that Ward's method with its squared Euclidian distance and z score standardization was the most well suited. A lot of previous research using cluster analyses also highlights the efficiency of Ward's method compared to other methods (Aldenderfer and Blashfield, 1984, Hair et al, 1987; Everitt, 1993; Hill et al, 1998). Using PASW Statistics 18, Figure 6.3 shows dendogram as the final result of cluster analysis.

The Z-score is the common method of standardization which was used in applying Ward's hierarchical method. In principal, Z-score standardization weighs each value of variable X_i against means of variable X . Then, the result is divided by the standard deviation of each variable, σ . The formula is:

$$Z = (X_i - X) / \sigma$$

One important assumption in applying Z-score standardization is that the data should be normally distributed (Kaufman and Rousseeuw, 1990). This also may explain why variable assessment in previous step highly considers the distribution of the data.

To determine how 'close' or how 'far' a distance is among cases in the cluster, the squared Euclidian Distance method was applied. The squared Euclidian Distance formula is the most common method for continuous data (Everitt,



1993). In addition to that, this calculation is highly recommended to be used in Ward's hierarchical methods (Kaufman and Rousseeuw, 1990. Everit, 1993).

Derived from 30 variables mentioned in Table 6.1, called typology, Table 6.2 summarizes list of indicators to describe performance of rural-urban interface in the study area. From examining the dendrogram based on the explanation in Table 6.2, four main groups were then identified (see Figure 6.3). First, 16 districts were identified as being highly rural. In regard to the physical

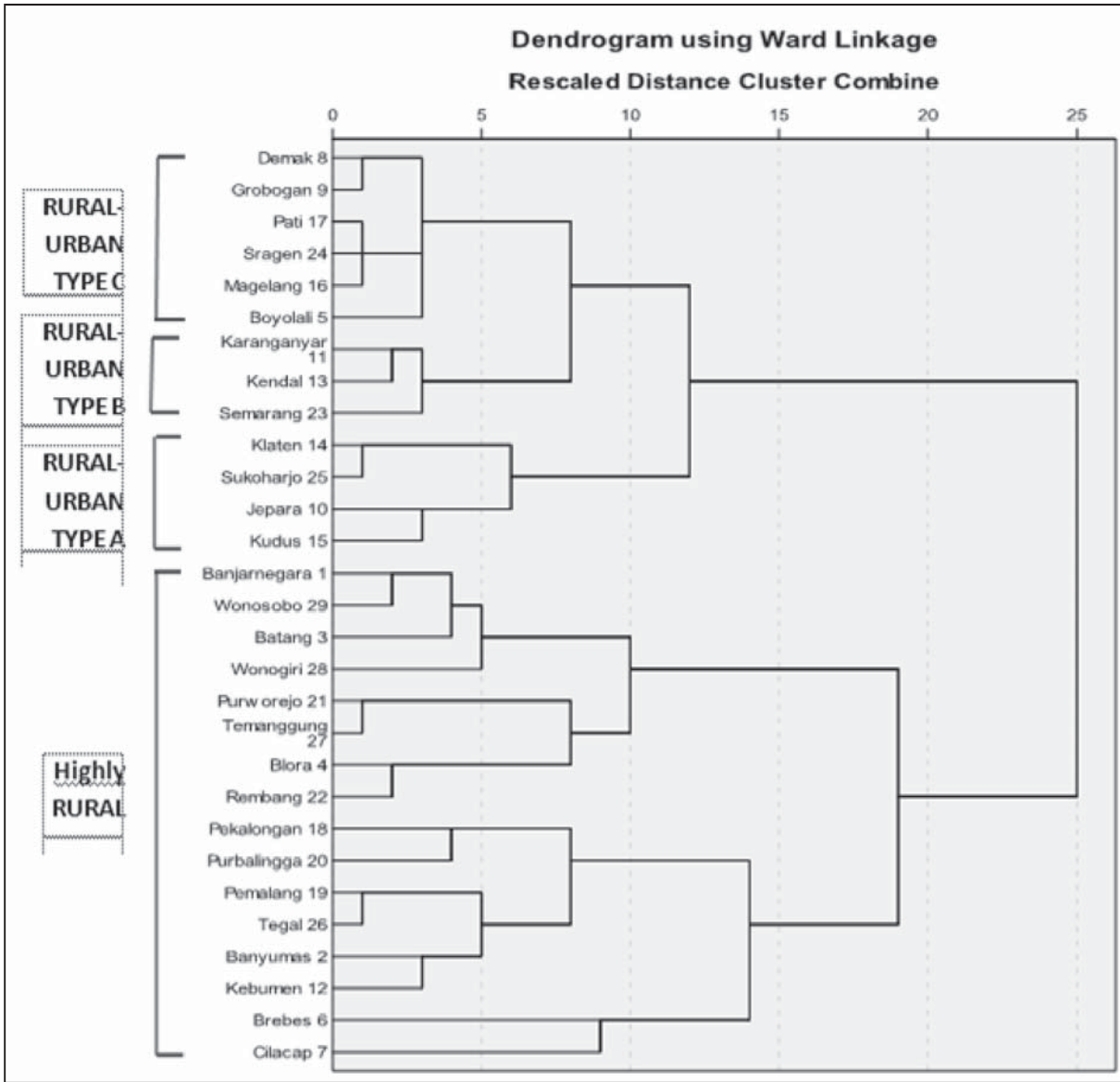


Figure 6.3 Final Cluster Solution

environment aspect, they are mainly characterized by a relatively low share of population categorized as living in urban region, a low share of built-up area mostly located in remote area as they are located in relatively hilly places, far from the closest growth centre and airport facility. Due to this physical limitation, the activity of this district has a greatly agricultural dominance. In



another words, these districts are not favourable for industrial development. Moreover, these districts also have a very low share of people who have graduated from high school or university. This low level of education has led to high average unemployment growth as well as a low employment rate.

Table 6.2 Typology to Explain the Performance of Rural-Urban Interface in the Study Area

	Physical Environment	Economy	Socio - Politic
Static	<ul style="list-style-type: none"> - Number of people defined as living in urban areas - Share of built-up area - Distance average to the closest urban centre - Distance average to the closest airport - Share of limitation area includes: environmental protection area, agriculture protection area, disaster prone area 	<ul style="list-style-type: none"> - Share of industry and service sector in the GDRP - Contribution of industry and service sector in the provincial level GDRP - Share of employment engaged in the industry and service sector - Contribution of employment engaged in the industry and service sector in the provincial level 	<ul style="list-style-type: none"> - Share of population that has graduated from high school and university - Employment rate - Political intervention by ranking (dummy variable)
Dynamic	<ul style="list-style-type: none"> - Growth of built-up area 	<ul style="list-style-type: none"> - Annual growth of non-primary sector in GDRP - Growth of the GDRP share in the non-primary sector - Annual growth of employment engaged in industry and service sectors - Growth of share of employment engaged in industry and service sectors 	<ul style="list-style-type: none"> - Unemployment growth

In addition to these 16 districts characterized above, there are six districts classified as Rural-Urban Type C which have a very similar character to the highly rural districts. The reason it could be classified as rural-urban is due to the physical character of the districts. These districts have a high share of urban population, are not located in remote areas which mean closer to urban centres and airport facilities than the highly rural districts, and are located in flat area that subsequently only occupy a very small area defined as located in high limitation zone. However, the economic features of the districts are highly rural or still dominated by agricultural activities.

The most significant character of rural-urban regions appears in seven rural-urban districts called Rural-Urban Type A and Type B. This is indicated from at least two obvious indicators. There is a high contribution of industrial sector in the GDRP and a significant share of employment in the non-primary sector. These districts are categorized into two different groups.

The first is Rural-Urban Type A, which is characterized by a quite significant involvement of smaller industry activities. It is mainly characterized by a



relatively lower contribution of GDP industry but a higher contribution of employment in the industrial sector. These districts are not necessarily located in the urban fringe districts and are not necessarily supported by political will to create these districts as a growth pole in the provincial level. The second is Rural-Urban Type B, which is characterized by the dominant role of big manufacturing industries. The dominant features of these districts are a high contribution to the GDP industry with relatively low employment level in this industrial sector, are located in an urban fringe area, and are supported by strong political will mostly to push the provincial economic growth.

However, there are also some similarities between Rural-Urban Type A and Type B. They both have a relative high share of people who have graduated from high school and university as compared to the Highly Rural Region and Rural-Urban Type C. They are also located in a relatively flat area and have good access to the closest urban centres and airport facilities.

Figure 6.4, Figure 6.5, and Figure 6.6 illustrate the performance of each typology in physical environment, economy, and social aspect. Following that, Figure 6.7 summaries the whole dendrogram interpretation.

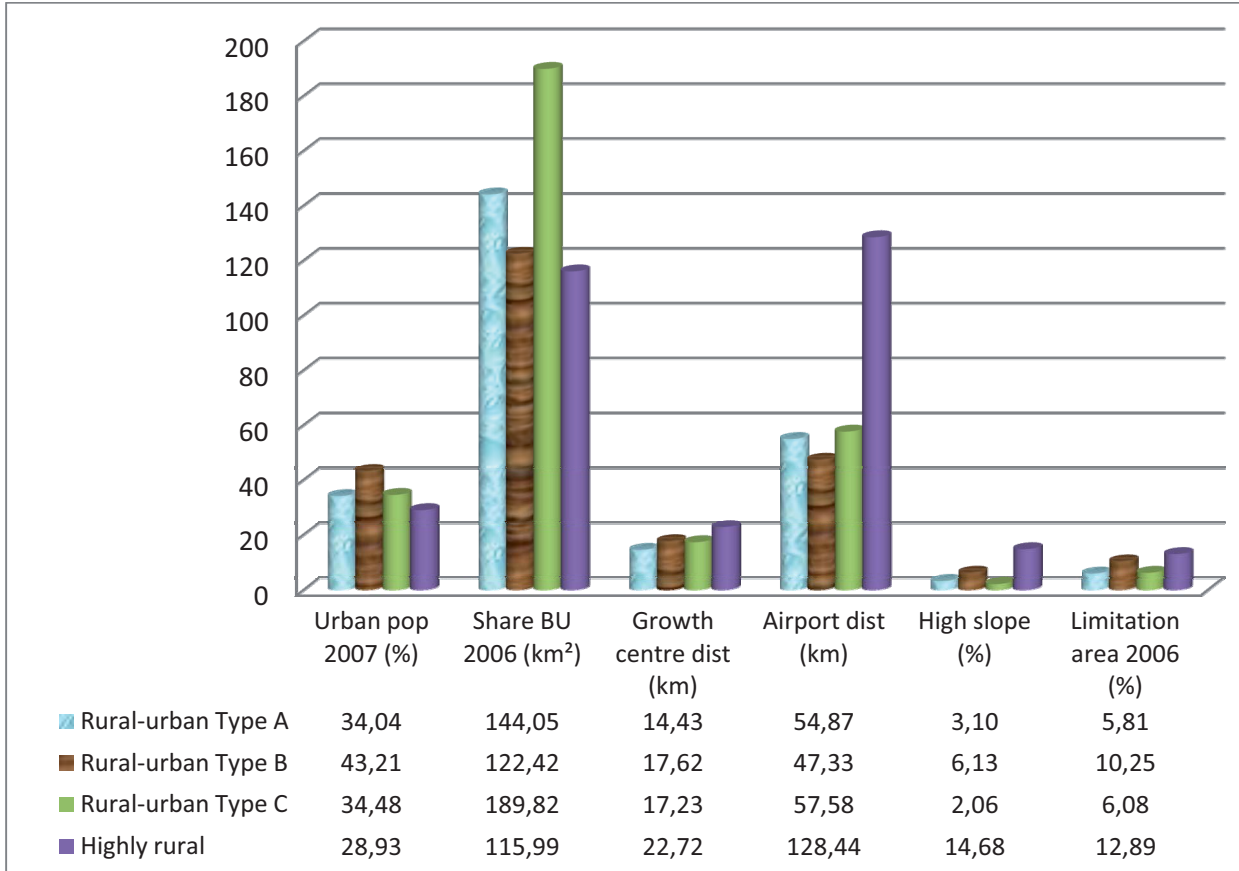


Figure 6.4 Physical Environment Feature Based on Selected Variables

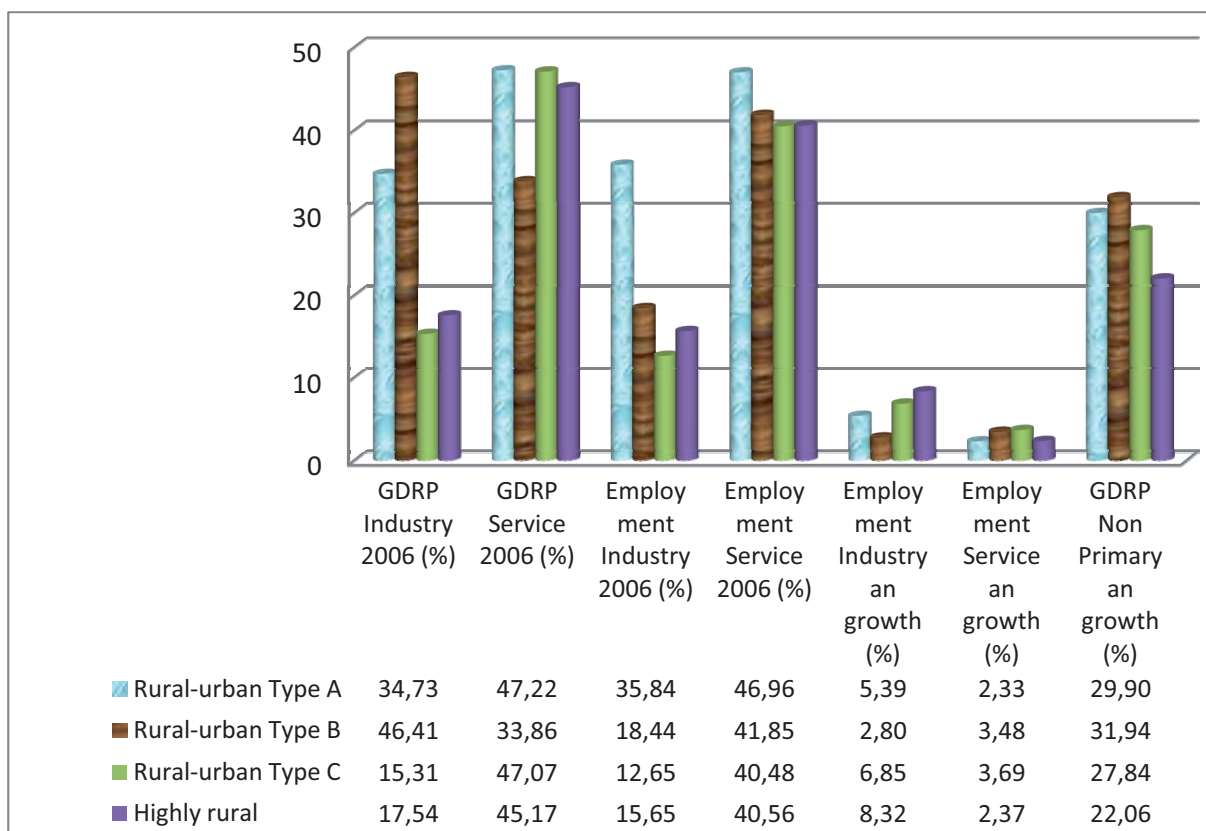


Figure 6.5 Economy Feature Based on Selected Variables

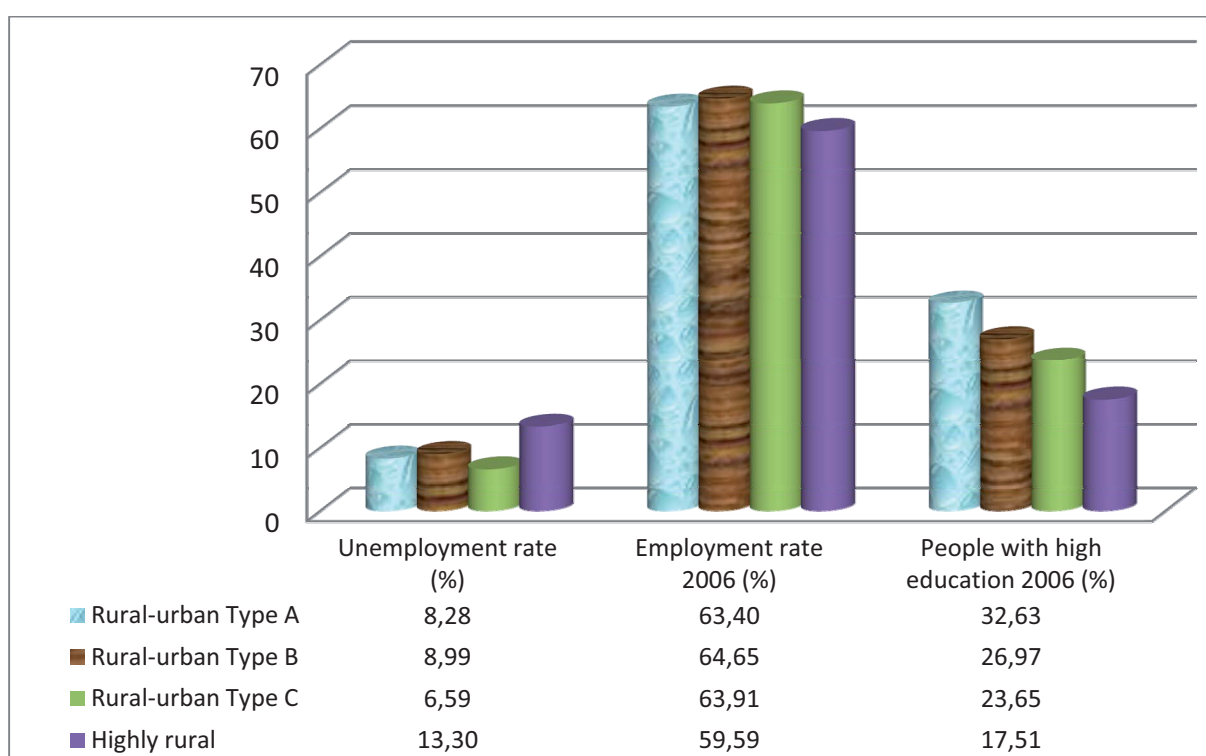


Figure 6.6 Social Feature Based on Selected Variables

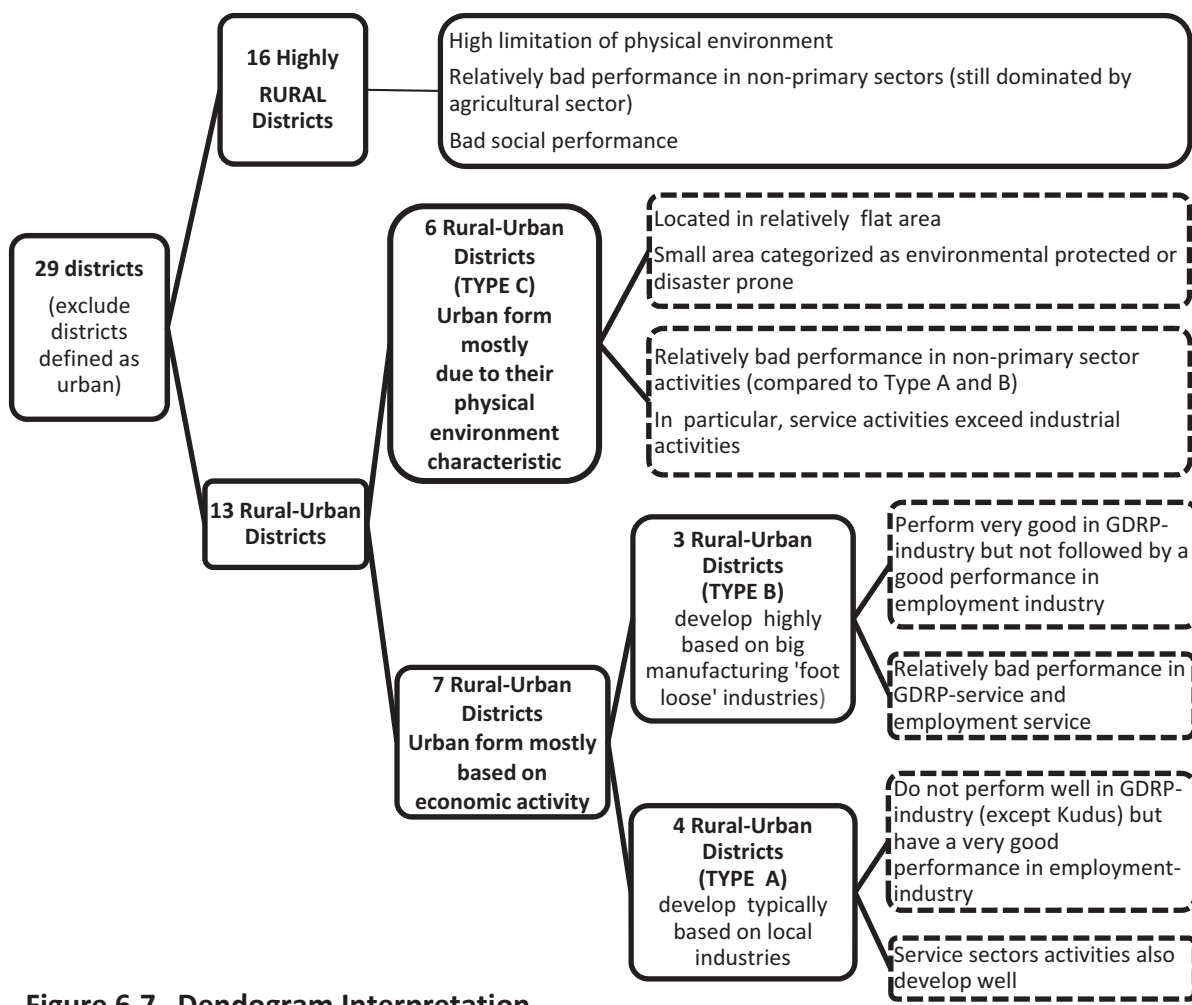


Figure 6.7 Dendrogram Interpretation

As explained in Figure 6.5 and Figure 6.7, one obvious difference between Rural-Urban Type A and Type B is in regard to their industrial activity. Figure 6.8 and Table 6.3 gives detail on the different performances between Rural-Urban Type A and type B based on GDRP-industry, employment-industry and number of industries in 2006. As can be seen in the table, the total number of industries as well as the employment in the industrial sector in Rural-Urban Type A is higher than in Rural-Urban Type B. However, Figure 6.8 shows that except for Kudus, GDRP industry in Rural-Urban type A is lower compared to Rural-Urban Type B. It is identified that Kudus is the only district that has a relatively positive balanced performance between the GDRP and employment.

From examining the data further, two different industrialization paths in the province are then identified. The first is industrialization that is characterized by large manufacturing industries with relative high productivity. Mostly they are located on the urban fringe or in part of the extended metropolitan region (EMR). The second is industrialization influenced by smaller industries with



lower productivity; these are not necessarily located near to or as part of the metropolitan area.

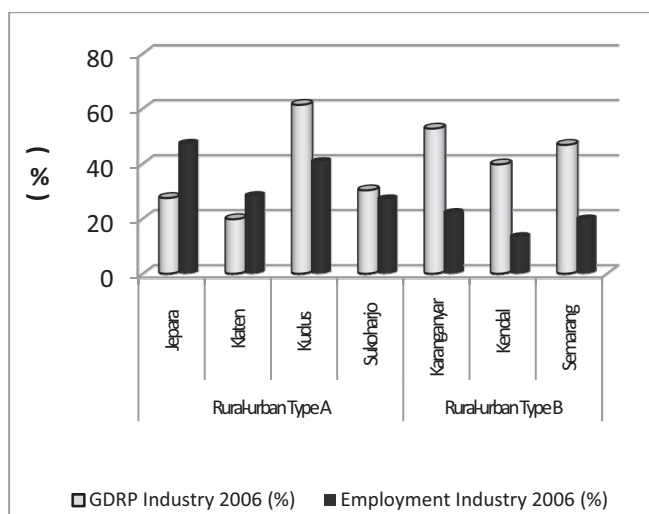


Figure 6.8 Performance of Industrial Activities Based on GDP and Employment in Selected Districts, 2006 (%)

Source: CBS, 2006a

Table 6.3 Number of Industry in Selected Districts, 2006

	Medium industry	Large industry	Total
Rural-Urban Type A			
Jepara	644	70	714
Klaten	406	23	429
Kudus	130	79	209
Sukoharjo	154	60	214
Rural-Urban Type B			
Karanganyar	104	79	183
Kendal	39	19	58
Semarang	98	60	158

Source: CBS, 2006

Rural-urban regions (Rural-Urban Type B) that are characterized by big manufacturing industries (see Table 6.3) are potentially 'footloose' in character. This industrialization is mostly guided by propulsive industries that do not generate significant backward and forward linkages with the local economy, but play a very important role in accelerating the economic growth as they significantly contribute to the regions' GDP. In addition to that, as these manufacturing activities develop with a high demand for cheap labourers, they attract so many low-educated migrants not only from the surrounding regions, but also from almost all lagging regions across the country. In the end, it results in a high level of migration to particular urban centres and creates disparity among regions.

In contrast, as mentioned in the previous part about 'endogenous urbanization', the emerging type of Rural-Urban Type A may provide evidence that industrialization does not necessarily take place in the urban fringe area based on big and foreign based industries. Small to medium industries with significant endogenous potential should be highly considered to accelerate industrialization particularly in areas relatively far from the growth centre (see Figure 6.9). Local based industrialization that is mostly characterized by cottages and small to medium sized industry should be acknowledged as an effective way to distribute development more evenly to the whole region. Moreover, this type of industrialization is likely to have a more robust configuration in a sense that they have more 'local' content compared to big



manufacturing industries that are largely based on foreign investment. Rural-Urban Type A includes districts that have particular developed local industries.

As an example, Jepara followed by Klaten and Sukoharjo are very famous for their export oriented wooden furniture industry. Klaten also has various marketable handicraft products as well as developed metal industries. In addition, Kudus has been developing based on its famous cigarette ‘propulsive’ industries, and has textile and food industries that have been established and the products are marketed not only nationally but also on an international level. All of these industries are mostly characterized as small or medium-sized local-based enterprises. Some of them formed as small to medium industrial clusters that were already supported by well-built backward and forward linkages (value chains) in which they can produce their products efficiently (Handayani, 2003).

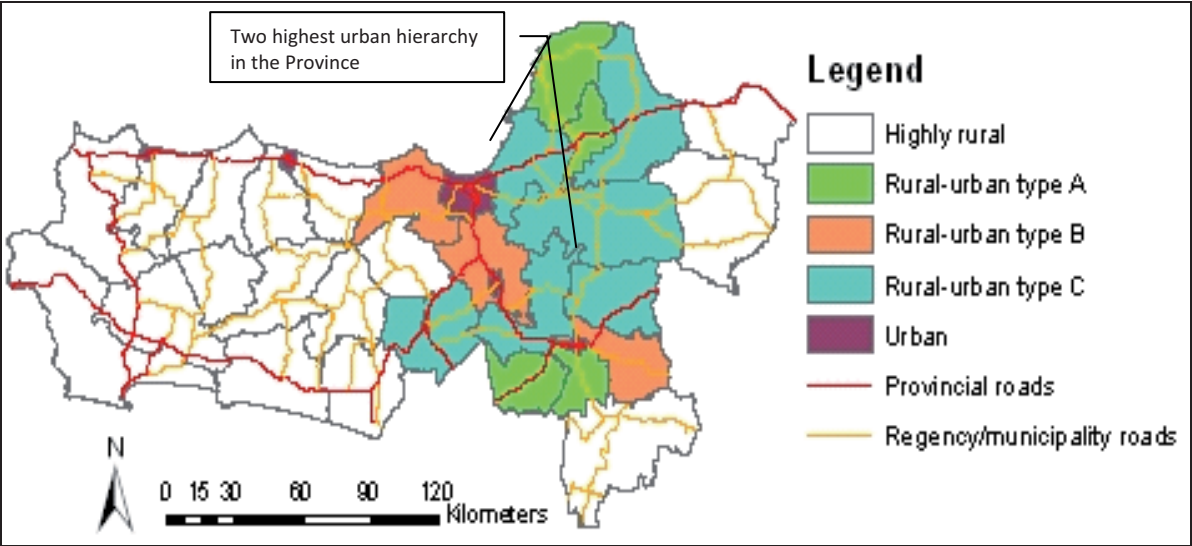


Figure 6.9 Cluster Interpretation

Source: Dendrogram interpretation



Figure 6.10 An illustration of Typical Rural-Urban Region Located in the Urban Fringe (± 20 km from the city centre)

Interpretation of the cluster solution is summarized in Table 6.4.

Table 6.4 Summary of Explanation of Final Cluster Solution (exclude six districts defined as urban)

	Physical Environment	Economy	Social
16 Highly RURAL Districts	<ul style="list-style-type: none"> - Low share average of urban population - Low contribution to total Provincial built up area - Relatively remote (have long distance average to the closest growth centre) - Relative faraway from closest Airport - Located mostly in hilly area - Large area defined as high limitation zone 	<ul style="list-style-type: none"> - Very low share of GDRP industry, significant to be compared with share of GDRP service - Relative low share of employment in industry and service sector - Have the highest annual average growth rate of employment industry but relative low growth for employment in service sector - Have relative low average of annual growth of GDRP non-primary (quite similar with Rural-Urban Type C) 	<ul style="list-style-type: none"> - High average of unemployment growth, significant compared to rural-urban districts - Low employment rate - Low share of people graduated from high school or university.
Rural-Urban Type A (3 Districts)	<ul style="list-style-type: none"> - High share average of urban population - Relative high contribution to total provincial built up area - Have the shortest distance average to the closest urban centre - Relative close to Airport - Low share of hilly area - Relative small area defined as high limitation zone 	<ul style="list-style-type: none"> - Relative high share of GDRP industry - Occupy the highest share of GDRP service - Occupy the highest share of employment in industry and service sector. - Relative high average annual growth in employment industry particularly in comparison with growth of employment in service sector - Relative high annual growth average of GDRP non-primary 	<ul style="list-style-type: none"> - Relative high unemployment annual growth and in average employment rate - Have the highest share of population graduated from high school and university
Rural-Urban Type B (4 Districts)	<ul style="list-style-type: none"> - Have the highest share average of urban population - Occupy the lowest share average of built up area compared to other types of rural urban districts - Have short distance average to closest urban centre - Occupy the shortest distance to nearest Airport. - Low share of hilly area - Have relative large area defined as high limitation zone compared to other rural-urban districts 	<ul style="list-style-type: none"> - Have the highest share of GDRP industry, significant to be compared with share of GDRP service - Relative low share of employment industry, also significant to be compared with share of GDRP service - Occupy the lowest rate of annual average growth in employment industry, but relative high growth for employment in service sector - Have the highest average annual growth of GDRP non-primary 	<ul style="list-style-type: none"> - Occupy the highest unemployment annual growth compared to other rural-urban districts but the highest in average employment rate - Relative high share of people graduated from high school and university
Rural-Urban Type C (6 Districts)	<ul style="list-style-type: none"> - High share average of urban population - Occupy the highest share average of built up area - Have short distance average to closest urban centre - Relative close to Airport - Located mostly in flat area - Relative small area defined as high limitation zone 	<ul style="list-style-type: none"> - Very low share of GDRP industry, significant to be compared with share of GDRP service. - Relative low share of employment in industry and service sector - Have relative high annual average growth rate of employment industry, but relative low growth for employment in service sector - Have relative low average of annual growth of GDRP non-primary (the lowest among rural-urban districts) (quite similar with highly rural districts) 	<ul style="list-style-type: none"> - Occupy the lowest unemployment annual growth, and in average employment rate - Low share of people graduated from high school or university compared to other rural-urban districts.



6.4 Cluster Validation based on Discriminant Analysis

Discriminant analysis has a very similar character to cluster analysis in the sense that both techniques are related to grouping of particular objects. However, there are some principal differences in which cluster and discriminant analysis can be used both complementary (Bailey, 1994: 73-75). In the first step, cluster analysis is used to form groups or clusters. Then, discriminant analysis is applied to check the validation of the groups created based on clustering technique. The main purpose of discriminant analysis is to examine membership of group based on a set of measurable criterion. Accordingly, there are two fundamental types of variables in applying this analysis. First is a grouping indicator (categorical variable) to identify group. Second are criterion variables which are applied to calculate the membership validation of a group (Huberty, 1994:3-4). Concerning this explanation, it is very reasonable to use discriminant analysis as a cluster validation technique.

To check the validation of the dendrogram explained in the previous part, two types of discriminant analyses are used. The first is to apply all the variables into the analysis. The second is to use a stepwise approach in which only selected variables are used to validate the clustering result. Both approaches are necessary for following reasons:

- It is relevant to know the validation of clustering using all the variables as the input data. However, as Huberty (1994: 96-98) explains, to have valid hit-rate estimation the number of sample size (case → districts) should be large enough or $n \geq 5p$ or number of cases should be five times higher than the number of variables.
- Considering the number of cases in the respective calculation is only 29 while the numbers of variables are 30, a stepwise approach is used. In this type, only variables that fulfill the discriminant analysis criteria such as correlation and covariance values are put into account.

As used in developing cluster interpretation, categorical variables are divided into four groups. They are:

- 0 for Highly Rural Districts
- 1 for Rural-Urban Type C
- 2 for Rural-Urban Type B
- 3 For Rural-Urban Type A

30 variables that are used in creating clusters then are all applied as a criterion data set. Table 6.5 and Figure 6.11 are the final results of discriminant analysis by using all the variables, Table 6.6 and Figure 6.12 are the final results of discriminant analysis by using stepwise approach.



Examining the end result of discriminant analysis, it was found out that the group formed by applying cluster analysis has a good validation performance. By using all variables together, all cases (districts) have already been placed in the most suitable group. Slightly different, by applying stepwise approach, there are two districts categorized as misplaced by discriminant validation techniques as only 93.1 per cent of cases were correctly classified. There are two districts (Purworejo and Wonogiri), according to the calculation, which should be placed in Rural-Urban Type C instead of in the highly rural districts. Considering the result differences between applying all variables and stepwise approach, the following part then further analyzed the robustness of the four groups of dendrogram solution.

Table 6.5 First Final Result of Discriminant Analysis by Entering All Criterion Variables

Variables Classification Results^a

		VAR00001		Predicted Group Membership				Total
Original	Count			.00	1.00	2.00	3.00	
		dimension2	.00	16	0	0	0	16
			1.00	0	6	0	0	6
			2.00	0	0	3	0	3
			3.00	0	0	0	4	4
	%	dimension2	.00	100.0	.0	.0	.0	100.0
			1.00	.0	100.0	.0	.0	100.0
			2.00	.0	.0	100.0	.0	100.0
			3.00	.0	.0	.0	100.0	100.0

a. 100,0% of original grouped cases correctly classified.

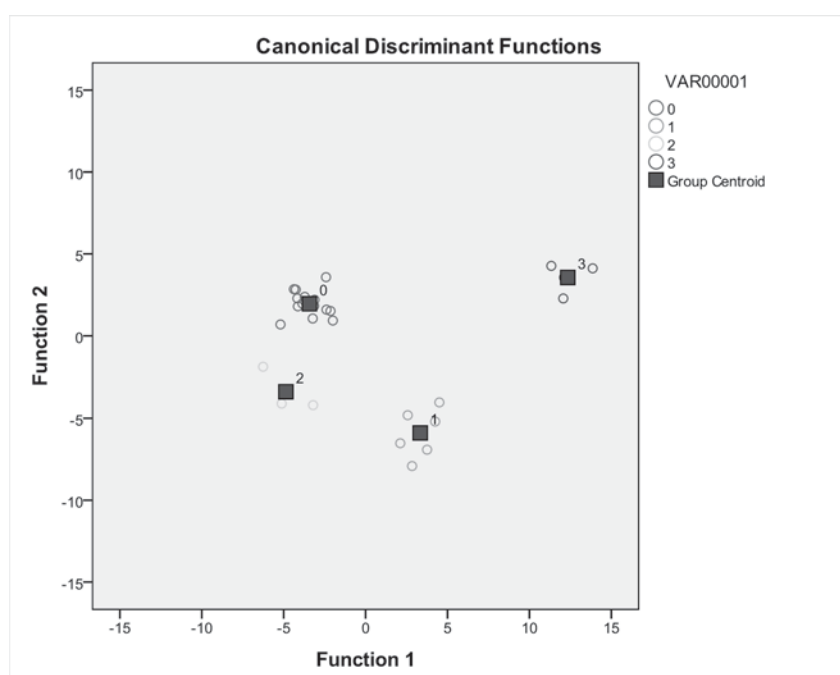


Figure 6.11 Combined-Groups Plots by Entering All Criterion Variables



Table 6.6 Second Final Result of Discriminant Analysis by Using Stepwise Method

Classification Results^a

		VAR00001		Predicted Group Membership				Total
				.00	1.00	2.00	3.00	
Original	Count	dimension2	.00	14	2	0	0	16
			1.00	0	6	0	0	6
			2.00	0	0	3	0	3
			3.00	0	0	0	4	4
	%	dimension2	.00	87.5	12.5	.0	.0	100.0
			1.00	.0	100.0	.0	.0	100.0
			2.00	.0	.0	100.0	.0	100.0
			3.00	.0	.0	.0	100.0	100.0

a. 93,1% of original grouped cases correctly classified.

Note:

The calculation is only based on selected variables namely:

Slope 0-8%, Slope 8-15%, Population engaged in industrial sector (%), Share of population graduated from high school and university, Rank of political intervention

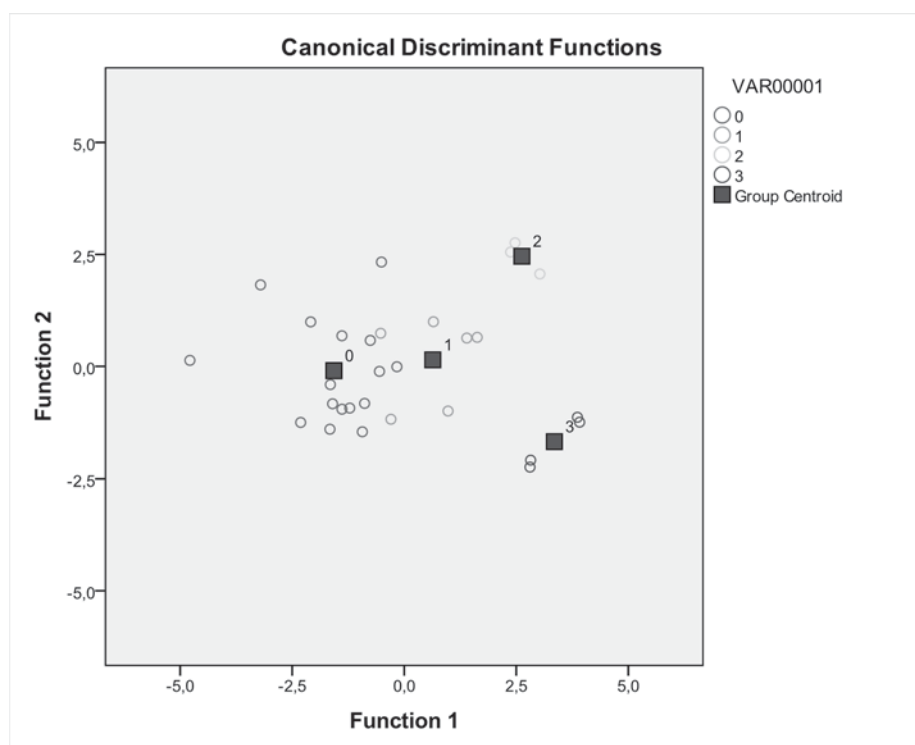


Figure 6.12 Combined-Groups Plots by Using Stepwise Method

6.5 Robustness Analysis of the Clustering Solution

As the interpretation of clustering results is highly subjective, it then becomes an important step to assess the clustering solution. One alternative way to make the assessment is mainly to check the stability of the clustering solution by dividing the data into sub-sets and analyzing it separately (Everitt, 1993:143). Table 6.7 shows the list of districts based on their performance in each aspect. The three aspects are then divided into two sub groups as this will give more detailed features of each district.



Comparing the final dendrogram which is produced based on consideration of all variables in the same time with examination of variables for each aspect as described on the Table, there are few irregularities which are identified.

Following are the explanation of the irregularities:

- Not all highly rural districts located in high limitation areas have an apparent character of non-primary economic activity and one district has good social performance. This indicates that characteristics of highly rural districts are not really homogenous.
- Physical character does not really influence the performance of non-primary activity in the region as six out of 13 districts that perform well in non-primary activities were located in high limitation area.
- Social performance is relatively significant to indicate group differentiation. As shown in the Table 6.7, districts with bad social performance belong to highly rural and Rural-Urban Type C sub groups. Only one district (Jepara) which actually has a bad social performance belongs to Rural-Urban Type A.

Three points mentioned above indicate a possibility to furthered examine the final cluster in smaller groups instead of only considering it in four group solutions. But, as Ketchen and Shook (1996) has mentioned, the interpretation of the dendrogram is highly dependent on the aim of creating the cluster. As it is recognized that the aim of clustering has already achieved a clear interpretation then the group's solution is considered as adequate.

Table 6.7 Robustness Analysis of the Final Cluster Solution

Districts	Physical Environment		Economy		Social	
	I	II	III	IV	V	VI
HIGHLY RURAL						
Banjarnegara		√		√		√
Banyumas		√	√			√
Batang		√		√		√
Blora	√			√		√
Brebes		√		√		√
Cilacap		√	√			√
Kebumen		√		√		√
Pekalongan		√	√			√
Pemalang		√	√			√
Purbalingga		√		√		
Purworejo		√		√	√	
Rembang	√			√		√
Tegal		√	√			√
Temanggung		√		√		√
Wonogiri		√		√		√
Wonosobo		√		√		√



Districts	Physical Environment		Economy		Social	
	I	II	III	IV	V	VI
RURAL-URBAN						
TYPE A						
Jejara		√	√			√
Klaten	√		√		√	
Kudus		√	√		√	
Sukoharjo	√		√		√	
TYPE B						
Karanganyar		√	√		√	
Kendal		√		√	√	
Semarang		√	√		√	
TYPE C						
Boyolali	√			√	√	
Demak	√		√			√
Grobogan	√		√			√
Magelang		√	√		√	
Pati	√		√			√
Sragen	√			√	√	

Notes:

- I. Low limitation area:
Relative flat, small area categorized as environmental protected/disaster prone
- II. High limitation area
Relative hilly, large area categorized as environmental protected/disaster prone
- III. Apparent character in non-primary sector
- IV. Apparent character in primary (agricultural) sector
- V. Good social performance
Low unemployment annual growth, high employment rate, high share of educated people
- VI. Bad social performance
High unemployment annual growth, low employment rate, low share of educated people

6.6 Rural-Urban Transition in Central Java Province: Some Discussions on Clustering Result

6.6.1 Urbanization and Rural-Urban Transition: the Need to Seek more Balanced Patterns

In Rotmans et al (2001), transition is defined as a “gradual, continuous process of structural change within a society or culture”. A transition is a change of the “core” of the system and its development can vary in speed, length and scope. According to this terminology, rural-urban transition essentially refers to a changing process in which it could be differ in character among regions.

Urbanization which is highly correlated to the terms of rural-urban transition has led to a particular feature of rural-urban interface in Central Java. The cluster solution shows the industrialization that is considered as a prominent indicator in examining the transition process occurs in at least two different paths. The first path could be defined as urbanization from above in which the transition takes place as a part of the urban growth process and is mostly



derived from the development of foreign based manufacturing industries. The second could be defined as urbanization from below where rapid (mostly local based) industrialization that leads to a particular type of urban transition occurs far from the highest hierarchy of urban centre and dominated by smaller scale industry.

The existence of 'ordinary' urbanization from above and significant numbers of districts categorized as highly rural give evidence that the previous policy which has been applied has led to a concentrated spatial development pattern. This pattern indicates an unbalanced development path in the region. However, the emerging of urbanization from below should be considered as a positive sign to reduce disparity in the region. Regarding this, following parts further examine different transition paths that are taking place in the Province based on some selected indicators. It is essential to examine how the transition that has been happening will lead to wealth for the people as well to the region as a whole in the future.

The rural-urban transition that occurred in the study area is analyzed by comparing values of several variables i.e. population, economic, social, and land use in each subgroup resulted from cluster analysis to comprehend the transition process more comprehensively. Besides the purely urban and rural area, there are three rural-urban sub groups; Rural-Urban Type A refers to the form of urbanization from below, rural urban type B refers to form of urbanization from above, and Rural-Urban Type C that is categorized in between urbanization from above and below as this sub group mostly defined as rural-urban area not really based on its economic character but more in physical features.

6.6.2 Rural and Urban Population Changes

The rural-urban transition process could be indicated by shifting of the population defined as living in rural or urban areas. In Central Java, there was a significant change of rural and urban population formation between 1971 and 2000 (see Table 6.8). While in 1971 the province was still predominantly rural as almost 90 per cent of total population was categorized as living in rural area, the share of rural population in 2000 decreased considerably to around 60 per cent. During these three decades, rural population declined 3.9 per cent while people categorized as living in urban areas increased more than five times. Event though there was not any considerably different composition in sex ratio, from the population pyramid it can be identified that there were also significant shifts in age structures.



Table 6.8 Rural and Urban Population by Sex in Central Java, 1971 and 2000

	Rural			Urban			Rural+Urban		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1971	9,532,383	9,987,690	19,520,073	1,134,518	1,210,672	2,345,190	10,666,901	11,198,362	21,865,263
2000	9,384,275	9,373,463	18,757,738	6,035,390	6,131,036	12,166,426	15,419,665	15,504,499	30,924,164

Source: CBS, 1971 & 2000b

As taking place in most developing countries, rural and urban population pyramids in 1971 and 2000 in Central Java form expansive pyramids (See Figure 6.13).

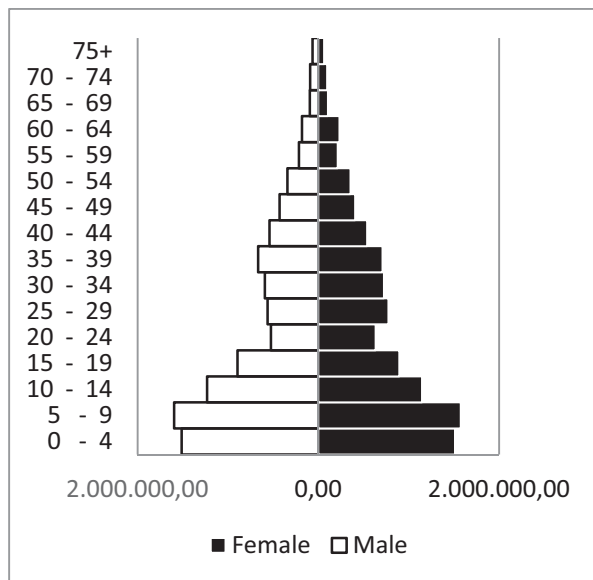


Figure 6.13a
Rural Population by Age and Sex in Central Java, 1971

Source: CBS, 1971

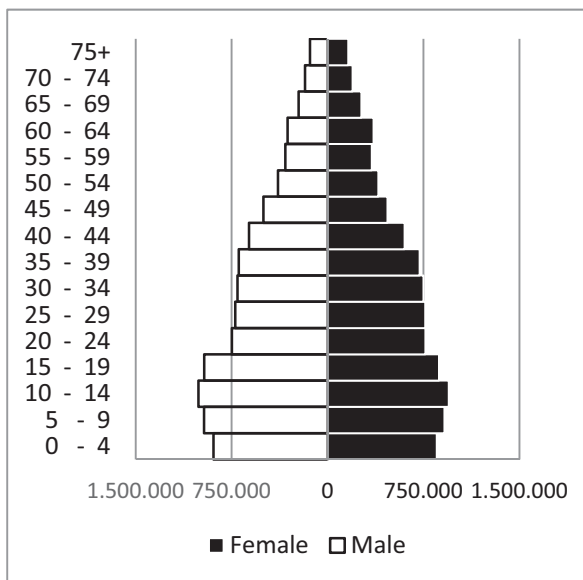


Figure 6.13b
Rural Population by Age and Sex in Central Java, 2000

Source: CBS, 2000b

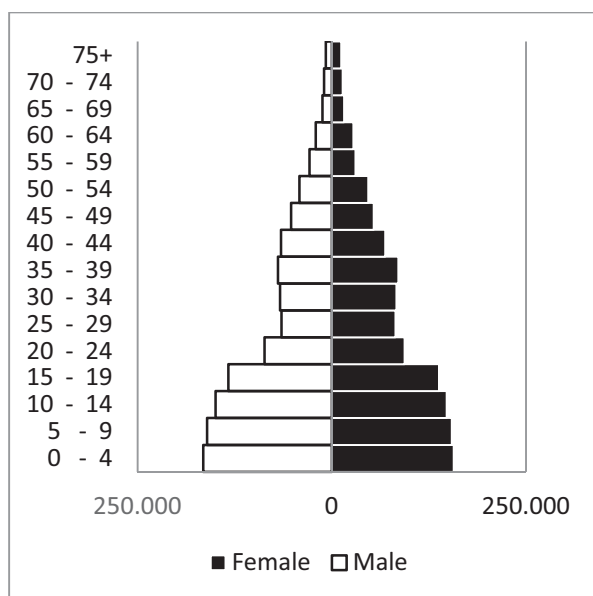


Figure 6.13c
Urban Population by Age and Sex in Central Java, 1971

Source: CBS, 1971

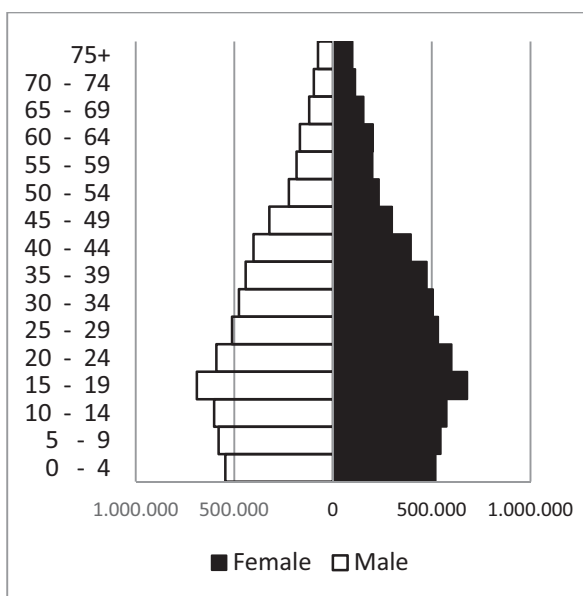


Figure 6.13d
Urban Population by Age and Sex in Central Java, 2000

Source: CBS, 2000b



In general, expansive pyramids represent greater numbers of people in younger age categories due to a high rate of fertility and the fact that the death rate is higher among older people than younger. The narrower parts at the bottom of the pyramids of 2000 than in 1971 indicate that there was a slight decline of fertility compared to the earlier era in both rural and urban areas. Following that, it is also identified that the productive age group (mostly defined as age 16-56) was more dominant in 2000 than 1971.

Concerning the shape of the pyramids, it is generally identified that Central Java can be categorized as experiencing the second stage of a transition period where the death rate has declined and fertility is still slightly high. The pyramids reveal that Central Java has experienced 'baby boomers' in the earlier decades which leads to the dominance of the working age group in the 2000s. The phenomena are likely similar between rural and urban areas instead of the fact that urban population grows at a higher speed compared to rural population. As a consequence of this population transition, working opportunities appear as an important issue in both rural and urban areas to be worked out in the current situation as well as in the near future. Following that, the education sector is also considered as a prominent agenda issue to be followed up mainly to enhance the quality of the labour force and to ensure that a dominant contribution of younger generation that is categorized as school age children have sufficient education facilities.

The population transition in Central Java can be further examined based on the results of cluster analyses. By examining Figure 6.14, it is identified that apart from dominant contribution of the urban population who live in urban districts, there is a tendency of significant urban population growth in Central Java province as a whole. Unpredictably, the highest growth of urban population took place in Rural-Urban Type A. Rural-Urban Type A is characterized as regions that are developed mostly based on local factors and not typically a form of extended metropolitan regions (EMRs) which are mostly defined as the most urbanized area following the urban districts in most developing countries. The number of urban population in Rural-Urban Type A exceeded rural population in the middle of 1990s while in the same period, Rural-Urban Type B which actually represents the extended metropolitan regions experienced a lower rate of urban growth and the inhabitants are still predominantly categorized as a rural population. Data on Table 6.9 shows that there were more numbers of urban people in Rural-Urban Type A since 1980 compared to other sub-groups except urban districts. Moreover, Figure 6.14 clearly illustrates that the growth rate of urban population in Rural-Urban Type A is more significant compared to other sub groups. Until year 2000 there were



still more people categorized as rural instead of urban in Rural-Urban Type B and even more in Rural-Urban Type C.

Data in Figure 6.14 and Table 6.9 clearly demonstrates that rural-urban population transition in the research area takes place in the region with potential endogenous resources in which are not necessarily located close to the highest urban centre in hierarchy or supported by typical foreign based industries. This is a surprising finding as population transition in Central Java occurs in a different pattern compared to other big provinces in Indonesia. Furthermore, the pattern is also clearly unlike the phenomenon that is generally recognized in developing countries as have been revealed by Jones (2002) and Douglass (2000) regarding the role of extended metropolitan regions EMRs in Asian countries.

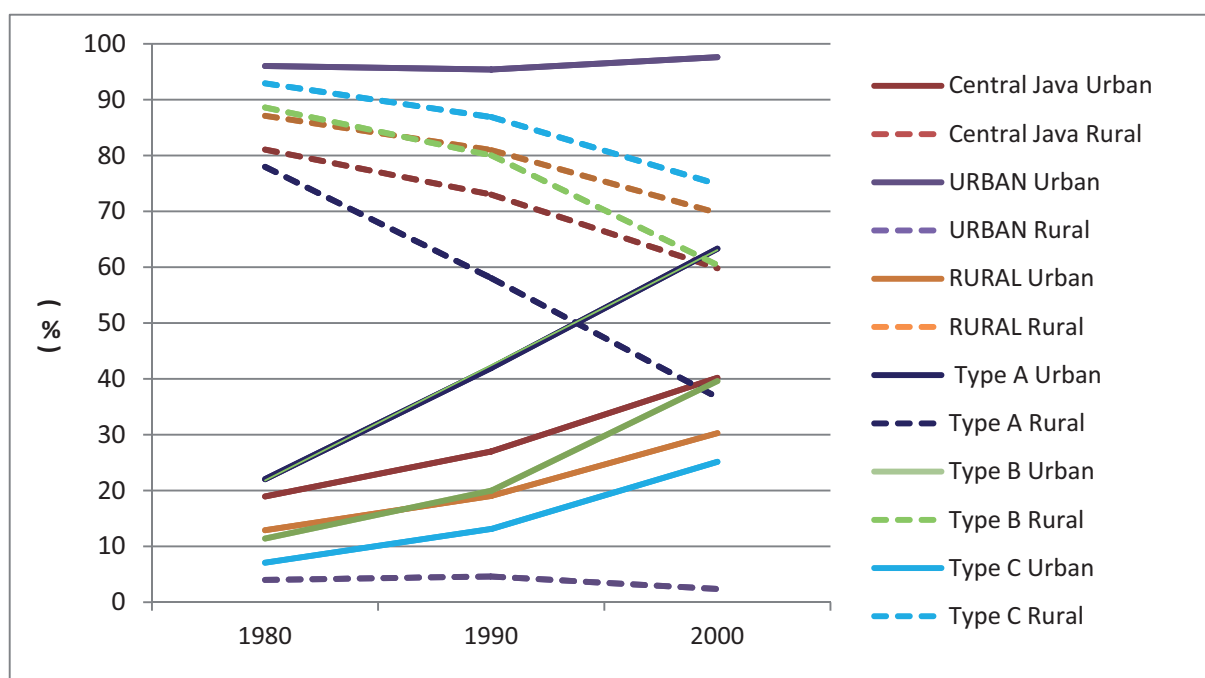


Figure 6.14 Rural and Urban Population Contribution by Groups Resulted from Clustering Analysis in Central Java Province

Note: % contribution of population represents average value of each group

Table 6.9 Rural and Urban Population in Central Java Province 1980, 1990, and 2000 (%)

	1980		1990		2000	
	Rural	Urban	Rural	Urban	Rural	Urban
Central Java	81.05	18.95	73.01	26.99	59.82	40.18
Urban Districts	3.98	96.02	4.61	95.39	2.38	97.62
Rural Districts	87.11	12.89	80.97	19.03	69.73	30.27
Rural-Urban Type A	77.96	22.04	58.05	41.95	36.69	63.31
Rural-Urban Type B	88.59	11.41	80.04	19.96	60.40	39.60
Rural-Urban Type C	92.91	7.09	86.88	13.12	74.85	25.15

Source: CBS, 1980, 1990, 2000c

Jones (2002) argues that many big cities in South East Asia including Indonesia grow very fast and therefore have experienced very rapid growth of urban population in the surrounding of these cities, which are called EMRs. As explained in Chapter Two, EMRs have resulted in primate city phenomena and have created an unbalanced form of development pattern. Four selected big cities in Indonesia, as illustrated in Figure 6.15 experienced a common pattern of population growth that is typical in most developing countries: a relatively higher population growth rate in the inner zone (closer to the capital city) compared to the outer zone. It is only Bandung-West Java and Semarang-Central Java that have experienced a relatively balanced growth rate among the core, inner zone, and outer zone.

Semarang as the capital city of Central Java has experienced relatively lower growth rates compared to other big cities in Indonesia. Furthermore, as explained in Figure 6.15 and Table 6.10, the inner zone in Central Java also experienced a lower urban population growth rate as compared to the inner zone in four other selected big cities in Indonesia.

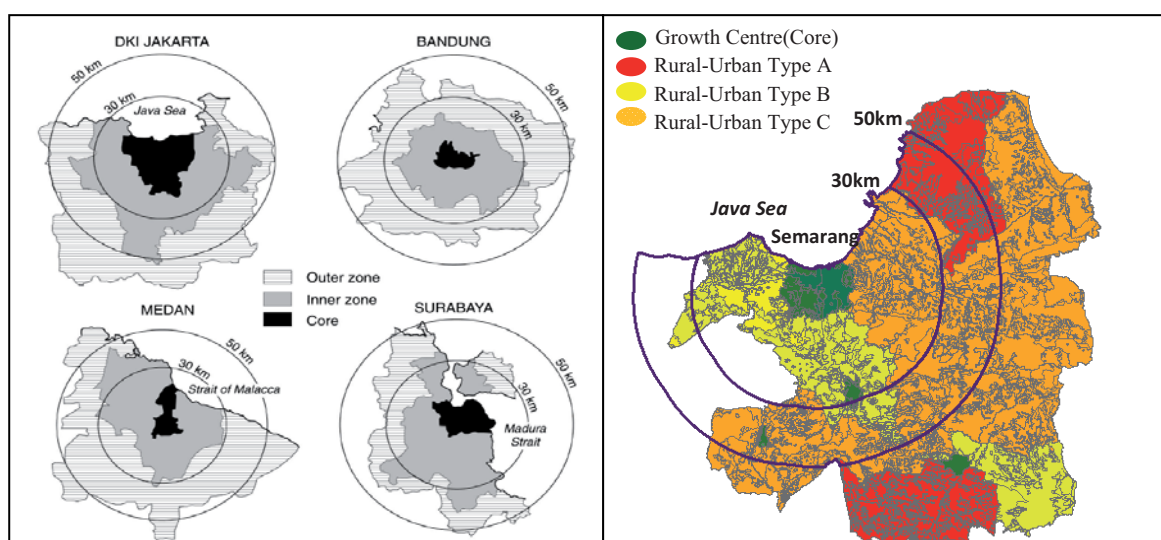


Figure 6. 15 Zones of Extended Metropolitan Regions (EMRs) in Selected Big Cities in Indonesia

Source: Jakarta, Bandung, Medan, Surabaya figures are taken from Mamas et al 2001 in Jones (2002)

Semarang figure is taken from Central Java Provincial Planning Board and Development Agency (2006)

Table 6.10 Population Average Annual Rate of Increase in Selected Big Cities in Indonesia

Capital city and zone	Average annual rate of increase (%)		
	Core	Inner Zone	Outer Zone
Jakarta	2.08	6.01	1.84
Bandung	2.75	2.93	2.77
Surabaya	1.73	2.50	0.89
Medan	1.91	5.46	0.54
Semarang	1.67	1.05	0.95

Source: Jakarta, Bandung, Medan, Surabaya data are taken from Mamas et al 2001 in Jones (2002)

Semarang data is taken from CBS,(1990 and 2000b)

Note: Average value of Jakarta, Bandung, Medan; and Surabaya are taken from data from 1990 and 1995

Average value of Semarang are taken from data from 1990 and 2000b



There are at least two explanatory factors used to understand this extraordinary population growth pattern in the study area. First, the role of foreign based manufacturing industries that are mostly located in EMRs is less dominant in Central Java compared to other developed provinces in Indonesia. It then leads to less labor in migration to the surrounding core regions in the province as in most cases; foreign-based industries attract significant numbers of laborers. In the end, this has resulted in a more controlled population growth in the area. Second, endogenous resources in particular regions in the study area have acted as a potential engine of growth. In this sense, it is not always relevant to state that rapid development is only able to occur as part of growth of a core region as in fact it has resulted in an unbalanced development path in most regions in developing countries.

Figure 6.15 clearly illustrates that Rural-Urban Type A areas are mostly developed based on more endogenous resources located relatively far from the capital city. The existence of this particular rural-urban region along with the fact that Central Java has a relatively balanced average annual rate of population gives evidence that endogenous urbanization or urbanization from below should be considered as a potential form of the rural-urban transition process.

6.6.3 Economic Structural Changes

Central Java Province has experienced noteworthy economic transition in the last three decades. In 1976, non-primary GDP has exceeded primary GDP. As described in Figure 6.16 and Table 6.11, while in 1976 primary GDP contributed around 40 per cent of the total GDP, the value declined significantly to only around 20 per cent in 2006. This shows that Central Java has developed considerably from agricultural dominance in to a more industrialized province at least by using the GDP contribution as the main indicator.

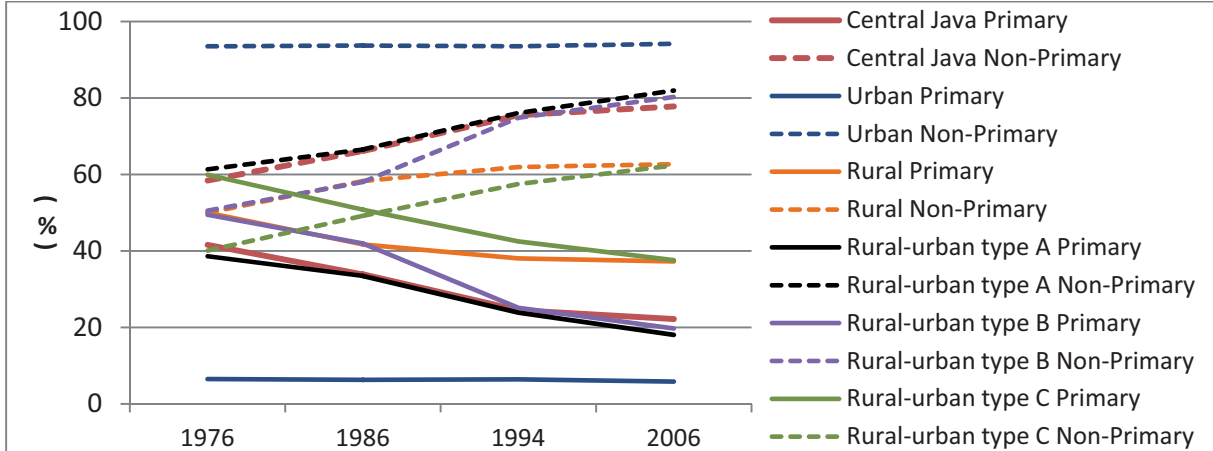


Figure 6. 16 Primary and Non-Primary GDP, Contribution by Groups Resulted From Clustering Analyses

Note: % contribution of GDP represents average value of each group

**Table 6.11 Share of GDP Based on Groups Resulted from Cluster Analysis (%)**

		1976	1986	1994	2006
Central Java	Primary	41.60	33.86	24.52	22.20
	Non-Primary	58.40	66.14	75.48	77.80
Urban Districts	Primary	6.50	6.30	6.46	5.86
	Non-Primary	93.50	93.70	93.54	94.14
Rural Districts	Primary	50.03	41.70	38.07	37.28
	Non-Primary	49.97	58.30	61.93	62.72
Rural-Urban Type A	Primary	38.65	33.47	23.90	18.06
	Non-Primary	61.35	66.53	76.10	81.94
Rural-Urban Type B	Primary	49.46	41.95	25.16	19.73
	Non-Primary	50.54	58.05	74.84	80.27
Rural-Urban Type C	Primary	59.91	50.79	42.49	37.62
	Non-Primary	40.09	49.21	57.51	62.38

Note: % share of GDP represents average value of each group

By looking further into the subgroups performance, a quite different transition path was identified between population and economic transition. Population transition has taken place considerably faster in Rural-Urban Type A areas compared to other sub groups. Differently, economic transformation has performed at a slightly similar speed, in particular, between Rural-Urban Type A and Rural-Urban Type B areas. In fact, the GDP contribution of non-primary in Urban, Rural-Urban Type A and Type B areas has passed through the primary GDP in 1976. This indicates that rapid growth industrialization as a general sign of development in an economic perspective had taken place in a good performance in this type of region. It was the only group of rural districts which reached the transformation only in the middle of 1970s and Rural-Urban Type C which actually was characterized as rural in its economy just reached the transformation in the late of 1980s.

Comparing Rural-Urban Type A that represents local potential support and Rural-Urban Type B that corresponds to the dominant role of NIDL type of industries, it is interesting to find out that both types of regions follow a quite similar economic transition path. As illustrated in Figure 6.16 and Table 6.11, between 1994 and 2006, contribution of non-primary and primary GDP is similar between Rural-Urban Type A and Type B areas. It is only the growth of the non-primary GDP contribution of Rural-Urban Type A which is more stable compared to Rural-Urban Type B. Rural urban type B experienced quite a rapid growth in non-primary GDP contributions between 1986 and 1994 and the growth then slightly declined between 1994 and 2006 mostly due to the Asian economic crisis in the middle 1990s. Another finding is that the growth of non-primary GDP contribution of rural districts was very slow, as shown in the Figure 6.16; non-primary GDP contribution in this sub group remains stagnant between 1994 and 2006.



Concerning the pattern that occurred, there are at least two important points which should be taken into account. The first is in regard to the growth pattern. Rural-Urban Type A has experienced the steadiest growth. It indicates that external circumstances do not really influence local economic performance. In contrast, Rural-Urban Type B that highly depends on external resources was relatively fragile. At least, it can be signified from a considerably lower growth rate during the crisis (middle of 1990s) compared to the former period (1976-1986) and period after the crisis (2000s). The second is in regard to the contribution performances among sub groups. There was a significant gap between the contribution of developed rural-urban regions (Rural-Urban Type A and B) and underdeveloped regions (rural-urban region type C and rural regions). These facts lead to evidence of an unbalanced development pattern that has taken place in the region.

The pattern in GDP contribution is likely to be slightly congruent with facts on economic performance based on employment in medium and large industries. As illustrated in Figure 6.17, Rural-Urban Type A has absorbed the largest number of employment in medium and large industries as well as experienced the highest growth rate of employment in these types of industries compared to other sub-groups. In the period of 1993-2006, employment in medium and large industries in this rural-urban region increased at the fastest rate, leaving behind other sub-groups quite significantly. Rural-Urban Type C which is actually comprised of 16 districts compared to Rural-Urban Type A which only consists of four districts has considerably less employment in medium-large industries. However, all sub-groups have experienced a positive growth rate which indicates that industrialization or development happens quite significantly at the provincial level.

A similar trend also has taken place in small industries (see Figure 6.18). By using both number of industries and number of employment as the main indicators, there was a significant growth in Rural-Urban Type A compared to other sub-groups. Even though rural districts contribute significantly to employment in small industries, the trend is likely to decline. The number of industry in rural districts reduced from 184,360 to 160,164 and employment declined from 436,715 to 385,215. Similar pattern also took place in Rural-Urban Type B. Number of industry decreased from 17,948 to 6,322 as well as employment reduced to a quarter of the 1993 level, from 40,911 to 14,501. It is clearly only Rural-Urban Type A followed by urban districts and Rural-Urban Type C that had performed relatively stable.

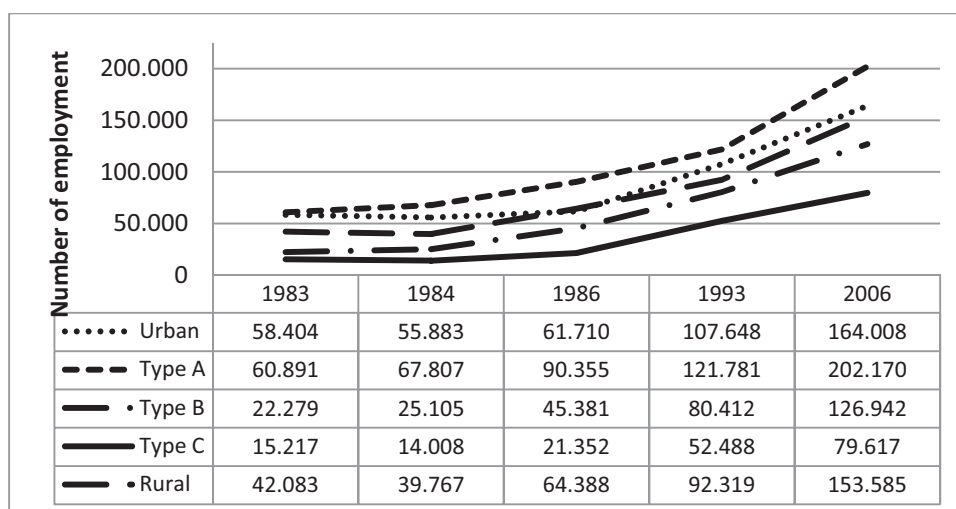


Figure 6.17 Number of Employment in Medium and Large Industries

Source: CBS, 2011, 2000c, 1990

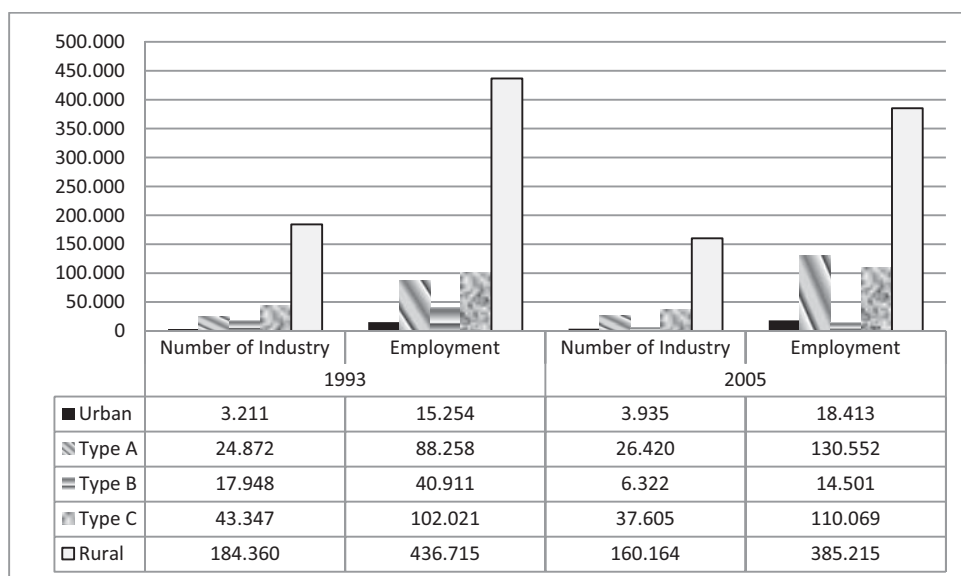


Figure 6.18 Number of Industry and Employment in Small Industries

Source: CBS, 2005a, 1990

To sum up, the facts mentioned above have revealed that Rural-Urban Type A has presented the steadiest growth as well as the smoothest economic transition compared to other rural-urban sub groups. One important point that should be acknowledged as a key factor to considerably preserve the constancy of the performance is the dominant role of local resources which may reduce the influence of any uncontrolled external situation.

6.6.4 Poverty and Unemployment

Previous parts have shown that Rural-Urban Type A has performed the most substantially in its transition path. In this rural-urban region, urban population has grown very rapid along with the significant increasing role of non-primary sectors in the economy compared to other sub groups. To further examine the quality of the transition, the following part illustrates how the population and



economic transition has affected poverty levels and employment rates in the regions for each sub group.

As described in Figure 6.19, the urban district and Rural-Urban Type A have experienced the lowest poverty level compared to other sub groups. While it was only 10 per cent in average that people lived in poverty in urban districts since in the middle of 1990s until 2006, and only 15 per cent in average in the case of Rural-Urban Type A, there were more than 20 per cent of people who lived in poverty in average and reached even more than 30 per cent in 1999 in the rural and Rural-Urban Type C areas. Comparing rural-urban sub groups, it was also discovered that poverty in Rural-Urban Type A perform at a lower rate compared to Rural-Urban Type B and C, even though all of sub groups perform in quite a similar pattern.

Following some facts on the poverty level, effectiveness of population and economic transition to enhance local peoples well-being also can be indicated from the employment level. Table 6.12 shows the employment level in 1980, 1994 and 2006 among five sub groups. There is positive growth of employment in urban districts, Rural-Urban Type A, and Type B which means these districts have more productive age population to participate in the labour force. It is only Rural-Urban Type C and rural districts that have experienced lower employment rates from 1994 to 2006. There is a similar performance among Rural-Urban Type A, B, and C. Quite surprisingly, labour force participation in the urban district is significantly lower compared to rural-urban region sub groups. There is evidence that urban areas still had to deal with unemployment problem. Even though urban districts experienced the lowest level of poverty but in the same time these districts have a significant number of job seekers.

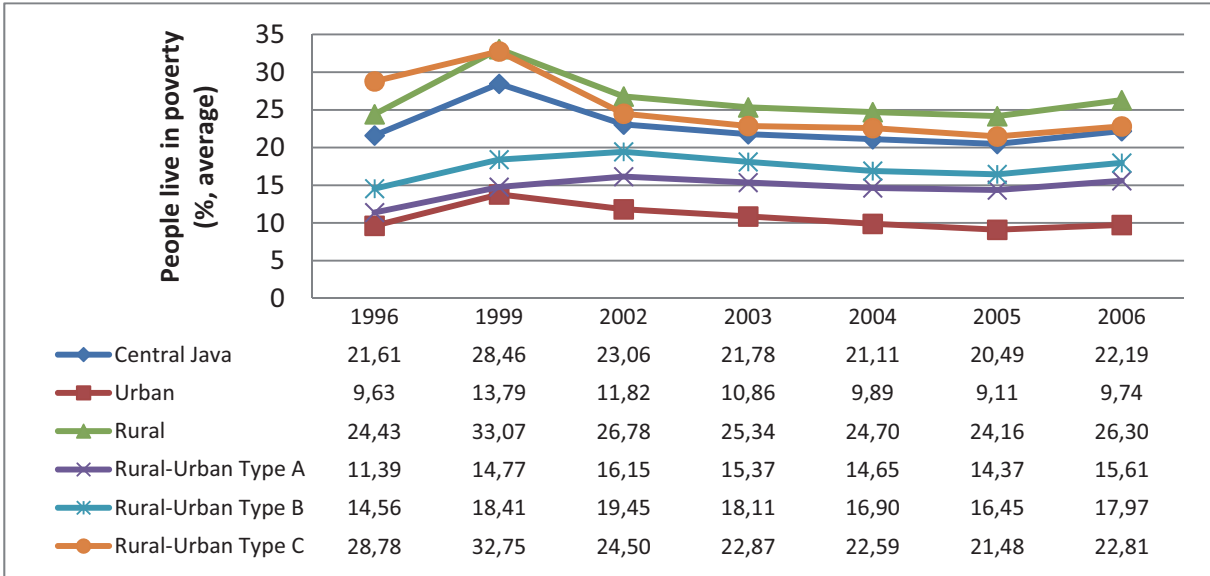


Figure 6.19 People Live in Poverty

Source: CBS, 2011

**Table 6.12 Employment Rate**

	Employment Rate (%)		
	1980	1994	2006
Urban Districts	44.64	54.48	56.87
Rural-Urban Type A	55.75	61.51	63.40
Rural-Urban Type B	56.56	63.28	64.65
Rural-Urban Type C	57.50	64.63	63.91
Rural Districts	54.90	61.32	59.59

Source: CBS, 2011

6.6.5 Some Remarks for Future Spatial Development Pattern

Some facts on poverty and employment rate clearly support previous evidence that represent the superiority of Rural-Urban Type A in its transition path. At least there are three important findings:

1. Rural-Urban Type A has experienced the highest growth rate of urban population.
2. There is a significant increasing role of non-primary sectors based on GDP contribution, number of industries and employment in this rural-urban region.
3. Rural-Urban Type A, however, is occupied by a relatively small number of poor people and has a reasonably average employment rate.

The transition that has taken place significantly in Rural-Urban Type A are explicitly reflected in land allocation as explained in Table 6.13. Higher growth of urban population as well as rapid development of the non-primary sector has resulted on a significant annual growth rate of land conversion, more than doubled compared to urban districts and the provincial average. Urban districts that are actually still occupied by available area to be built (see Figure 5.8) and Rural-Urban Type B (the EMRs zone) that is commonly characterized as a rapid developed region in fact have only experienced land conversion below the provincial average.

Table 6.13 Average Annual Growth Rate of Land Conversion 1994-2006 (%)

Central Java	Urban Districts	Rural- urban Type A	Rural- urban Type B	Rural- urban Type C	Rural Districts
6.31	5.56	13.80	6.17	6.26	8.61

Source: National Land Agency (1994), Provincial Planning Board and Development Agency (2006) processed by ArcGIS 9.3

Considering that the trend will take place in the same pattern for the future, it is essential to pay adequate attention to land potential particularly in Rural-Urban Type A to be converted into built-up areas. As Central Java occupies significant areas categorized as arable land as well as protected environmental zones, land conversion is not allowed to be done on these particular land use types.



7 Scenario for Future Spatial Formations in Central Java Province

Following up the results of empirical analysis in Chapter Five and Six, this chapter outlines possible future situations in Central Java Province by using the scenario planning approach. This chapter is divided into four sub-chapters. The first sub-chapter explains steps of scenario building that are applied in this research. The second sub-chapter is devoted to the macro framework of scenario building for future spatial formation in Central Java Province. The last third and fourth parts give detailed fleshed out scenarios for the national setting and scenario path for Central Java.

7.1 Steps of Scenario Building

There are many approaches to scenario planning. Most of those applied in this study are inspired by Schwatz' 8-steps (Schwartz, 1996 in Keough and Shanahan, 2008). Based on ICIS (2000) classification, the approach could be categorized as analytical-qualitative (expert based).

Table 7.1 Steps in Scenario Building

	Step	Output
Macro Framework	1. Define core issue for option of future possibilities	Main issue: degree of balance
	2. Outline driving forces	Four driving forces identified
	3. Analyze scenario logic	<ul style="list-style-type: none"> • Driving force system relationships • Matrix of scenario plots
	4. Identify key factors that will most affected by the driving forces	Four key factors identified
Flesh out Scenario	5. Scenario stories	Narrative, story on dynamics of driving forces affected key factors
	6. Consider implication	Impact of scenarios that will enable to recognize future possibilities

In general, there are two main parts applied to build the scenario for future spatial formations in Central Java Province (see Table 7.1). The macro framework is an initial part that was prepared. It consists of four steps starting from defining core issues followed by outlining driving forces, analyzing scenario logic and identifying key affecting factors. In this part, developing



scenario logic presents the most important step since the driving force is considered the most important aspect that influences possible future scenarios explained in the later steps. The second part gives a detailed story of the acknowledged scenario plots and describes relevant implications. This part is called the flesh out scenario as in this part the scenario plots are furthered described and assessed.

7.2 Macro Framework: Scenario Building for Future Spatial Formation

7.2.1 Step One: Define Core Issue for Options of Future Possibilities

Spatial formation reflects the whole spectrum of human activities. It is essentially visible and therefore, commonly conceived as a land use pattern. However, this visible part is derived from various invisible aspects. In this concept, the spatial formation is not simply a matter of a physical environment issue that could be easily observed, it also reflects such indiscernible parts of human activities namely social, economic, and political. Hence, spatial formation indicates not only such measurable and physical things such as land conversion and land allocation, but also implicitly indicates socio-economic status as well as political influences that are actually described in respective policy documents.

In regional development perspective, the spatial formation is highly related to two major contested notions in development theory; growth vs. equity. Figured out as the dilemma of a two-headed snake, it is considered as unattainable to maintain a balanced performance of these both key policy options. The pro urban or growth oriented development policy is acknowledged as a conventional policy option. It is believed that this development policy is effective in accelerating economic growth of a region with an expectation that in one phase the growth will spread over to the surrounding regions. Particular in the context of developing countries, these policies are likely to give so much space for development of foreign based big manufacturing industries as these industries have proven to play a dominant role as the engine of economic growth that is concentrated in big urban centers.

In contrast, as the second option, more equity is believed to be achieved if there are more efforts to increase local potential mainly in human resource development, innovation and technology to upgrade local industries. In spatial terms, this could be categorized as a pro rural development policy since this option is likely to give more space for rural areas to be developed or in different words to prioritize equity over growth.

However, it is clearly not an easy task to simply choose either pro rural (equity) or pro urban (growth) development, or even more, to define the most fitting degree of balance to meet growth and equity in optimum levels. It is likely that



growth and equity will always perform as the question mark in the regional development planning school of thought. There are so many dynamics and uncertain external and internal situations that should be examined carefully and comprehensively. Concerning this, scenario planning applied in the study area is expected to be effective to describe and anticipate these uncertain future possibilities.

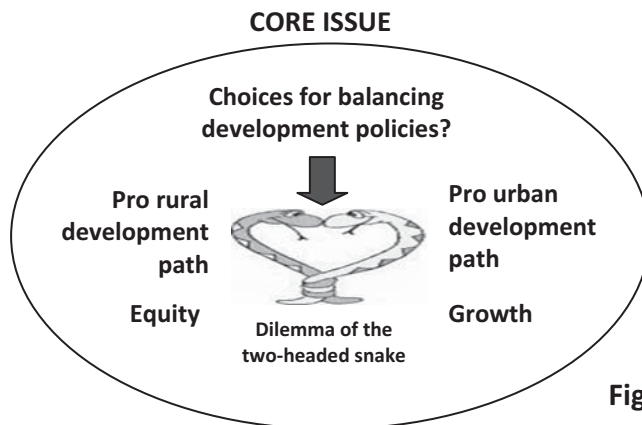


Figure 7.1 Core Issue in Developing Scenario

7.2.2 Step Two: Outline Driving Forces

Identifying the most appropriate driving forces is very essential in examining future possibilities as the main aim of applying scenario planning. Driving forces are acknowledged as important conceptual elements to help understand possible future scenarios systematically.

The driving forces that are explored to describe future possibilities of spatial formation in study area are basically developed based on three considerations:

1. Core issue and reasons behind the issue. Therefore, the driving force is considered as influential in the development either of foreign based or local based industrialization. It is assumed that foreign-based industrialization is regarded as pro growth or pro urban, and local based industrialization is considered as pro equity or pro rural. This process is recognized as very influential to create spatial formation.
2. External factors (international and national context) and internal factors (local-provincial context). As the region in the current situation becomes very open or commonly alleged as borderless, the driving forces are figured out not only originally derived from internal situations. External circumstances, both globally as well as nationally contribute a significant role in constructing the fate of the region's development. Due to globalization, international circumstances are easier to force national and local stability. Besides, national agenda setting also plays an important role. Even though decentralization policy is likely to give a lot of space to lower level regions to be more independent, overall policy direction affecting macro circumstances



such as maintaining political stability and upgrading investment climate are still regulated by central governments. Thus, to build a scenario for future rural-urban regions in Central Java, it is considered as essential to initially comprehend international and national situations before coming to the internal circumstances.

3. Independence. To avoid mixed-interpretation, driving forces that are stated are expected not to substantially overlap each other.

There are four driving forces identified, following is a brief explanation to put the driving forces into relevant context.

- Degree of Openness

There is still an ongoing debate in development literature whether the degree of openness of a country significantly promotes development or not (Moran et al, 2005; Blomström and Kokko, 2003; Yanikkaya, 2003). However, much empirical evidence shows that free trade and the increasing role of foreign investment which commonly indicate openness, have been becoming inevitable phenomena worldwide including in Asia. Many bilateral and multilateral agreements that have been made among countries lead to the integration of space economy which now obviously exceeds national boundaries. Douglass (2000) called this “global-local context of development”. Furthermore, as discussed in Chapter Three, foreign investment plays a very dominant role in most developing countries in Asia and the investment is likely to concentrate only in particular big cities. Therefore, the economic growth resulted from this particular investment has not easily lead to promote growth equally in the whole part of the country as it has led to inequality and disparity.

The degree of openness of a nation can be generally recognized from its trade and foreign direct investment (FDI) policies. Openness to trade can be indicated from the multilateral as well as bilateral trade agreements among countries while the role of FDI can be identified from incentive regulations that are applied. In general, FDI incentives are divided into three categories; fiscal, financial, and regulatory incentives. The fiscal incentive is commonly used as most developing countries have considerably limited funds available for financial and regulatory incentives and most of the times are only applied case by case or not in general circumstances. Cass (2007) proposes six common incentives to attract foreign investment namely, facilitation of free trade zones, subsidized access to sites (e.g. in industrial parks), grants, tax holidays, and tax credits.

At a time when the government of a country makes a decision to give more space to foreign stakeholders to play their role in industrialization as the key



factor of development through trade agreements or FDI incentive regulations, this leads to consequences that should be considered. They are attributed to the readiness of local industries to compete in global markets as well the strategy to protect local economy with smart policies.

- Infrastructures provision

Infrastructure forms a vital underpinning to development. In general, it can be defined as the basic physical structures needed to enhance private sector production as well for household consumption (Fox, 1994). Slightly different, infrastructure also can be understood as the services and facilities necessary for an economy to function (Sheffrin and O'Sullivan, 2003). Infrastructure encompass a wide range of public works including road networks, mass transportation, ports, electricity, water supply, solid waste management, telecommunications, drainage and flood protection, and many others.

Public infrastructure in developing countries is generally in poor condition (Bjorvatn, 1999). Rapid population growth that is concentrated in urban areas is not followed by a proper function of many public facilities mostly due to limited budgets, inefficiency, and mismanagement. This situation is critical to overcome since it significantly reduces the profitability of modern sector activities and therefore inhibits the development process. Besides, infrastructure should be considered as essential to distribute development activities (Bjorvatn, 1999; Fox, 1994). In the current situation where infrastructure improvement in many developing countries is likely to be concentrated only in particular urban areas, disparity and primate city phenomenon then appear as domino effect that needs to be worked out. Concerning this, it is then very important to carefully examine what kind of infrastructure is necessary to be built, in which location, and how to finance and sustain the service to ensure that development or modern sector development is distributed proportionally.

Lastly, despite its significance in the development process, infrastructure is also very important to meet the requirement of quality of life. Indeed, consideration regarding the delivery mechanism to guarantee that all people either poor or rich whether located in urban or in rural areas have access and to obtain optimum benefits of such infrastructures should also be taken into account.

- Institutional capacity

Institutional capital has been proved to be critical in development as countries with good institutional performance progress considerably while those without, remain stagnant or even retreat (Kaji, 1998). Since the development process certainly requires appropriate physical infrastructure, institutions areas considered a prerequisite to social infrastructure that is



essential to perform strong based development. According to Page and Gelder (2001), institution refers to 'software' of economic development while infrastructure is attributed as 'hardware'.

According to Nugent (1998), "an institution is a set of constraints that governs the behavioral relations among individual or groups". In more simply words, institutions refer to rules of the game. In view of that, Page and Gelder (2001) propose five institutional functions that should be applied. They are (1) making rules and laws, (2) enforcing rules and laws, (3) providing public services, (4) providing public and quasi-public goods, (5) improving the functioning of markets.

In recent decades, discourse on institutional capacity is closely related to governance and decentralization terminologies. Similar to institution, governance mostly refers to rules of collective action. Graham et al (2003) define governance as "a process whereby societies or organizations make their important decisions, determine whom they involve in the process, and how they render account". In this regard, good governance implementation is very important to form strong based institutions.

In implementation levels, good governance is very relevant to be applied as a part of the spirit of decentralization mainly since decentralization policy has been performing as the most critical policy issue regarding development for many developing countries including in Indonesia in recent years. The good governance principle is expected to be applied to succeed the policy implementation and eventually to improve institutional capital. Moreover, decentralization policy is acknowledged as the crucial part to support a more balanced industrialization path. In a decentralization framework, it is expected that the development process will effectively accommodate local needs, as it is believed that local government would understand local characteristics in a better and more efficient means. In addition to that, it is also expected that decentralization will simplify development procedures as one of the important principle in good governance framework.

- Endogenous potential

Despite the fact that international as well as national circumstances are very dynamic and significantly pressure internal conditions, however, the region's development to some extent is still heavily relies on its internal potential. Blakely (1994: 53) has proposed that out of the important role of external functions, regional development has resulted also from a range of critical internal functions; they are natural resources, labor, capital, investment, entrepreneurship, transport, communication, industrial composition, and technology. There are many arguments to choose which factor has to perform as the most influential. Nevertheless, Blakely (1994) has revealed a



fundamental shift to acknowledge what would be the key internal factor considered as the most significant as there are emerging changes of regional development planning strategy from comparative to competitive advantages as well as from an old economy (industrial) to a new economy (post-industrial). As further explained by Stimson et al (2006) and Porter (2000), the changing paradigm from comparative to competitive advantages and the emergence of a new economy era where location is diminishing has made a significant internal potential shift from the importance of material resources such as raw materials and labor forces into immaterial resources mainly innovation, knowledge resources and entrepreneurship.

According to Porter (2000), it is very substantial to comprehend local potential in relation to the role of location in a current competition advantages paradigm. Resources including capital, technology and other inputs are very mobile in a sense that it does not an important issue to locate industry close to their inputs as well as near to large markets. With facilitation of rapid improvement in transportation and communication technology, industrial activities have been developing and creating a very close linkage between buyers and suppliers even though they are located separately. Concerning this, it is believed that development will provide an optimum result not simply based on competitiveness in general production factors namely raw materials, labor, capital, and technology but rather based on a good support of endogenous resources that are qualified in developing relevant knowledge, innovative, and seize the entrepreneurial spirit. These last three factors are acknowledged as the critical revised requirements to perform excellent industrial competitiveness in the current era.

7.2.3 Step Three: Analyze Scenario Logics

Four driving forces mentioned above are considered as the key points to further develop scenario plots. In order to systematically comprehend the role of the driving forces and clearly understand how each driving force influences the other, as explained in Table 7.2, a score between 0 and 2 is given to describe the strength of influence of one driving forces to the three others. 0 is given if it is considered that there is not any influence at all between two driving forces. 1 indicates a degree of influence but not very significant and 2 refers to a significant influence of one driving force to another. As a result of this consideration, the sum of the horizontal level represents the level of influence of each driving force and the sum of the vertical level signifies the level of dependency of each driving force. Following that, the highest scored is then chosen to create four possible scenarios in matrix formulation as illustrated in Figure 7.2.3



Table 7.2 Analysis of Driving Force System Relationship

FROM:\nTO:	Degree of openness	Infrastructures provision	Institutional capacity	Endogenous potential	Level of influence
Degree of openness	0	2	1	2	5
Infrastructures provision	1	0	1	2	4
Institutional capacity	1	2	0	2	5
Endogenous potential	1	2	1	0	4
Level of Dependency	3	6	3	6	

Each score that is given is certainly based on some reasons considered as essential. The degree of openness and institutional capacity are chosen as the two most influential driving forces compared to the two others i.e. infrastructures provision and endogenous potential. The degree of openness is considered as a crucial driving force to create spatial formation as it has clearly been proven that FDI and trade policies are the most common aspects to indicate openness of a country and are very critical in creating growth either in the perspective of economy or spatiality. Rapid urban development is taking place when there is rapid urban population growth in which can happened due to certain economic stimulus. In this regard, foreign based enterprises that are mostly located in particular urban areas are admitted as important stimulus factor since this type of enterprise requires significant amounts of laborers and need to be met with sufficient urban infrastructure. Besides, more open trade policies that will lead to an increasing role of import products in national market will perform as a trigger for local industries to enhance their competitiveness. In time, these industries are believed also to significantly perform as a stimulus factor for regions either defined as rural or urban to experience accelerated growth.

Some scholars have provided evidence to show that openness in relation to FDI and trade policies has been contributing a significant role to accelerate growth in which the growth, eventually, will influence spatial formation. Thomsen (1999) reveals a significant role of FDI policies as an important development strategy in most South East Asian countries (i.e. Singapore, Indonesia, Malaysia, and Thailand). Sjöholm (1998) provides detailed discussion regarding critical role of FDI on productivity growth in Indonesia. Considered as the largest recipients of FDI in 1990s, Cheung and Lin (2004) discuss a positive role of FDI to stimulate innovation and technology development in China industrialization.



Yanikkaya (2003) argues that trade openness has a positive influence on economic growth in some developing countries in Asia, Africa, and Latin America. More in the perspective of incentive and tax regulation, Cass (2007) discusses significant influences of FDI policies in 27 transition countries worldwide.

The following degree of openness, institutional capacity are also chosen as the most influential driving force mostly due to the consideration that a proper institutional capacity is a critical factor that will lead to contented policy implementation. Kaji (1998) has argued that development is not only a matter of physical infrastructure, it is important at a certain level but there is also another factor that should be taking into account as significant. It is how to manage people as the centre of development. Therefore, institutional capacity contributes a significant role mainly since good performance of this driving force signifies a robust social infrastructure and proper human resources in which this will guarantee that all policy will be made, implemented and controlled as expected. The role includes maintaining rules and commitment to combat corruption as one mentality problem in most developing countries. In this regard, institutional capacity also may represent a human as well as a social capital stage of development that has been acknowledged as the central challenge of development in many developing countries. There have been some reports and studies regarding important role of institutional capacity particularly for good governance implementation in developing countries conducted by some international agencies such as USAID (2009), UNESCAP (2007), UN-Habitat (2005), and UNDP (2000). This may provides evidences to further emphasize a critical role of institutional capacity as a significant influential driving force to enforce development both in economic and spatial perspectives.

Following some general explanation mentioned above, more detail and systematic explanation of scoring that is given for each driving force is further elaborated as follows:

Degree of openness

The degree of openness that is mostly indicated from FDI and trade policies is obviously critical for infrastructure provision. More foreign based industries will influence quality of the infrastructure mainly since infrastructure is a crucial requirement to attract significant numbers of foreign investors. Similarly, openness will give wider possibilities for importing products to compete with local products and therefore, should be anticipated with qualified and sufficient infrastructure in ensuring that local industries are sufficiently facilitated to fight in global markets.

Similar to infrastructure provision, the degree of openness is also believed to have significant influence in the development of local capacity (endogenous



potential). There are at least two explanations. The first is due to spillovers effecting of the existence of big foreign based manufacturing industries to the development of local (endogenous) potential. Even though there are still continuing debates on FDI promotion in relation to development of the host country's domestic industries, some empirical evidence has proved that FDI through the existence of large foreign based industries provides a positive effect on the development of local industries. Berry and Mazumdar (1991) have revealed that in at least three successful industrialized countries in Asia namely Japan, Korea and Taiwan, industrialization smoothly takes place in the form of subcontracting relationships between small scale local based industries with large (mostly foreign based) manufacturing industries. This pattern has created a strong based industrial structure in these countries. As further explained by Berry and Mazumdar (1991), they consider that Japan can be used as a classic case of 'industrial dualism' in which small (local based) industries contribute a significant role to the economy mostly based on a subcontracting model with large manufacturing industries. Similarly, this positive spillover of FDI to local industries also explained by Javorcik (2004) for the case of Lithuania and Cheung and Lin (2004) in the case of China. Nevertheless, Blomström and Kokko (1999) emphasize that there are several determinants, namely condition and nature of the FDI, that should be taken into account to optimize the spillover. The second is related to export as well as domestic market potential. Despite spillover effects, more degree of openness can be employed to motivate local industries to increase their competitiveness. More degree of openness will give more room for global competition, this condition will inevitably create a force for local industries to move ahead in increasing the competitiveness of their products, or otherwise, they will lose and vanish.

However, unlike significant influence to infrastructure provisions and local capacity, degree of openness is considered to have no real significant influence on institutional capacity. Institutional capacity more or less is depends on internal circumstances. Even though, the degree of openness could be appreciated as a trigger for the local institution to enhance its performance, it is not very significant in comparison to the influence to infrastructure provision and endogenous potential as explained above.

Infrastructure provision

Infrastructure provision as mostly acknowledged as the fundamental requirement of development is clearly influential to other driving forces. However, local capacity (endogenous potential) is considered as the driving force that is mostly influenced by infrastructures compared to the two others (degree of openness and institutional capacity). Support in infrastructure will considerably assist local potential to be developed. Adequate infrastructure such



as road networks and communication technology are clearly contributing an important role to increase the quality of the local industries mainly in innovation and technology adaptation. In the era where globalization is inevitable, innovation is clearly critical for these industries to be able to compete. Accordingly, supporting infrastructure would be performed as the most critical point without intending to lessen the important role of other driving forces.

Institutional capacity

Simultaneously, with a degree of openness, institutional capacity has been chosen as the most influential driving force. According to Page and Gelder (2001), institutional capacity indicates four important aspects to should functioned properly. They are rules and laws, public services, public goods, and functioning of markets. As explained in the Table 7.2, this signifies that institutional capacity has significant correlations with infrastructure provision and endogenous potential. Good institutional support will ensure the enforcement of rules and laws to be implemented in the right corridor in which it will effectively support local capacity to be developed optimally as well as guarantee the provision of required infrastructure.

It is only the degree of openness having a lower score indicating that the driving force is not really influenced by institutional capacity. The degree of openness is likely to be comprehended more related to external links when institutional capacity is likely influenced more by internal circumstances.

Endogenous potential

As considered, infrastructure is very influential to develop local capacity, and vice versa, local capacity is also very significant for infrastructure provision. Developed local capacities will efficiently increase the quality of local infrastructure. As an illustration, one district in Central Java named Jepara has a very well developed infrastructure mainly road networks that developed mostly to support the distribution of the local based wooden furniture industry that was already established in the region (Handayani and Sofhani, 2003). Similar features also take place in many other developed regions that already have recognized local based industries. Smith (1995) called this a form of collective efficiency. This phenomenon may indicate alternative features to create development. As in many cases providing infrastructure is a part of an important government task, however, with the conception of local empowerment, development could be created based on local initiatives.

Slightly different, the degree of openness and institutional capacity are considered influenced but not really significant by local capacity. Relatively, a country that has significant competitive industries will likely have more open trade policies. In this sense, it is likely that local potential will influence the



degree of openness. As well, local capacity also could be effective increasing the role of institutional capacity because it is obvious that institution development highly relies on the social and human capital. According to that, established local industries should be supported by proper human resources in which they will also influence the quality of the local institution.

To sum up, all driving forces explained above are then used to create possible scenario plots. Figure 7.2 illustrates four various possible futures based on two most influential driving forces. Principally, improved institutional capacity, as articulated in the vertical line, is acknowledged to lead to better distribution of development. Good institutional capacity is considered to be effective in reducing disparity. This is mainly due to a consideration that good performance of this driving force will ensure the preparedness of policy making, implementation and control, generate more law enforcement, and enhance public facilities performance. Following that, in a horizontal line, the degree of openness indicated growth. More openness will accelerate growth as it is clearly proved that more involvement of foreign investment and more open trade policies will create a more dynamic market. It will make development perform at a higher speed compared to development paths that are highly locally oriented mostly in terms of investment allocation and trade policies.

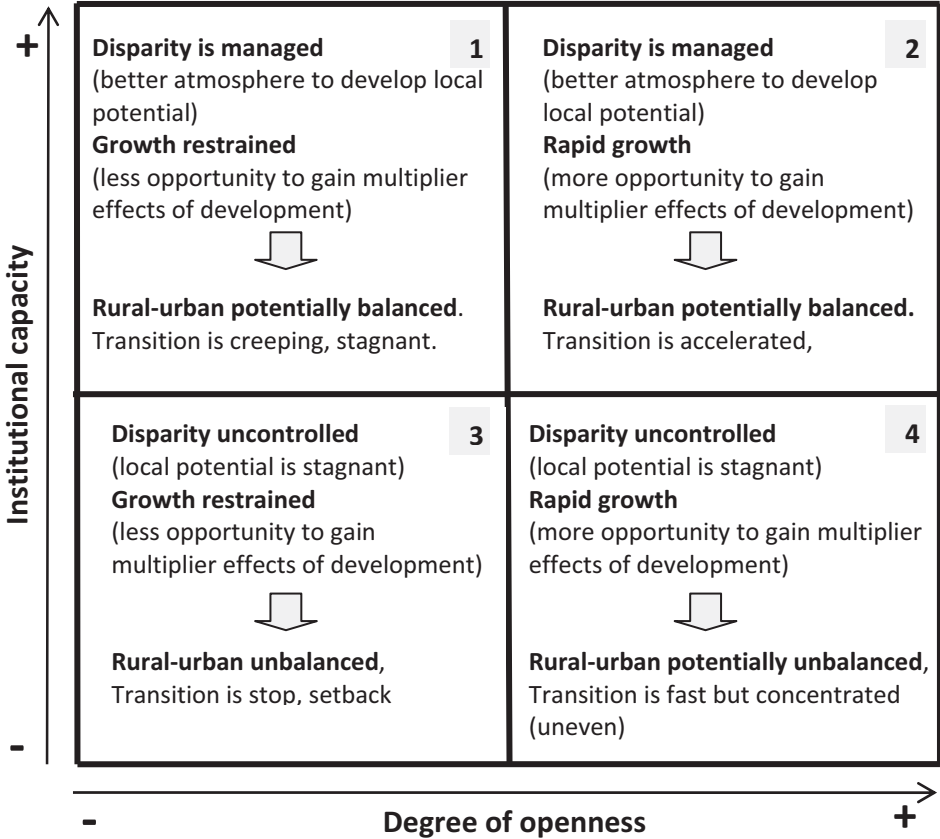


Figure 7.2 Scenario Matrix



Concerning phenomena in most Asian developing countries, one important thing that should be further considered is that rapid growth cannot always be acknowledged as a good sign of development. In the majority of Asian developing countries, rapid growth generally takes place simultaneously with greater disparity. Figure 7.3 illustrates the creation of this greater disparity. In spatial terms, it happens mostly due to the existence of particular type of foreign based manufacturing industries that are located in the inner zone or extended metropolitan regions. These types of industries have attracted so many laborers and raw materials from the outer zone. Undesirably, the inner zone attracts so many potential resources from the backward region but is not followed by an effect positive spread proportionally. In the end, it has been creating particularly unbalanced spatial formations in the region. Furthermore, it is likely that backward regions (outer zone) are not supported with adequate infrastructure so they cannot develop their local potential optimally. In addition to that, there are also many biased urban policies that have created more limitations for this region to perform on its development path.

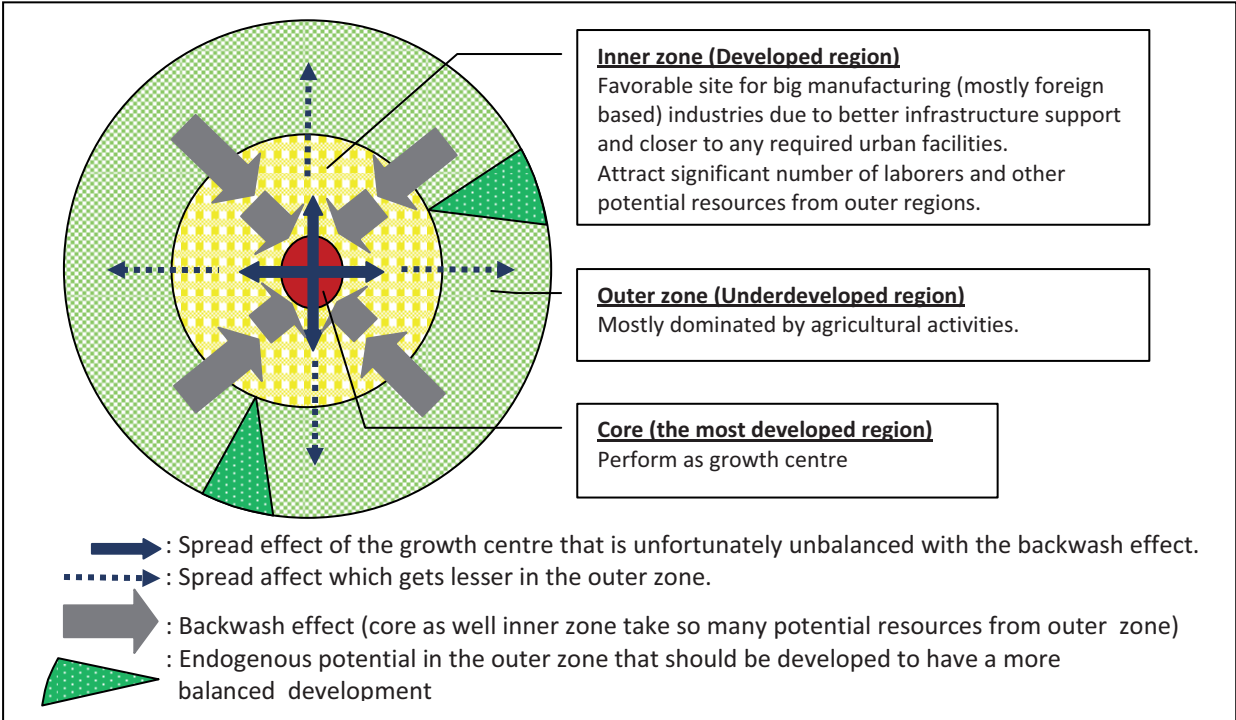


Figure 7.3 Creation of Disparity: Developing Countries Experience

Along with debates on growth vs. equity and how actually disparity persists, more in spatial perspective, apprehension on disparity phenomenon is also important to be acknowledged in relation to the discussion on polycentrists vs. monocentrists in urban form. Polycentricity remains elusive (Davoudi, 2003), however, it could be simply understood as 'plurality of centers' (Parr, 2004). There are at least two initial indications to find out whether particular regions could be called polycentric urban forms or not. The first refers to self-



contained concepts. In polycentric urban forms, each centre is independent in the sense that they can provide their basic public facilities on their own and not necessarily rely on other (larger) urban centers. Related to that, the second critical feature is that polycentric regions are likely to consist of urban centers that do not significantly differ in terms of size and economic importance. In this regard, it is obvious that polycentricity represents a balanced (less disparity) pattern in spatial configuration. These urban forms only could be created in the condition where there is evenly distributed economic activity in the regions. Besides, more livable places will be created and increasing quality of life since smaller urban centres are expectedly more sensitive to environment limitation. In the end, it will also be harmonious with any principles in sustainable development. On the contrary, monocentric urban form indicates unbalanced development due to superiority of economic activities in only a particular center. It may lead to a lower quality of life because of large city sized means overpopulation. It creates discomfort due to pollution, congestion, slums any many others urban problems.

Considering all explanations above, spatial formations that will be elaborated on to flesh out the scenario which is actually derived from economic perspective which then become spatial due to the fact that any economic activities in the end are reflected in physical forms.

7.2.4 Step Four: Identify Key Factors Affecting Options of Future Possibilities

Future rural-urban formation in general, or in Central Java in particular, largely relies on the form of rural as well as urban transition that takes place in the region. These transition processes are highly related to such influential factors in which it can be used to give a detailed and systematic portrayal of how the driving forces explained above affect any possible future scenario.

There are five interrelated key factors that are considerably relevant. To illustrate, economic stimulus either in the form of supporting foreign based or local based industries will influence infrastructure development. These both factors will effect population distribution. The main assumption is that population is likely to concentrate in s that have dynamic economic activity and good infrastructure support. In the end, these three factors are reflected in land demand (fourth key factors). Good governance implementation performed as a 'software' factor then is considered as the fifth key factor that will influence the creation of spatial formations in the future.

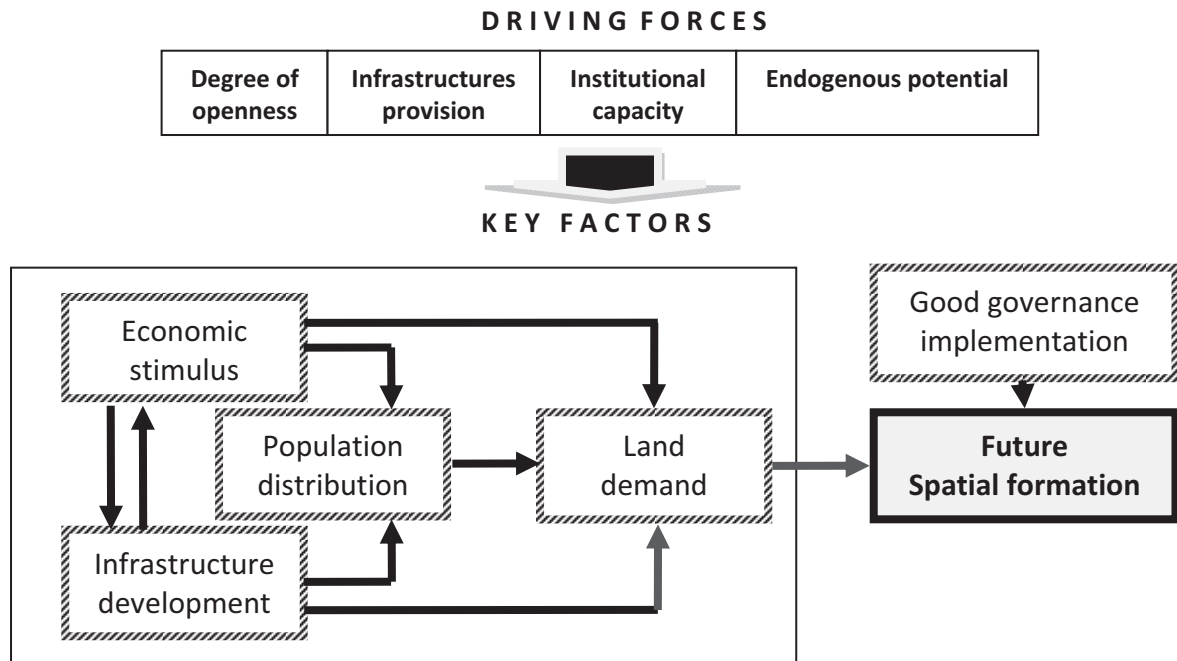


Figure 7.4 Key Factors in Scenario Building

7.3 Flesh Out Scenarios: National Setting

7.3.1 A Brief View of Trend and the Current National Situation

As explained in Figure 7.2, there are four settings of possible future scenarios. However, only selected scenarios will be further elaborated. The trend and current situation is considered to be very essential to select the most suitable scenario to explain possible outcomes. Therefore, the following parts explain some empirical evidence that might give reasonable reasons for selecting only particular scenarios.

More open economic policy leads to a more rapid economic growth

An increasing degree of openness is significant to accelerate industrialization. Indeed, industrialization has been acknowledged as a panacea to achieve established or developed nations. Table 7.3 and Table 7.4 show some facts based on data from the World Bank that show countries with more open economic orientation are likely to have better economic growth performance. They are significantly higher in manufacturing value added and manufactured export average annual growth which then leads these countries to have considerably higher economic growth per annum. According to the Sachs-Warner openness index, Indonesia has been categorized as a fully open economic country since 1971.

As explained in the earlier part, there are at least two areas of policies which can be examined to indicate whether countries are likely to have outward or



inward economic orientation. They are trade agreements with foreign countries and Foreign Direct Investment (FDI) policies. Openness to trade

Table 7.3 Manufacturing Performance by Trade Orientation

Orientation	Average annual growth of manufacturing value added (%)		Average annual growth manufactured exports (%)	
	1963-73	1973-85	1963-73	1973-85
Strongly outward	15.6	10.0	14.8	14.2
Moderately outward	9.4	4.0	16.1	14.5
Moderately inward	9.6	5.1	10.3	8.5
Strongly inward	5.3	3.1	5.7	3.7

Source: World Bank in Weiss (2002:27)

Table 7.4 Differences in Manufacturing Growth Rates: Average Annual Growth in Value-Added mid-1980s to late 1990s

Groupings	% growth per annum
Fully open	14.2
Policy reversals	4.3
Late liberalizers	4.4
Fully closed	3.1
Tariff reformers	6.2

Source: Calculated from World Bank in Weiss (2002:27)

could be indicated from multilateral as well as bilateral trade agreements among countries. In South East Asia, an important momentum in multilateral agreements was in 1992 when the ASEAN Free Trade Area (AFTA) was first signed by 10 South East Asian Countries including Indonesia. Beside AFTA, multilateral agreement for Indonesia became more significant since the country was also actively taking a part in Asia-Pacific Economic Cooperation (APEC) and World Trade Organization (WTO). More in a bilateral form of cooperation, as part of ASEAN-China free trade agreement, the strategic agreement between Indonesia and China has just been released at the beginning of January 2010. In addition to that, Indonesia has also been intensively working on some bilateral agreements mainly with Japan, USA, and Australia.

As can be seen in Figure 7.5, openness to trade in some selected South East Asian countries has been significant as the share of trade to GDP in these countries considerably increased from 1960s to 2000s. Malaysia followed by Thailand was among the most open since the contribution of the trade sector in GDP is relatively considerable and has been increased at significant rate. Even though Indonesia is likely to be the lowest based on openness with regard to its share of GDP, the trend line notably increased indicating a consistent policy approach throughout the period.

Quite different than the facts illustrated in Figure 7.6, the total amount of direct investment in Indonesia by US and Japanese Firms is the highest compared to China and other big Countries in South East Asia (see Table 7.5). According to



Thomsen (1999), for most Japan and the USA enterprises, Indonesia is still a favorable country to place investment and the trend has remained similar even after the economic crisis that happened in the late of 1990s. Furthermore, European Community (2005) has categorized Indonesia as an open country of foreign trade as the total external trade in goods of the country amounted to 56 per cent of GDP in 2004. There has been significant unilateral trade liberalization with dominant trading partners is Japan (20 per cent), EU (13 per cent), and the US (11 per cent) in 2003.

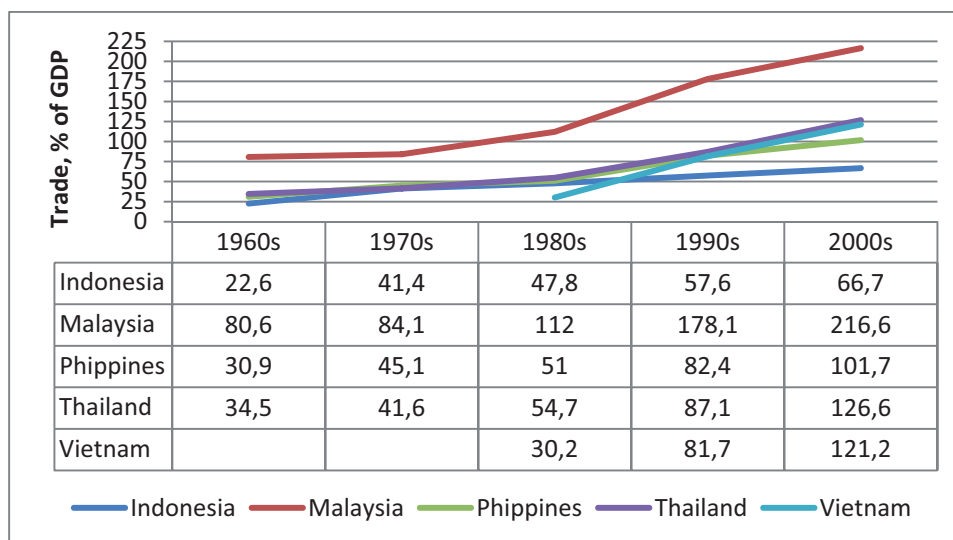


Figure 7.5 Share of Trade to GDP in Some Selected South East Asian Countries

Source: World Bank, 2008

Table 7.5 Direct Investment in Some Selected Country in South East Asia and China by US and Japanese Firms (Total stock, end of 1997; \$ million)

	China	Indonesia	Malaysia	Philippines	Thailand	Total
Manufacturing	13,518	12,738	10,326	4,792	10,004	51,378
Non-manufacturing	8,234	27,699	5,096	4,115	5,867	51,012
Total	21,752	40,437	15,423	8,907	15,871	102,389

Source: Thomsen, 1999

Considering all phenomena explained above, it is likely that free trade and foreign investment have been contributing an important role in the Indonesian economy. However, one important fact that should be further considered is how free trade and FDI can stimulate economic growth along with optimum positive impact to the development of domestic firms. Dualistic policies that are promoting foreign investment while protecting the local economy has not easily come out with satisfying result for both sides. Most of the times, due to the lack of qualified human resources, technology spillover from multinational companies in most developing countries took place less than expected (Blomström, and Kokko, 2002; Moran et al, 2005). It is generally recognized that the primary interest of these foreign investors to locate their firms in particular places in developing countries is mostly because of their need for low-level



laborers with lower wages. As explained in the previous part, positive spillover that has currently proved (Mazumdar, 1991; Javorcik, 2004; and Cheung and Lin, 2004) most is in the form of sub-contracting as mutual working relations between small-medium enterprises with large foreign based enterprises.

Good institutional capacity to gradually reduce disparity

Institutions do matter in development mainly since proper institutional capacity will ensure that all related stakeholders in development perform their functions properly. Accordingly, good institutional capacity is critical to ensure that local potential is employed in a mechanism in which it may give an optimum result. Public institutions play a significant role in producing and enforcing public policies, to provide public service, and to combat corruption (Page and Gelder, 2001). To a great extent, it is closely related to good governance terminology. Non-public institutions such as cooperatives, banks, research centers and some others are significant in making certain that there are sufficient supports for any kind of local potential including natural resources, human resources and various other local resources to have an adequate opportunity to be developed. In brief, good public as well as non-public institutions will lead to greater capacity to empower local potential in which it would be effective to reduce disparity or in other words, to create economic growth not only in urban centers but also in distant remote regions.

However, unlike the degree of openness which has quite certain prospects in Indonesia, the capacity of Indonesian institutions in the future seems still to be a question mark. As mentioned in one report of The Asian Development Bank – ADB (ADB, 2006), Indonesian institutions did not perform very well mainly due to lack of a skilled workforce, low salary mainly for government employees and poor commitment which then resulted in a high number of corruption cases, and because of insufficient financial support to deliver appropriate services. As an illustration, Indonesia consists of thousands of islands therefore, most qualified human resources are likely to work only on certain big Islands while there are still thousands of smaller other Islands which need to be provided with appropriate public services including government officers to serve the people. In addition to that, according to Fisher (2010), Indonesia is still categorized as one of the most corrupt countries in the world together with most other countries in Africa and Asia. As released by Bangkok Post on April, 9th 2009 (<http://www.bangkokpost.com>), Politic and Economic Risk Consultancy has also stated that Indonesia is categorized as the most corrupt country in Asia. The world audit organization places Indonesia on rank number 89 out of 149 countries in corruption (<http://www.worldaudit.org>) while transparency international put Indonesia at rank number 111 out of 180 countries (<http://www.transparency.org>).



Apart from human resources and corruption issues, decentralization that has been applied since 1999 also has been taking place with a lot of obstacles and complexity. As a big nation with a large population and land area, decentralization is essential in order to deliver public services. Unfortunately, there is still a lack of supporting regulations and technical guidelines provided by central government that has resulted in various different interpretations among local governments of the decentralization conceptual framework. Besides, lack of skilled and committed human resources at most district levels in the country have led to a very slow positive outcome of decentralization to the Indonesian economy (Rasyid, 2002; Usman, 2001).

There are certainly significant efforts from the government to combat corruption, such as to increase the qualifications of government employees, to create a more efficient and effective mechanism under decentralization principle, as well as to increase the capability of public institutions and to support non-public institutions. Law number 30/2000 was enacted to establish the Commission for Eradication of Corruption (CEC). There is more national budget allocation for education and training of public employees (Usman, 2001). Besides, more attention to applying the good governance principle under the decentralization framework also has been paid in several different ways with the help of some donor agencies. As an illustration, USAID has assisted the Indonesian government through a program named Local Governance Support Program (LGSP) since 2005 and ended last 2009. The Asian Development Bank (ADB) also has been continually supporting the government creating transparent and accountable institutions as well as to develop such approaches to empowering local people. One of the most influential programs is called the National Program for Community Empowerment (NPCE).

As a result of particular government efforts, it seems that the performance of Indonesian institutions is likely to gradually increase. CEC that has been effectively working since December 2003 has uncovered significant numbers of corruption cases. In 2009 alone, CEC succeeded saving three million in government funds (<http://www.kpk.go.id>). Most importantly, CEC has created a positive psychological impact on the Indonesian people to reduce corruption cases in the future. LGSP that formally ended last 2009 has succeeded in developing human resources as well as model practices for good governance. According to LGSP final Report (1999), the project has trained \pm 100.000 people in training sessions, workshops, and in technical assistance events. This should be significant to encourage local stakeholders to develop innovation and disseminate the skills to others and most of all, this may strengthen the roles of governance in the respective regions to create better institution performance. NPCE with one of its focuses on increasing the role of community and



government in development is targeted to empower micro and small economic activity in which it is expected to optimize the utilization of local potential and to create job opportunity based on local initiatives.

Concerning the trends and current situation regarding degree of openness and institutional capacity explained above, the scenario is then chosen based on following considerations:

- Degree of openness is likely to be more certain, which can be indicated from policies that have been applied in recent years largely representing liberalization. It means the Indonesian government is likely to give more space for global players to perform more significant roles in Indonesian economy in which it may accelerate economic growth.
- Due to the decentralization policy applied since 1999, the local region has the authority to develop independently. It has been creating more opportunity for regions to develop their local potential however; conditions in the future are still very indefinite. How fast or how slow that the transformation processes needs to achieve good institutions performance under the decentralization framework is not only a matter of funding, donor assistance, or even government support. Good institutions can only take place with the support of a good system and good people which does not instantly created. Nevertheless, it should be achievable in the long run. Concerning the phenomena, as illustrated in the scenario matrix, there are still two possibilities; either disparity could be managed or uncontrolled.

Thus, there are two possible scenarios chosen:

1. Optimistic scenario: Scenario number 2 (+,+) : rapid growth, disparity is managed
2. Pessimistic scenario: Scenario number 4 (+, -): rapid growth, disparity uncontrolled

7.3.2 General Scenario Path

In the optimistic scenario, there will be rapid growth taking place together with managed/controlled disparity. Figure 7.6 illustrates the path that should be taking place.

However, the path as explained in Figure 7.6 is considered to take place only under a particular situation:

- There is a significant positive spillover from the existence of foreign multinational enterprises to the local enterprises.
- Local based industries are able to perform as economic generators for lower hierarchy urban centers.
- There are strong based public and local institutions to manage and to control policy implementation.

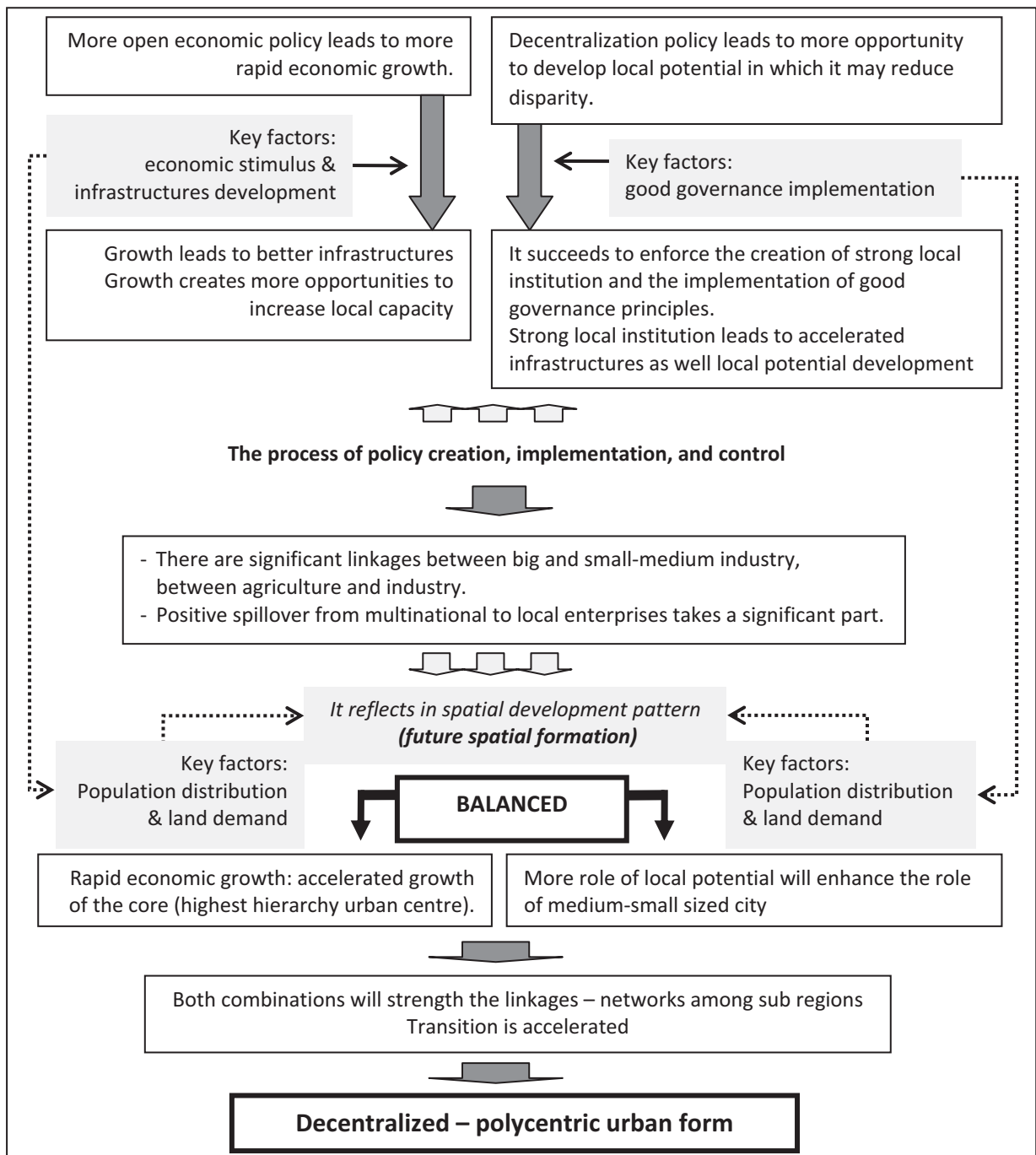
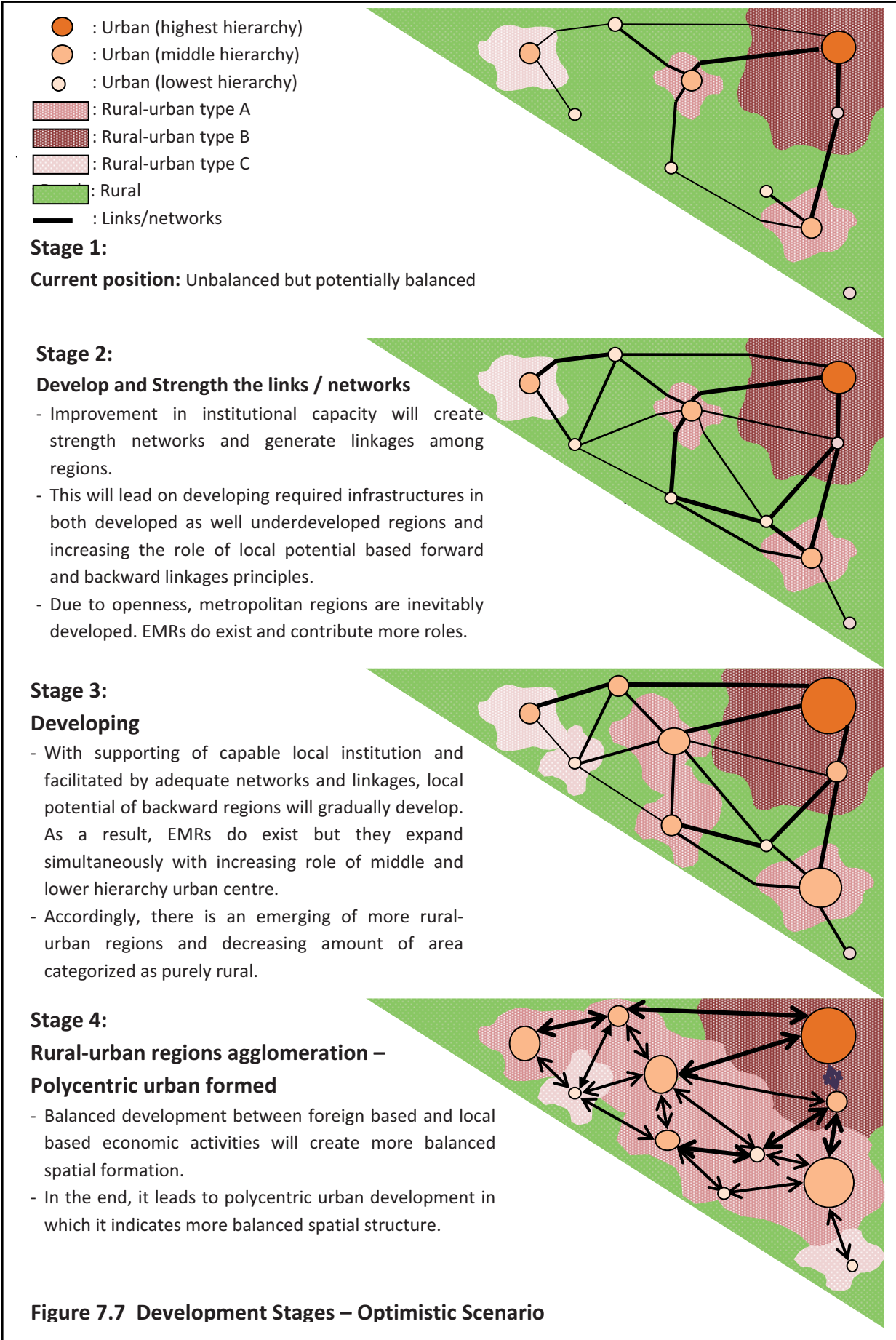


Figure 7.6 General Optimistic Scenario Path

The following illustration in Figure 7.6, Figure 7.7 describes the development stages in relation to the existence of Rural-Urban Type A, B and C as the result of cluster analysis.

In another scenario, called the pessimistic scenario, institutional capacity development is not showing a satisfying result. Decentralization is not taking place along with better performance of local institutions. In this situation, there will be less opportunity to utilize local potential optimally. In the situation where there is not enough local institutional support, delivery of public services





and local empowerment will be obstructed. In a spatial perspective, it will lead to stagnation of backward region development as well as a malfunction in small-medium urban centers to reduce dependency on the large urban center. Meanwhile, due to outward industrialization policy, foreign enterprises inevitably will develop in most large or high priority urban centre. Figure 7.8 illustrated how the unbalanced development then happened in the region.

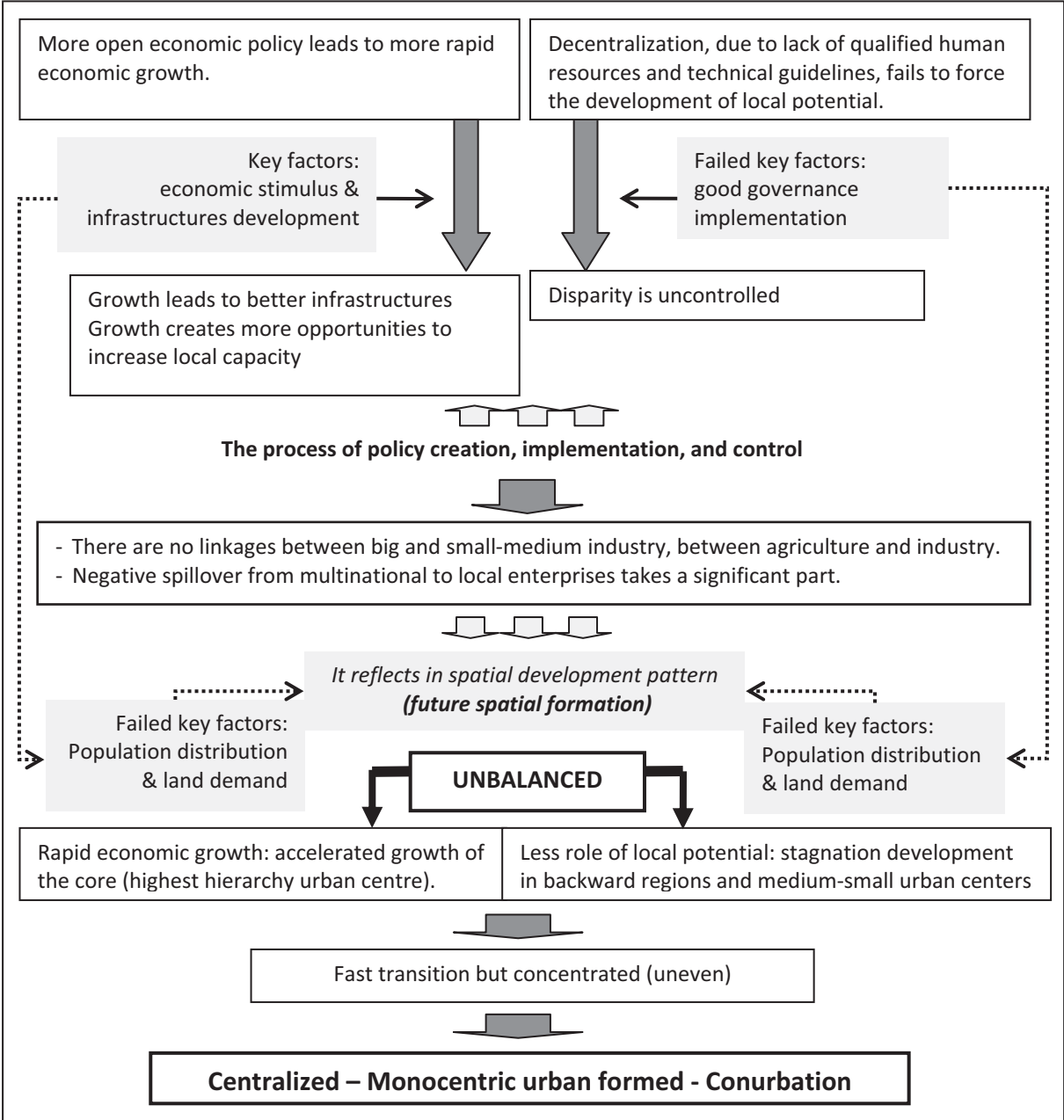
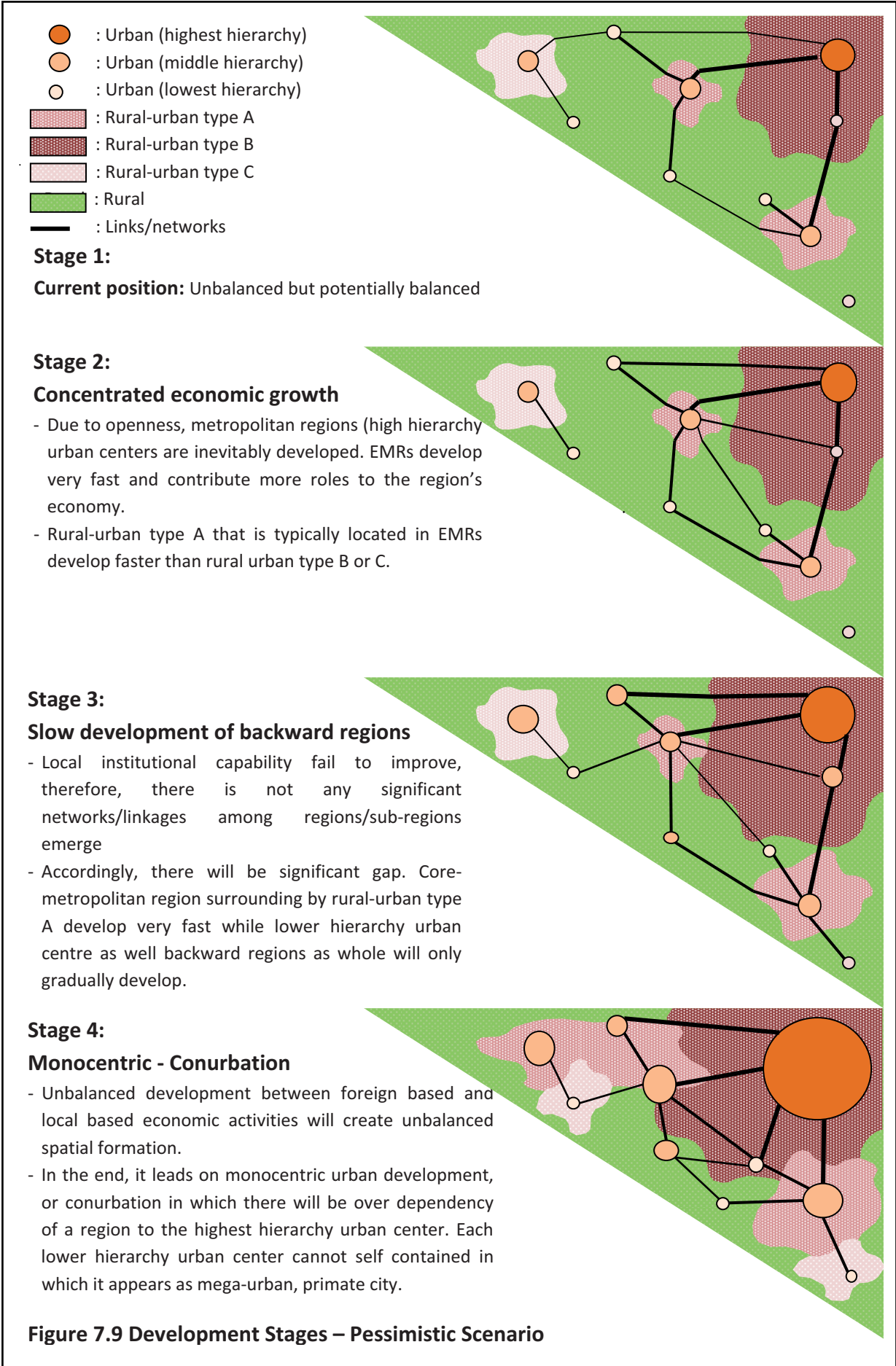


Figure 7.8 General Pessimistic Scenario Path

Figure 7.9 describes the development stages in relation to the existence of Rural-Urban Type A, B and C as the result of cluster analysis.





7.4 Flesh Out Scenarios: Scenario Path for Central Java Province

Besides taking into account the general scenario path, the scenario for Central Java is developed in detail based on key factors as illustrated in Figure 7.4. Accordingly, following parts give detailed explanation of five different subjects:

- Economic stimulus that indicates the trend and current evidence as outcomes of previous policy
- Infrastructure development as explained in Central Java Spatial Plan 2003-2018
- Population distribution
- Land allocation: land demand vs. land potential
- Evaluation on good governance implementation

7.4.1 Economic Stimulus

One positive impact of decentralization on regional development in Central Java province is the fact that there is an increasing awareness of local government to give more attention to developing local potential instead of giving too much space to foreign investments. Besides, due to its location that is not favorable for many large foreign manufacturing industries compared to the neighboring provinces, it is likely that local based industries have more promising prospects compared to the foreign industries.

As mentioned in the provincial long-term (2005-2025) and medium-term (2003-2008) development plan, economic growth in Central Java should take place based on local competitiveness along with equality by creating more job opportunities as well poverty alleviation (in detail, see Figure 7.10). Accordingly, there are three important sectors considered as essential to be developed in the province. They are agriculture, export based industries, and populist tourism. To further develop these three leading sectors, a clustering approach is chosen essentially due to the assumption that clustering would be effective to create an integrated local based development path as well to maintaining appreciation of local wisdom. It is expected that this approach may give a strong foundation for Central Javan development in the future.

An initial concrete action of the Central Javan government to develop local potential based on the clustering approach was by forming an institution called the Economic and Resources Development Forum – ERDF (*Forum Pengembangan Ekonomi dan Sumber Daya*) in 2001, just after two years of decentralization policy had been released. ERDF aimed to facilitate dialogue among stakeholders in which, it was expected that the dialogue would lead to a more suitable business climate, to produce more targeted regulation, and in the end, to enforce local based development. The establishment of ERDF was immediately followed by a similar forum at district as well at the cluster level (in detail, see Figure 7.11).

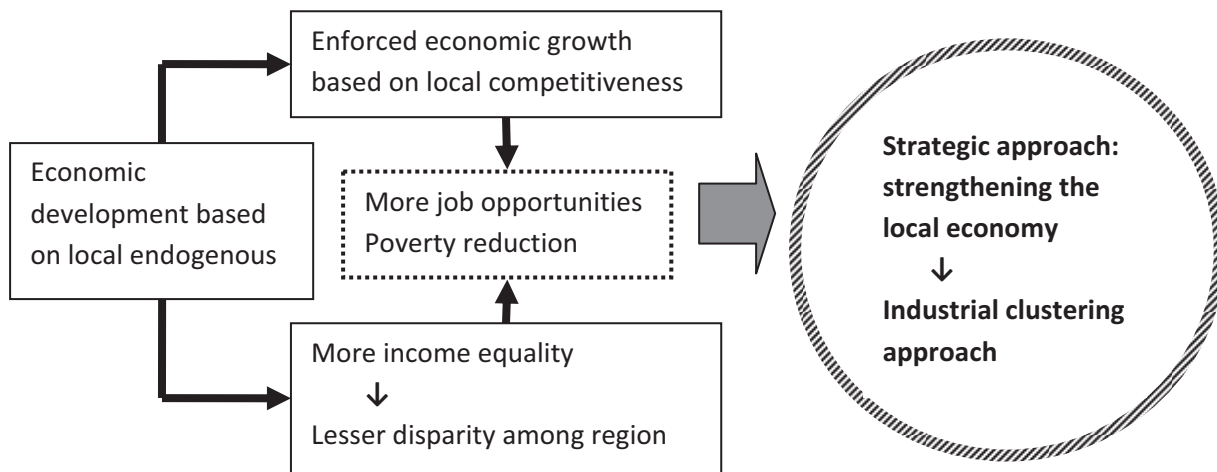


Figure 7.10 Framework for Economic Development in Central Java Province

Source: Adapted from Central Java Long-term Development Plan 2005-2025 and Central Java Medium-term Development Plan 2008-2013

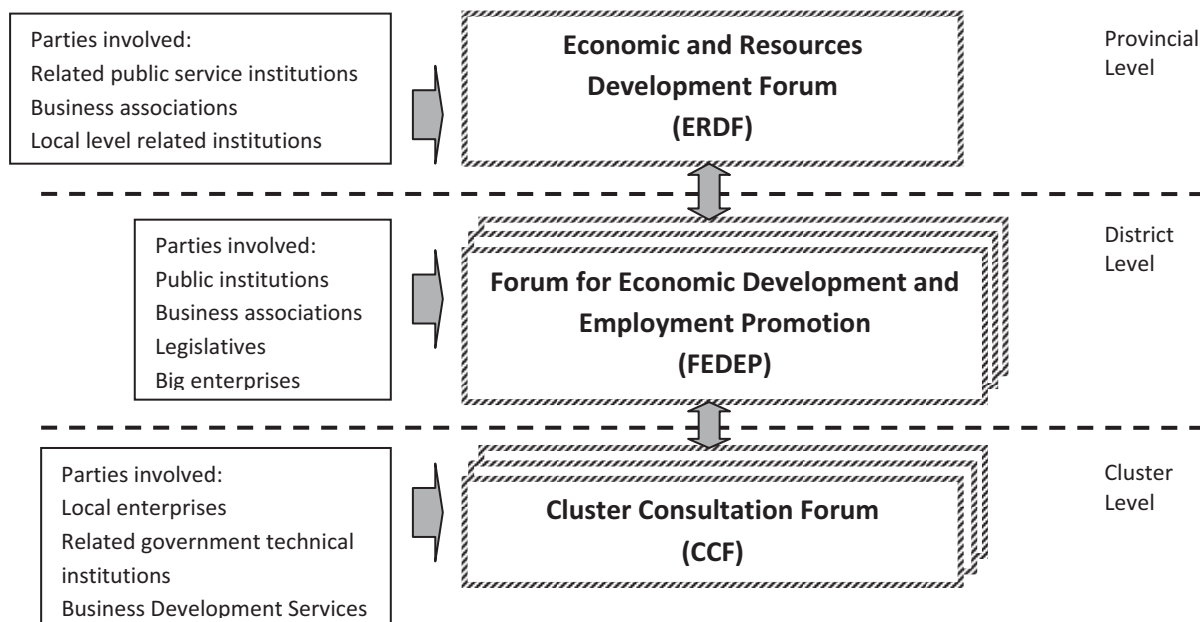


Figure 7.11 Institutional Supports for Local Economic Development

In the current situation, following the establishment ERDF, FEDEP, and CCF, the Central Java Province has succeeded in maintaining the establishment of 23 developing clusters located in 23 districts (In detail see Figure 7.12) without taking into account few developed clusters that has had developed earlier. Unlike clusters that were established in many developed countries, all these clusters are characterized as agglomerations of small-medium industries which have developed due to their local endogenous value. In accordance with potential sectors mentioned in the long and medium-term development plan, in general, these clusters are divided into three different categories namely agro-industry, various industry, and tourism.



It is clearly not an easy task to apply this approach along with expectations to highly empower local potential. Each cluster has different problems to be addressed, diverse particular norms to be considered, as well as various human resources in terms of quality and quantity. Moreover, the clustering approach that has been applied is highly bottom up, in which it requires public participation intensively. Regarding this, ERDF, FEDEP as well as CCF have been playing a significant role in giving power to local people as well to help government in creating more targeted and proper regulations (RTI International, 2009).

Concerning some evidence mentioned above, Central Java Province in the future is likely to accelerate the development under the principle of local-endogenous based development. In spatial perspective, expectedly, it will result in a more balanced spatial pattern in which smaller hierarchy urban centre will contribute a more significant role in slowing down the development of the core-highest urban centre in the hierarchy.

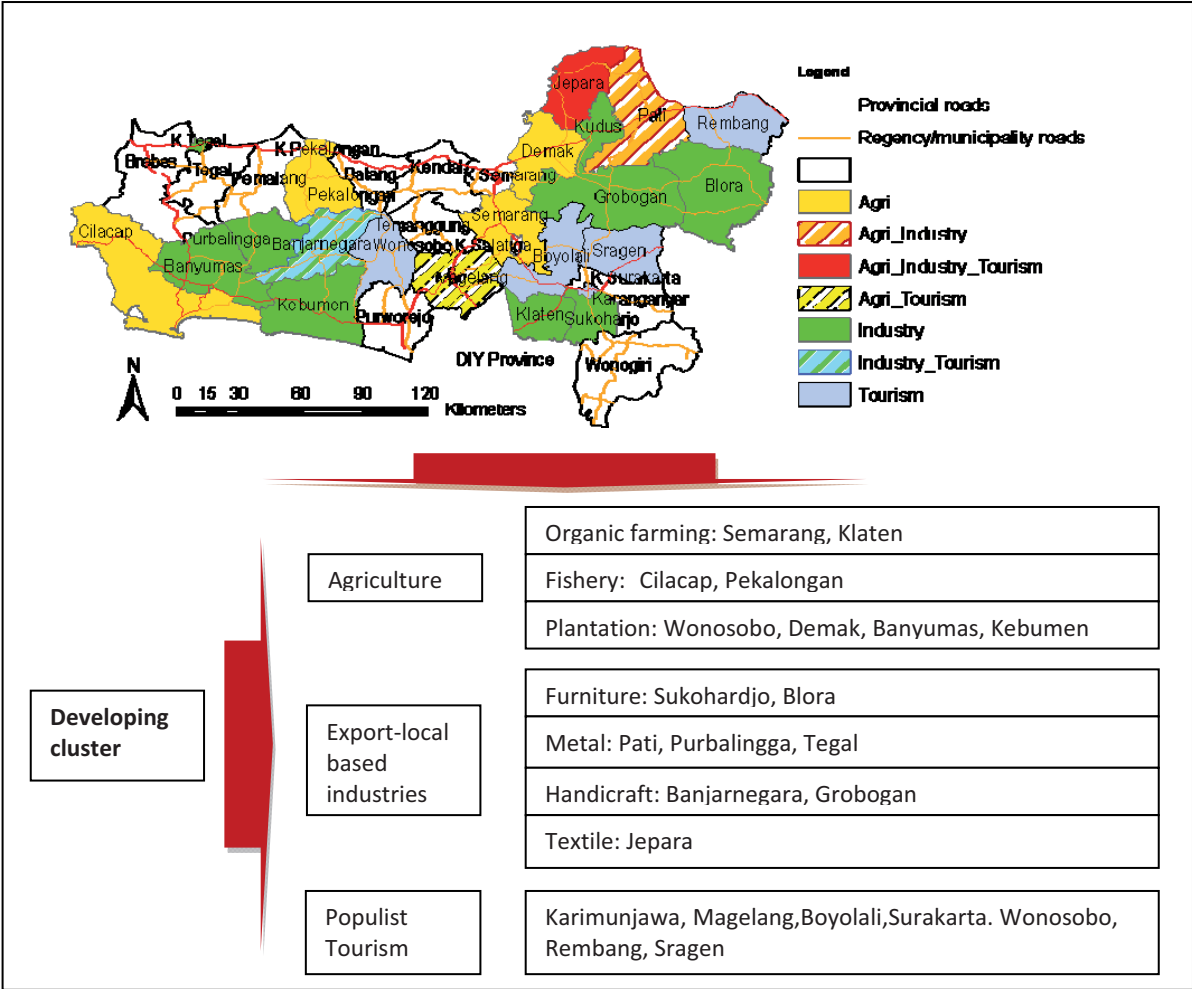


Figure 7.12 Developing Cluster in Central Java Province



7.4.2 Infrastructure Development

Properly planned and well-maintained essential public infrastructure is an important ingredient for sustained regional development. Infrastructure mostly road network commonly used to indicate the path of spatial development in the future. An important infrastructure development that should be taken into account for at least the following decade in Central Java is toll road development planning. As mentioned in Central Java Spatial Plan 2003-2018, the toll road is considered as an important infrastructure to improve the network mainly between Central Java and its neighboring province.

However, this toll road development should be carefully considered from at least two different perspectives. As illustrated in Figure 7.13, the proposed toll road that is currently under construction is located exactly between the two most developed areas in the region called the inner corridor. From a positive point of view, this will lead to more intensive linkages among sub regions in the area in which it is important to accelerate as well as to distribute urbanized activities in the region as a whole. On the contrary, from a negative point of view, toll road development particular in this inner corridor will become an unnecessary trigger for over concentrated development. To further illustrate, due to this toll road construction, Semarang district government plans to develop industrial zones in at least two different locations close to tollgate in the district area (2008). Mostly due to the decentralization spirit, the local government has the further expectation that this toll road development will contribute a significant role to attract more investors to develop particular industrial activities in this region.

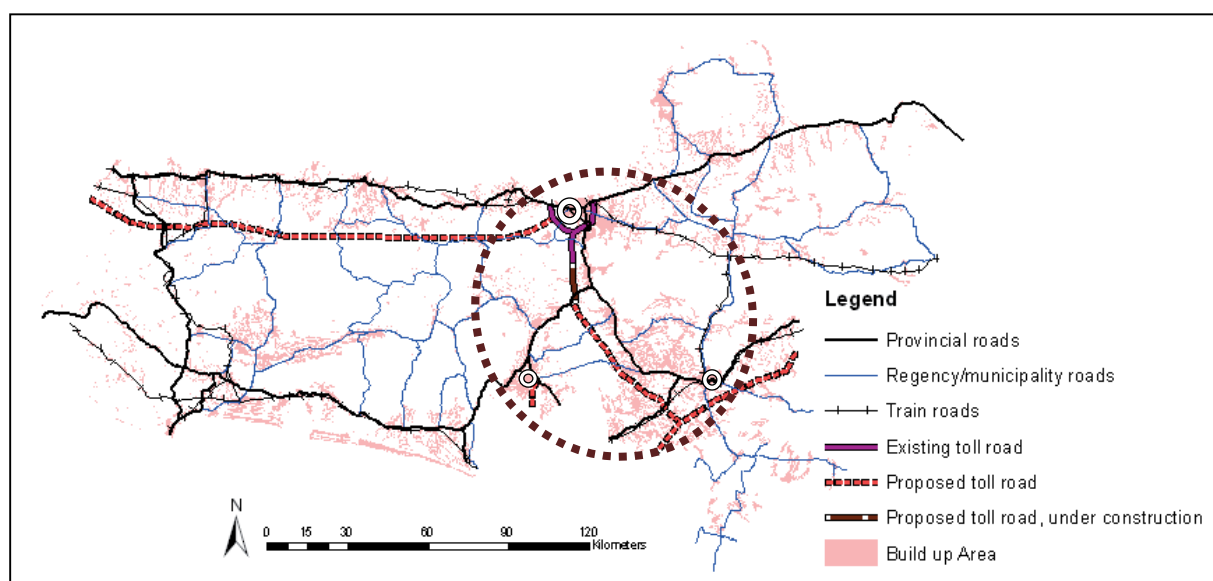


Figure 7.13 Toll Road and Its Impact to Spatial Development in Central Java

Note:

Toll road will strategically push the development of the inner corridor. It may strength networks among four main urban centers in the region, accelerate growth, well distributed urban activities or could also increase disparity.



As now without the toll road, the area has been performing as the fastest growing region in the province, hence, it should be carefully anticipated if the spread effect of accelerated development due to this particular infrastructure construction fails to reach backward regions. As this happens, disparity inevitably will get bigger, even though it could take place simultaneously with good performance in economic growth.

7.4.3 Population Distribution

7.4.3.1 Population Projection: Some Assumptions

At the provincial level, a population projection is required for generating more detailed scenarios. As earlier part (sub sub-chapter 7.3.2) have proposed general scenario path, differently, the population projection scenario contributes aimed to support land demand calculation for developing scenario of Central Java spatial formation. There are two scenarios basically applied:

- Status quo scenario. The assumption in this scenario is that the urban population growth rate will take place on a similar path as has been happening before. Therefore, growth rate (r) that has been identified based on 1990 and 2000 population census released by Indonesian central bureau of statistics (CBS) was used to calculate the number of population at the district level within the province. Concerning the trend that had taken place from 1990 until 2006, then geometric formula ($P_t = P_o (1+r)^t$) was used as this approach was considered as the most suitable formula compared to the linear and exponential approach.
- Low projection. Central Java can be categorized as experiencing the second stage of transition period where mortality is declining and fertility is still slightly high, therefore, low projection is considered as the most appropriate scenario as the counter part of the status quo scenario. According to the population transition theory, in the second stage of transition, population is still likely to grow but at a lower population growth rate. Furthermore, CBS (CBS, 2011) also has released provincial fact sheets mentioning that the Central Javan population growth rate has been declining at the lowest rate compared to other provinces in the country. In this calculation, the national projection for the provincial level was used as the reference. The result of the status quo scenario was used as a benchmark to distribute numbers of population at the district level.

Table 7.6 explains population projection with the status quo scenario as well as low projection scenario.



Table 7.6 Population Projection, 2030

DISTRICTS	r*	STATUS QUO**		LOW PROJECTION ***	
		Population Projection 2030	Number of **** population growth	Population Projection 2030	Number of **** population growth
1 Banjarnegara	0.0103	1,099,358	239,690	909,816	50,148
2 Banyumas	0.0079	1,800,523	309,858	1,490,092	-573
3 Batang	0.0135	932,856	256,704	772,021	95,869
4 Blora	0.0055	946,487	116,742	783,301	-46,444
5 Boyolali	0.0049	1,043,694	115,530	863,749	-64,415
6 Brebes	0.0150	2,523,879	758,315	2,088,733	323,169
7 Cilacap	0.0077	1,949,445	327,781	1,613,339	-8,325
8 Demak	0.0217	1,703,961	686,077	1,410,179	392,295
9 Grobogan	0.0062	1,529,090	210,804	1,265,458	-52,828
10 Jepara	0.0255	1,936,279	878,215	1,602,442	544,378
11 Karanganyar	0.0105	1,027,405	227,810	850,269	50,674
12 Kebumen	0.0012	1,238,365	35,135	1,024,857	-178,373
13 Kendal	0.0082	1,126,039	200,419	931,897	6,277
14 Klaten	0.0061	1,303,136	176,971	1,078,460	-47,705
15 Kota Magelang	0.0116	171,394	41,442	141,843	11,891
16 Kota Pekalongan	0.0152	390,392	118,584	323,084	51,276
17 Kota Salatiga	0.0197	273,504	102,256	226,349	55,101
18 Kota Semarang	0.0152	2,108,876	640,584	1,745,281	276,989
19 Kota Surakarta	0.0063	596,335	83,437	493,520	-19,378
20 Kota Tegal	0.0071	283,276	44,238	234,436	-4,602
21 Kudus	0.0168	1,140,424	375,861	943,801	179,238
22 Magelang	0.0110	1,499,496	346,262	1,240,965	87,731
23 Pati	0.0080	1,410,711	245,552	1,167,488	2,329
24 Pekalongan	0.0147	1,189,321	351,415	984,268	146,362
25 Pemalang	0.0169	2,010,343	665,746	1,663,736	319,139
26 Purbalingga	0.0084	998,300	181,580	826,182	9,462
27 Purworejo	0.0047	802,895	85,456	664,466	-52,973
28 Rembang	0.0103	730,038	159,168	604,171	33,301
29 Semarang	0.0148	1,267,532	376,634	1,048,995	158,097
30 Sragen	0.0063	995,596	139,300	823,944	-32,352
31 Sukoharjo	0.0132	1,114,617	300,960	922,444	108,787
32 Tegal	0.0138	1,954,727	547,931	1,617,709	210,913
33 Temanggung	0.0118	920,927	225,978	762,148	67,199
34 Wonogiri	0.0067	1,148,945	170,137	950,853	-27,955
35 Wonosobo	0.0091	934,797	182,661	773,627	21,491
TOTAL		42,102,961	9,925,231	34,843,926	2,666,195

Note:

*was taken from CBS based on census in 1990 and 2000

**is based on assumption that number of population in 2030 will have geometric trend line similar with what had been happening in 1990-2006.

***is based on census taken in 2000 and 2010, population growth rate in Central Java province has been declining and reform to have the lowest rate compared to other provinces in the country. In this calculation, national projection for provincial level was used as the reference.

****number of population growth 2006-2030. Negative values in low projection scenario indicate shrink regions.

The following explanation in the Table 7.6, graphic in Figure 7.14 further illustrates the difference between the status quo and the low projection scenario. There is a significant difference. The number of population growth reaches almost 10 million in the quo scenario while it is only around 2.5 millions in the low projection scenario, a quarter of the status quo position.

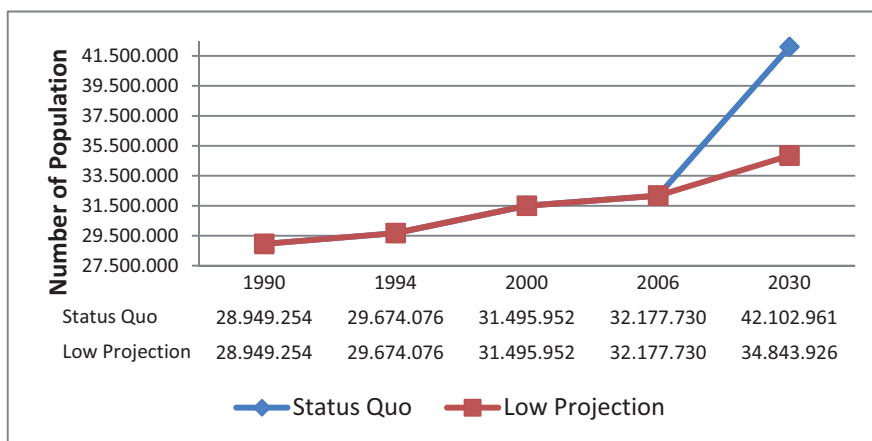


Figure 7.14 Population Projection for Central Java, 2030: Status Quo and Low Projection Scenario

Source: CBS and calculation result

Based on particular consideration, it is likely that the low projection scenario is more reasonable to take place in the Central Java future instead of the status quo scenario. The first is in the perspective of the demographic transition theory. As in the final part of the second stage, in the direction to the third stage of demographic transition, the number of population in Central Java is still likely to grow but certainly at a much lower population growth rate. The second is related to life style or social considerations. Central Java can be categorized as a relatively developed province in the country. As has been implied in demographic transition theory argumentation, the developed region is mostly characterized by significant numbers of woman participating in the labor force. This participation influences the declining of the fertility rate, as working women are likely to have fewer children compared to housewives. The third consideration is of location. Located between the two biggest urban centers in the country, as has been explained in Chapter Five, it is likely that the number of in and out migration in the province is considerably under control at least in comparison to all its neighboring provinces (Jakarta, West Java, DI Yogyakarta, and East Java).

Nevertheless, either in the form of status quo, low projection or something else, it is quite noticeable that the number of population in the province is still likely to grow. This should be carefully anticipated with sufficient infrastructure and tolerable spatial plans mainly since Java Island also functions as a centre for agricultural products, paddy rice in particular, as well as the fact that the Island also has significant area categorized as a disaster prone zone.

7.4.3.2 Kernel Density

Kernel density is a particular statistic formula that can be applied to estimate density in a non-parametric way. In a spatial context, it is widely used to



identify how density spreads across the landscape. The kernel density function estimates the intensity of events across a surface by calculating the number of cases situated within a determined radius (Kloog et al, 2008). Kernel density in this research is applied to initially indicated population density distribution in 2030 based on the situation in 2000. The number of population in sub-district level was used as units of analysis and the status quo scenario was applied to forecast the number of population in each of the 573 sub-districts located in the research area by 2030. The calculation, in principle, was applied to roughly provide a spatial estimation regarding current and potential population density distribution in the study area to support land allocation scenario. The calculation does not contribute a direct role in the scenario building process. However, the result is considered as very useful for cross-checking as well as to provide alternative comparable approach to estimate potential population distribution.

The map in Figure 7.15 and 7.16 explains density distribution in 2000 and 2030. The density in 2000 is more dispersed compared to the situation of 2030. In 2000, the population was likely to concentrate in seven different scales of urbanized areas. Urban regions namely Semarang and Surakarta have been identified as the densest areas in the province. Subsequently, based on the Kernel principle, the seven centers that were identified based on calculation for 2000 data are likely to merge into three sizeable centers by 2030. Semarang is predicted to rapidly grow to its eastern part, Surakarta will grow in a ring form, and there will be an emerging of one sizeable urban center in the western part of the province centered in the Tegal region. However, as can be seen in both Figure 7.15 and 7.16, the southern part of the province is likely to be stagnant and potentially perform as the lagging region of the province.

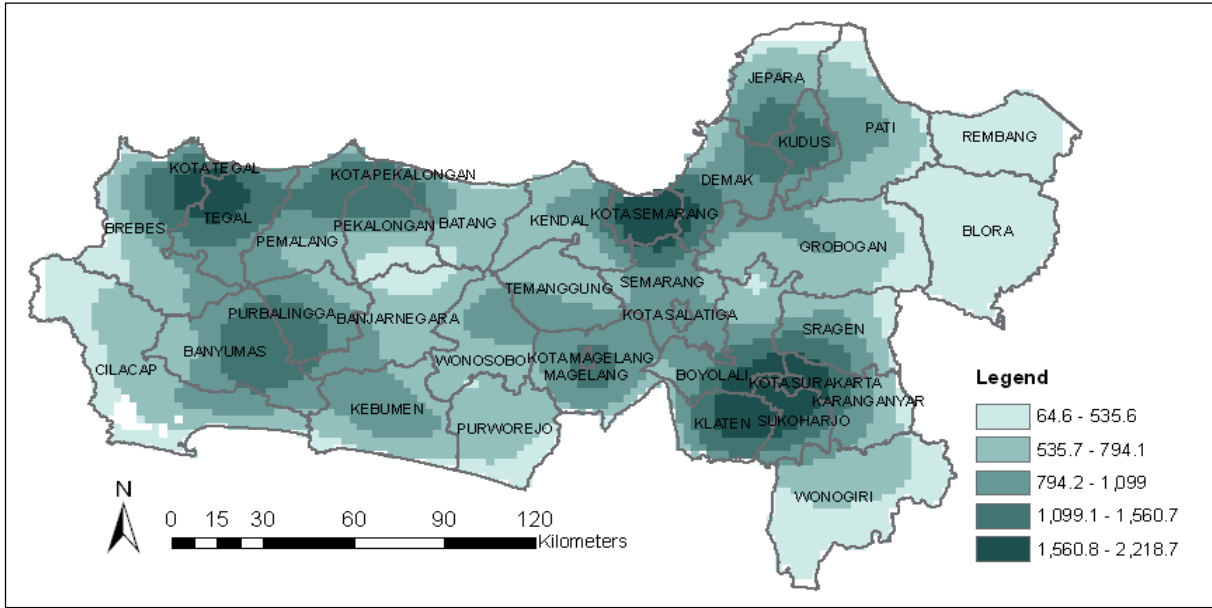


Figure 7.15 Result of Kernel Density, Population Density 2000

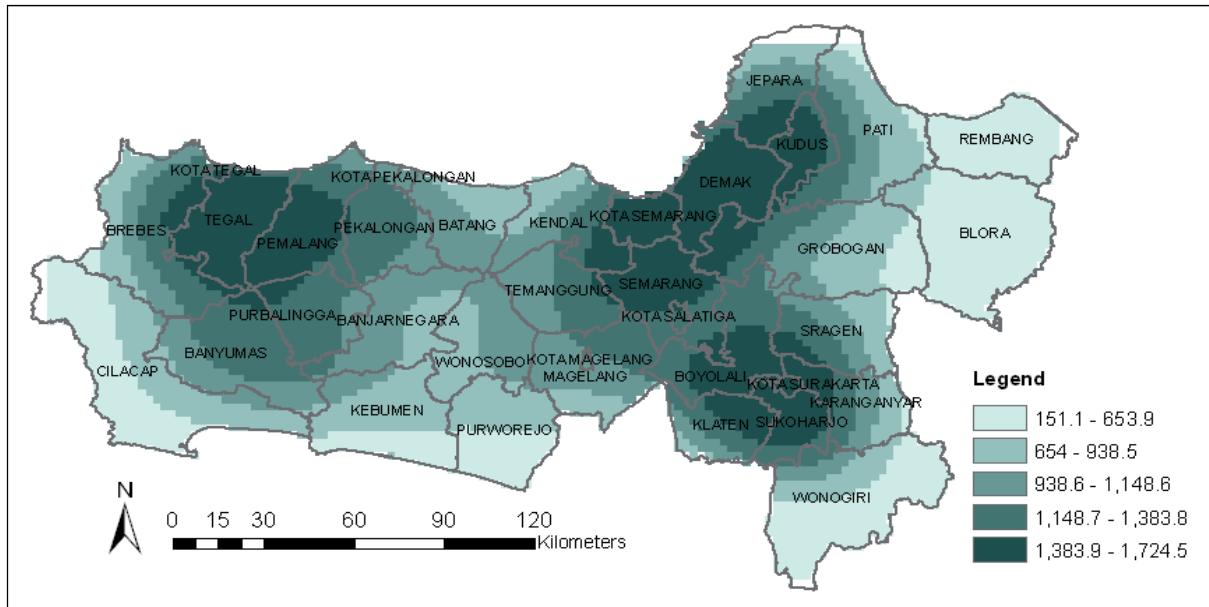


Figure 7.16 Result of Kernel Density, Population Density 2030

Note: projection based on status-quo scenario

The map in Figure 7.17 further explains density changes between 2000 and 2030 in Central Java Province. Concerning the changes, it is identified that most coastal areas of the region will experience significant decreasing numbers of population density while some few others mostly located in inner areas will experience increasing population density. Developed coastal areas located in the northern corridor will experience decreasing population density as their neighboring district formerly functioned as the periphery region, will have an increasing population density. Salatiga, Temanggung, Pekalongan and Pemalang are four inner districts that are predicted to experience the highest growth of population density in the province. These have been clearly illustrated sub-urbanization phenomenon. Suburbanization is a general term to explain developing fringe areas of such urban centers due to changing roles of the zone. In sub-urbanization, the city center experiences decreasing population density mostly because concentration of the settlement area moves into urban fringes while the center is dominated more for commercial activities. With regard to the result in the kernel density, it is predicted that by 2030 most of current urban centers that are located in coastal areas in the northern corridor will develop more into an agglomeration of urban activities in a stage of sub-urbanization. It then will result in the development of fringe areas from non built-up changes into a concentration of such urban settlements.

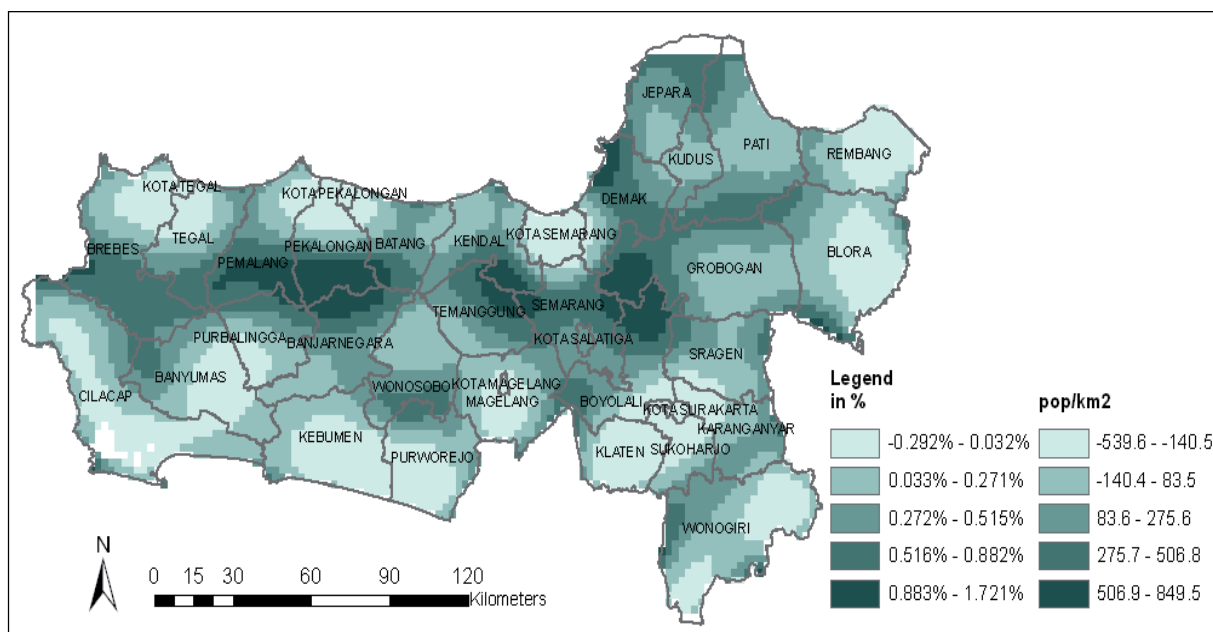


Figure 7.17 Result of Kernel Density, Population Density Changes 2000-2030

Unlike the sub-urbanization phenomenon that potentially takes place in the coastal northern corridor due to rapid growth of the urban centers in this particular part of the province, the coastal area in the southern corridor is likely to be stagnant. As described in Kernel density results for 2000 and 2030, four districts located in the southern corridor namely Wonogiri, Purworejo, Kebumen, and Cilacap are likely to have a constant value of low density. Indeed, as it can be indicated in Figure 7.17, the decreasing population density is predicted to take place not because of the sub-urbanization but mostly because of the status as a backward or less developed region.

However, calculation of kernel density is not able to capture physical aspects or the physical environment. As a matter of fact, the predicted areas that will experience the highest growth of population density are mountainous regions which are unlikely to experience land conversion due to physical limitations. Considering regional development more in physical potential, it is likely that coastal areas and in particular flat areas in inner zone are still favorable to experience land conversion and therefore have a higher possibility in the future of experiencing high population density compared to the mountainous regions intended based on kernel density calculations.

Apart from physical aspects that cannot be identified in kernel density calculations, this density result as illustrated above may provide some critical facts in regard to common settlement systems in the province. First, the current settlement system is likely to concentrate only in coastal areas in the northern corridor. Second, only particular inner zone that are physically suitable to be converted into settlement areas will have a higher possibility to



experience high growth of population density in the future. Third, if there is not any further policy support the southern coastal corridor will remain stagnant.

7.4.3.3 Trend of Population Distribution: Shrinking and Developed Regions

Beside projection and density, distribution is another important part of the population aspect. As has been indicated from the calculation of population projection and kernel density, significant differences in the population growth rate among districts within the province will influence the configuration of population distribution in the future. Considering trend that had happened from 1990 to 2000 both in the status quo and low projection scenarios, it is indicated that by 2030, there will be two categories of regions. The first are shrinking regions in which they experience a decreasing number of inhabitants and the second is the developed regions in which they experience increasing numbers of population.

Figure 7.18 illustrates population growth at the district level both in status quo and low projection scenarios. In general, it can be identified that there is a significant difference between population growth in the status quo and low projection scenarios. Some districts, mostly categorized as urban districts, are predicted to have a relatively low number of population growth in both scenarios. It is only Kota Semarang (the capital city of the province), the urban district that will experience quite significant population growth.

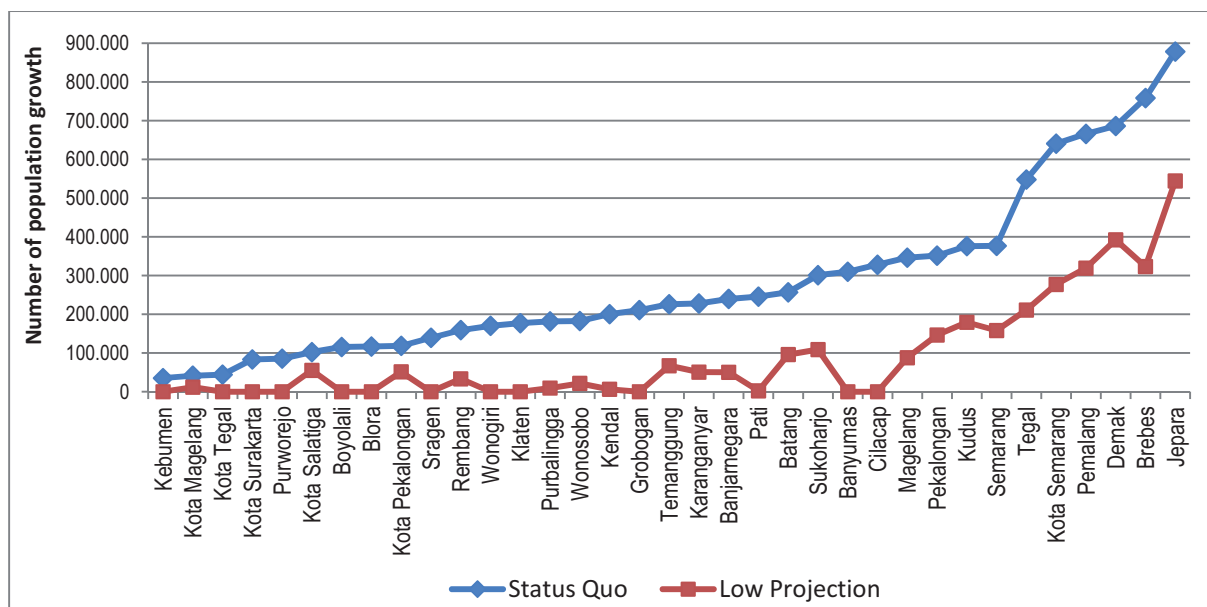


Figure 7.18 Number of Population Growth in District level in Central Java, 2000 – 2030

Note:

Shrink districts (indicated by negative value of population growth in low projection scenario) assumed as null (0).



With the assumptions applied to the status quo scenario, they will not become shrinking districts. Accordingly, only particular urban and non-urban district will experience a slightly low population growth. On the contrary, there are about 12 districts which are categorized as shrinking regions when the assumptions of low projection were applied. The illustration in Figure 7.19 may support the result of kernel density calculations explained in the previous part. Most shrinking regions are located in coastal regions in the southern part of the province. Accordingly, developed regions are located mostly in the northern corridor.

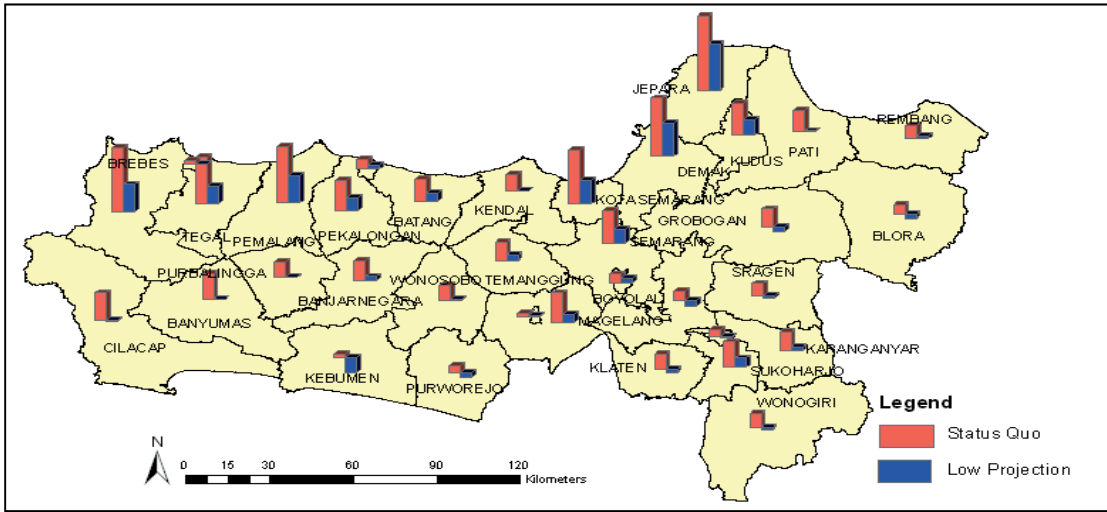


Figure 7.19 Population Growth per District in Central Java Province 2006-2030

7.4.4 Land Allocation: Land Use Coefficient, Land Demand, and Land Potential

Following some population analyses, land allocation scenarios were developed basically to identify any possible land demand and land supply compositions within the next two decades. There are three main aspects that were calculated to further develop these scenarios.

1. Land Use Coefficient

The land use coefficient formula was applied as an initial step to estimate the land demand. In principle, the land use coefficient indicates the required area to accommodate one additional inhabitant in a particular district. The formula for land use coefficient was used to calculate 1994 and 2006 data. They include data of built-up areas and population at the district level. The formula is:

$$\mu = \frac{(L2-L1)}{(Pop2-Pop1)} \tag{1}$$

Where:

- L2 = Built-up area 2006
- L1 = Built-up area 1994
- Pop2 = Population 2006
- Pop1 = Population 1994



Table 7.7 shows results of land use coefficient calculations in 35 districts located in Central Java Province. As explained in the Table, in provincial average, it requires 640.569 m² for one additional person in the province. This number is based on the calculation of the land use coefficient formula mentioned above under the fact that between 1994 and 2006 there were 1,836.52 m² of converted land to accommodate 2,701,907 additional people. Indeed, there are some districts which require wider areas as many others required less. In particular, shrinking regions were assumed to have zero m² of land coefficient due to zero population growth

2. Land Demand

Figure 7.20 illustrates land demand in four different scenarios in 35 districts located in the province. These land demands resulted from multiplication of the land use coefficient and population growth. Two land coefficients were applied; those are the district land coefficient and provincial average land coefficient.

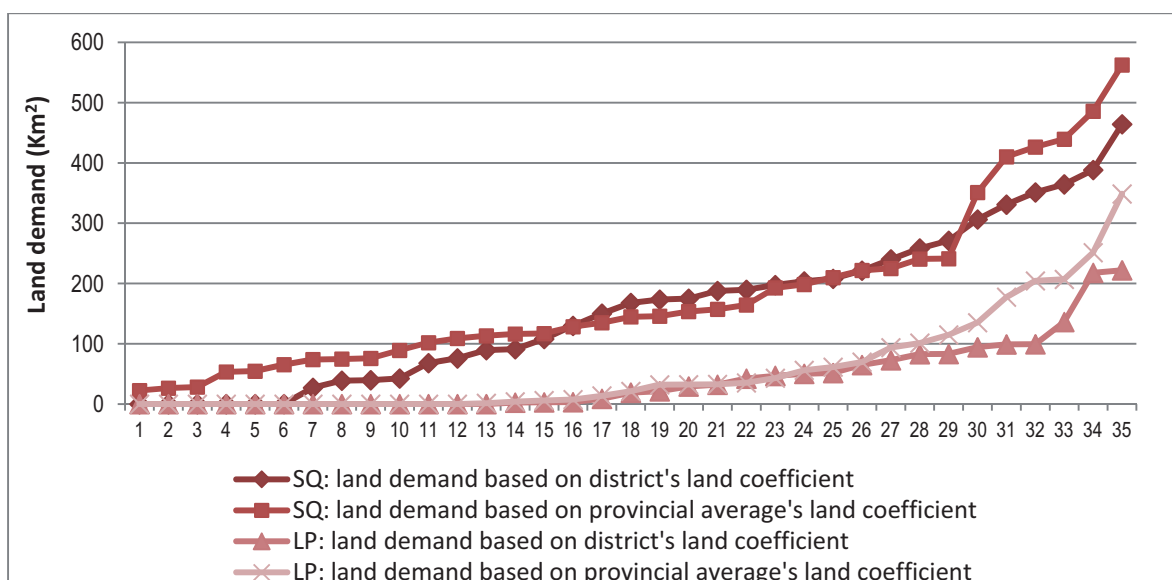


Figure 7.20 Land Demand in 2030, Status Quo and Low Projection Scenario

Note:

SQ: Status Quo scenario

LP: Low Projection scenario

As described in Figure 7.20, there is a lower required land demand in the low projection scenario compared to the status quo scenario. Accordingly, there are also smaller gaps between the lowest and the highest land demand among districts in addition to the fact that there are quite a significant number of shrinking districts in the low projection scenario.

Table 7.7 Land Use Coefficient Calculation

	Built-up 1994 (Km ²) (1)	Built-up 2006 (Km ²) (2)	Land conversion (Km ²) (3)=(2)-(1)	Population 1994 (4)	Population 2006 (5)	Number of population growth (6)=(5)-(4) shrink district=0	(7)	(Km ² /person) (8a)=(3)/(7)	Land-use coefficient (m ² /person) (8b)
1 Banjarnegara	63.27	116.49	53.22	806,544	859,668	53,124	53,124	0.001001807	1,001.807
2 Banyumas	127.42	204.07	76.65	1,403,025	1,490,665	87,640	87,640	0.000874601	874.601
3 Batang	23.91	107.74	83.83	617,126	676,152	59,026	59,026	0.001420222	1,420.222
4 Blora	47.54	80.02	32.48	787,424	829,745	42,321	42,321	0.000767468	767.468
5 Boyolali	124.20	274.50	150.30	890,757	928,164	37,407	37,407	0.004017965	4,017.965
6 Brebes	68.28	129.64	61.36	1,555,424	1,765,564	210,140	210,140	0.000291996	291.996
7 Cilacap	145.45	230.77	85.32	1,537,158	1,621,664	84,506	84,506	0.001009632	1,009.632
8 Demak	82.99	175.55	92.56	854,348	1,017,884	163,536	163,536	0.000565992	565.992
9 Grobogan	131.30	200.63	69.33	1,240,404	1,318,286	77,882	77,882	0.000890193	890.193
10 Jepara	38.02	130.47	92.45	826,844	1,058,064	231,220	231,220	0.000399836	399.836
11 Karanganyar	53.58	101.49	47.91	742,045	799,595	57,550	57,550	0.000832493	832.493
12 Kebumen	135.69	155.36	19.67	1,185,484	1,203,230	17,746	17,746	0.001108419	1,108.419
13 Kendal	72.70	112.80	40.10	819,729	925,620	105,891	105,891	0.000378691	378.691
14 Klaten	92.81	223.75	130.94	1,202,742	1,126,165	-76,577	0	0.000000000	0.000
15 Kota Magelang	14.00	14.05	0.05	116,712	129,952	13,240	13,240	0.00003776	3.776
16 Kota Pekalongan	7.45	23.53	16.08	243,760	271,808	28,048	28,048	0.000573303	573.303
17 Kota Salatiga	24.80	35.14	10.34	144,620	171,248	26,628	26,628	0.000388313	388.313
18 Kota Semarang	122.92	184.32	61.40	1,206,363	1,468,292	261,929	261,929	0.000234415	234.415
19 Kota Surakarta	29.81	45.19	15.38	531,377	512,898	-18,479	0	0.000000000	0.000
20 Kota Tegal	16.24	22.89	6.65	232,126	239,038	6,912	6,912	0.000962095	962.095
21 Kudus	31.01	102.66	71.65	634,980	764,563	129,583	129,583	0.000552927	552.927
22 Magelang	122.34	188.43	66.09	1,040,841	1,153,234	112,393	112,393	0.000588026	588.026
23 Pati	117.06	180.94	63.88	1,113,959	1,165,159	51,200	51,200	0.001247656	1,247.656
24 Pekalongan	23.78	75.77	51.99	733,459	837,906	104,447	104,447	0.000497764	497.764
25 Pemalang	28.19	80.24	52.05	1,144,801	1,344,597	199,796	199,796	0.000260516	260.516
26 Purbalingga	57.63	89.64	32.01	782,111	816,720	34,609	34,609	0.000924904	924.904
27 Purworejo	153.61	160.56	6.95	735,389	717,439	-17,950	-17,950	0.000000000	0.000
28 Rembang	17.09	42.78	25.69	526,020	570,870	44,850	44,850	0.000572798	572.798
29 Semarang	86.13	152.98	66.85	763,427	890,898	127,471	127,471	0.000524433	524.433
30 Sragen	75.94	118.89	42.95	866,694	856,296	-10,398	0	0.000000000	0.000
31 Sukoharjo	80.96	119.31	38.35	724,794	813,657	88,863	88,863	0.000431563	431.563
32 Tegal	49.28	112.38	63.10	1,272,912	1,406,796	133,884	133,884	0.000471304	471.304
33 Temanggung	71.68	101.31	29.63	633,023	694,949	61,926	61,926	0.000478474	478.474
34 Wonogiri	74.96	147.13	72.17	1,053,657	978,808	-74,849	0	0.000000000	0.000
35 Wonosobo	14.80	21.94	7.14	703,997	752,136	48,139	48,139	0.000148320	148.320
TOTAL	2,426.84	4,263.36	1,836.52	29,674,076	32,177,730	2,503,654	2,701,907	0.000640569	640.569
							Average:		



3. Land potential based on calculation of probability of transferability calculation

Land potential or land supply basically is represented by probability values of transferability from non built-up areas to be changed into built-up area. These probability values were derived based on trends of land conversion that had happened between 1994 and 2006. Therefore, trends of land conversion had been taking place based on four different variables were examined to calculate the probability values. The variables include slope, land use type, distance from built-up areas in 1994, and distance from main roads. All these variables were analyzed using ArcGIS 9.3 with the assistance of 'model builder'. Most of the calculations were raster based within each 300mx300m cell sized (grid). One grid represents one value. Table 7.8a, 7.8b, and 7.8c explain characteristic of land use change in each variables that had happened between the time series. As it was indicated, all land use change is likely taking place in the radius of 1km from the main road, therefore, there are not any detailed results for distance from main road but only deliniating the scoped area of final analyses which resulted in 1 km maximum distance from main road.

Table 7.8a Potential of Transferability Based on Slope, Data 1994 and 2006

Slope	Area (Km ²)	Proportion
> 40 %	0.37	0
0 - 8 %	1,587.46	87
15 - 25 %	76.71	4
25 - 40 %	13.00	1
8 - 15 %	146.09	8
Water body	1.92	0
		100

Table 7.8b Potential of Transferability Based on Land Use Type, Data 1994 and 2006

Land use 1994	Land use 2006	Area (Km ²)	Proportion
Dry Land Farming	Built-up	535.64	29
Forest	Built-up	65.16	4
Plantation	Built-up	4.67	0
Protected Paddy Field	Built-up	1,206.95	66
Water Body	Built-up	23.18	1
			100



Table 7.8c Potential of Transferability Based on Distance from Built-up 1994, Data 1994 and 2006

Distance from built-up 1994 (Km)	Polygons	Proportion
0-1	1,781	54
1,01-2	772	23
2,01-5	529	16
5,01-12	144	4
12,01-19,1	87	3
		100

By examining proportion calculations as explained in Table 7.8a, 7.8b, and 7.8c, it is finally identified that between 1994 and 2006, most potential land to be covered into built-up areas are likely to be located in flat areas (slope 0-8 %), in 1994 functioned as protected paddy fields and within radius 1 Km from built-up areas in 1994.

Figure 7.21 explains the final result of multiplication of probability value that is represented as a proportion in Table 7.8a, 7.8b, and 7.8c. It excludes 0 (zero) in which this value indicates null possibility to be transferred due to the current status that have been already perform as built-up or due to physical constraint (e.g. slope > 40 %).

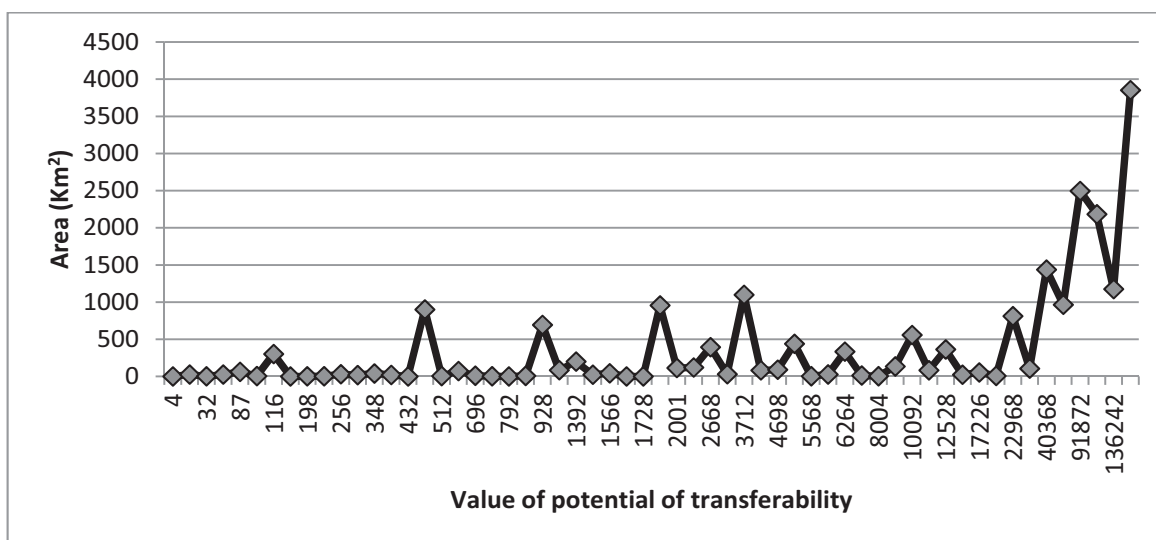


Figure 7.21 Value of Potential of Transferability Based on Data 1994 and 2006

To create a better illustration of the potential value of transferability, the least possible class principle was applied. Some considerations as explained in the following part were used to simplify the final result of multiplication by filtering the data:



- Besides ignoring the null values which indicate null possibility due to its current status that have been already developed as built-up or due to physical constraint (e.g. slope > 40 %), values that are below average were also excluded
- Excluded small patches (less than average number of grid) as it was considered that these small patches is not contribute significantly to the final possible spatial formation.
- Since the final results present 238,716 grids , then ony 75 per cent of the total number of grids starting from the highest dominant values were taken into account.
- The quantile principle of classification was applied as this type of classification takes into account variation of data (data:value to indicate potential of transferability).

As the final result of data filtering process, Figure 7.22 illustrates area (in Km²) that is potential to be tranferred into built-up areas at the district level based on the trend in 1994-2006. There are three classes; classified as high potential, potential, and low potential. Some districts were calculated to have significant areas with higher probability to be transferred into built-up areas. Quite the opposite, some districts mostly categorized as urban district areas, were predicted to have lesser area with high probability to be transferred into built-up area. This is reasonable mainly due to the fact that most urban districts are already fully occupied by such urbanized activities.

As further illustrated in Figure7.23, in general, the land potential of transferability calculation is quite similar with the kernel density calculation. There are three 'spots' that indicate having higher probability to develop faster compared to other parts of the provinces. All these three spots are located quite similarly as explained by the population projection, kernel density, as well as population distribution. They are located in the northern corridor and the inner corridor of the province.

With the reference of the capital city as the biggest urban center in the current situation, the eastern part is predicted to have larger potential area with high probability to be transferred into built-up areas compared to the western and the northern part of the capital city.

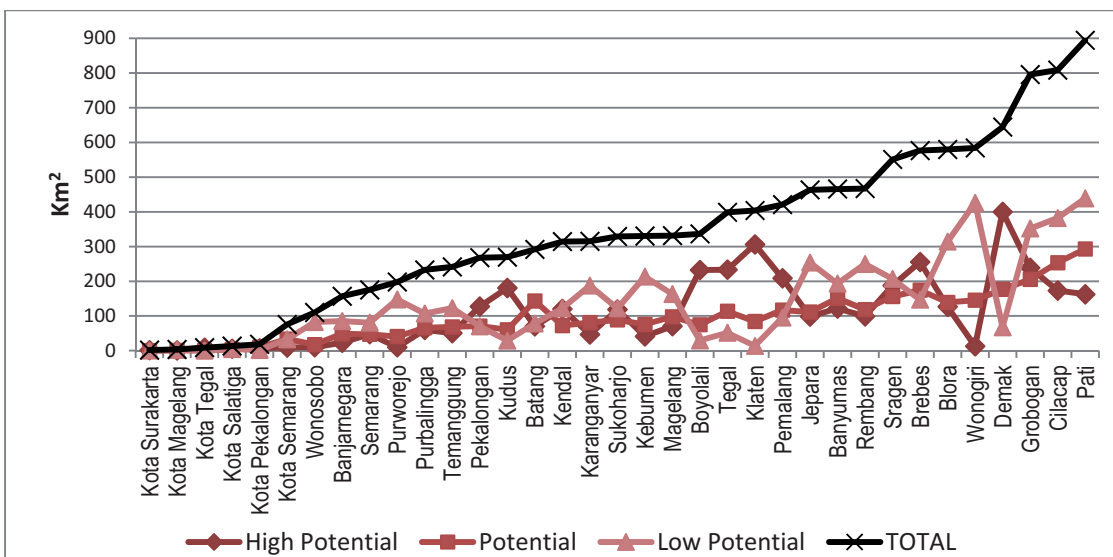


Figure 7.22 Potential of Transferability per District Based on Data 1994 and 2006

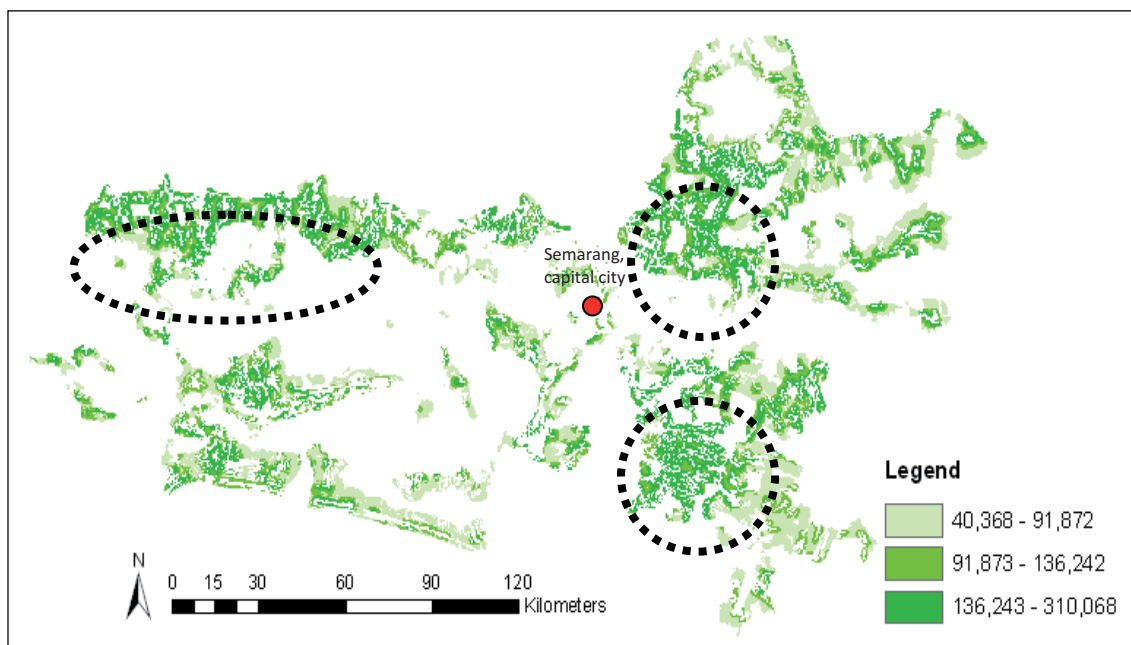


Figure 7.23 Potential of Transferability per District Based on data 1994 and 2006

4. Land demand vs. land potential of transferability

Previous parts have separately explained the land demand and the land potential of transferability in the status quo and the low projection scenario. To have a comprehensive understanding of any possible land allocation in 2030, a comparison of the land demand and the land potential of transferability are explained in the following parts.

Table 7.9 give details of land demand and land potential of transferability at the district level in 2030. Following that, Figure 7.24 describes the land demand and the land potential in a graph format. As can be seen in Table 7.9, total area of land potential of transferability is higher compared to total area of land demand for both, the status quo and low projection scenarios.



However, as described in Figure 7.24, there are some districts particularly in the status quo scenario which require higher land demand compared to land potential of transferability.

Looking further at the calculation results in Table 7.9 and Figure 7.24, there are at least two important issues considered as significant to be comprehended. In brief, these can be explained as follows:

- As clearly mentioned on the table, in general, there is still sufficient area in the province to accommodate population growth in both, the status quo scenario and low projection scenarios. The land demand is likely less than the land supply. However, the land supply calculation explained in the table is resulted from trend that had happened between 1994 and 2006. As explained in Table 7.8, it implies, 66 per cent of total land potential unfortunately functioned as a protected paddy field zone. This means, if there is not any supporting policy to control the situation, land conversion as a critical part of the urbanization process will seriously influence food security in the province as well as in the country. The map in Figure 7.24 in comparison with Figure 7.25 further illustrated that most of the potential area to be converted into built-up areas were also utilized as protected paddy fields or protected arable land.
- Looking further at the trend of population distribution, it is important to clearly comprehend that districts with high land demand and predicted to have high population growth are also have significant areas functioning as protected paddy field areas. On the other hand, there are some other districts with quite significant available area to be converted into built-up or urban activities, but, do not require high land demand or in other words are not categorized as fast developing areas. In brief, looking inside the district level, there is still a lot of discrepancy between available land supply and estimated land demand.

Table 7.9 Land Demand and Land Potential of Transferability in Central Java Province, 2030 (Km²)

No	Districts	LAND DEMAND				LAND POTENTIAL OF TRANSFERABILITY			
		SQ 1	SQ 2	LP 1	LP 2	High Potential	Potential	Low Potential	TOTAL
1	Banjarnegara	240.12	153.54	50.24	32.12	22.80	48.68	85.30	156.79
2	Banyumas	271.00	198.49	0.00	0.00	121.45	151.05	193.31	465.80
3	Batang	364.58	164.44	136.15	61.41	70.35	143.32	78.15	291.82
4	Blora	89.60	74.78	0.00	0.00	126.62	139.05	314.12	579.79
5	Boyolali	464.19	74.00	0.00	0.00	232.36	74.68	29.47	336.51
6	Brebes	221.42	485.75	94.36	207.01	255.42	174.41	146.75	576.58
7	Cilacap	330.94	209.97	0.00	0.00	173.06	253.36	382.03	808.45
8	Demak	388.31	439.48	222.04	251.29	399.98	176.99	67.38	644.34
9	Grobogan	187.66	135.03	0.00	0.00	238.60	205.22	351.92	795.74
10	Jejara	351.14	562.56	217.66	348.71	98.39	111.15	253.84	463.39



No	Districts	LAND DEMAND				LAND POTENTIAL OF TRANSFERABILITY			
		SQ 1	SQ 2	LP 1	LP 2	High Potential	Potential	Low Potential	TOTAL
11	Karanganyar	189.65	145.93	42.19	32.46	46.54	81.09	187.54	315.16
12	Kebumen	38.94	22.51	0.00	0.00	41.29	75.56	213.49	330.35
13	Kendal	75.90	128.38	2.38	4.02	120.12	72.26	122.03	314.41
14	Klaten	0.00	113.36	0.00	0.00	306.18	84.26	13.56	403.99
15	Kota Magelang	0.16	26.55	0.04	7.62	0.71	0.66	2.16	3.53
16	Kota Pekalongan	67.98	75.96	29.40	32.85	6.77	9.99	1.75	18.52
17	Kota Salatiga	39.71	65.50	21.40	35.30	5.59	3.11	4.64	13.34
18	Kota Semarang	150.16	410.34	64.93	177.43	9.00	33.66	32.67	75.33
19	Kota Surakarta	0.00	53.45	0.00	0.00	1.28	0.30	0.12	1.70
20	Kota Tegal	42.56	28.34	0.00	0.00	8.51	0.23	0.00	8.74
21	Kudus	207.82	240.76	99.11	114.81	180.59	60.19	28.80	269.57
22	Magelang	203.61	221.80	51.59	56.20	70.57	97.71	163.20	331.47
23	Pati	306.36	157.29	2.91	1.49	162.47	292.99	438.95	894.40
24	Pekalongan	174.92	225.11	72.85	93.76	127.15	70.69	70.12	267.96
25	Pemalang	173.44	426.46	83.14	204.43	208.71	116.85	95.38	420.94
26	Purbalingga	167.94	116.31	8.75	6.06	59.74	65.91	106.90	232.54
27	Purworejo	0.00	54.74	0.00	0.00	9.72	40.66	147.45	197.84
28	Rembang	91.17	101.96	19.07	21.33	98.91	118.51	249.75	467.16
29	Semarang	197.52	241.26	82.91	101,27	47.42	47.02	80.61	175.05
30	Sragen	0.00	89.23	0.00	0.00	187.80	156.15	207.09	551.04
31	Sukoharjo	129.88	192.79	46.95	69.69	118.61	88.62	121.86	329.09
32	Tegal	258.24	350.99	99.40	135.10	233.44	113.57	51.73	398.74
33	Temanggung	108.12	144.75	32.15	43.05	50.57	68.40	122.48	241.45
34	Wonogiri	0.00	108.98	0.00	0.00	12.77	145.37	426.03	584.17
35	Wonosobo	27.09	117.01	3.19	13.77	9.95	17.48	82.60	110.03
TOTAL		5,560.16	6,357.80	1,482.81	2,051.18	3,863.42	3,339.13	4,873.17	12,075.72

Note:

SQ 1 is land demand based on status quo scenario with district's land coefficient

LQ 2 is land demand based on status quo scenario with provincial average's land coefficient

LP1 is land demand based on low projection scenario with district's land coefficient

LP2 is land demand based on low projection scenario with provincial average's land coefficient

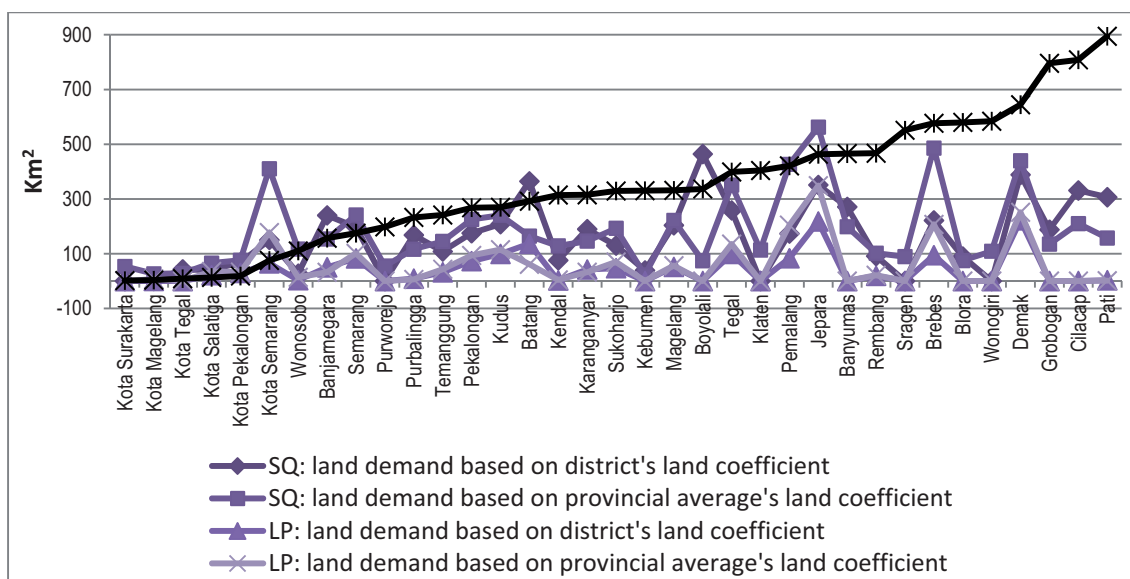


Figure 7.24 Land Demand and Land Potential of Transferability in District Level in Central Java, 2030

Note: SQ: Status Quo scenario

LP: Low Projection scenario

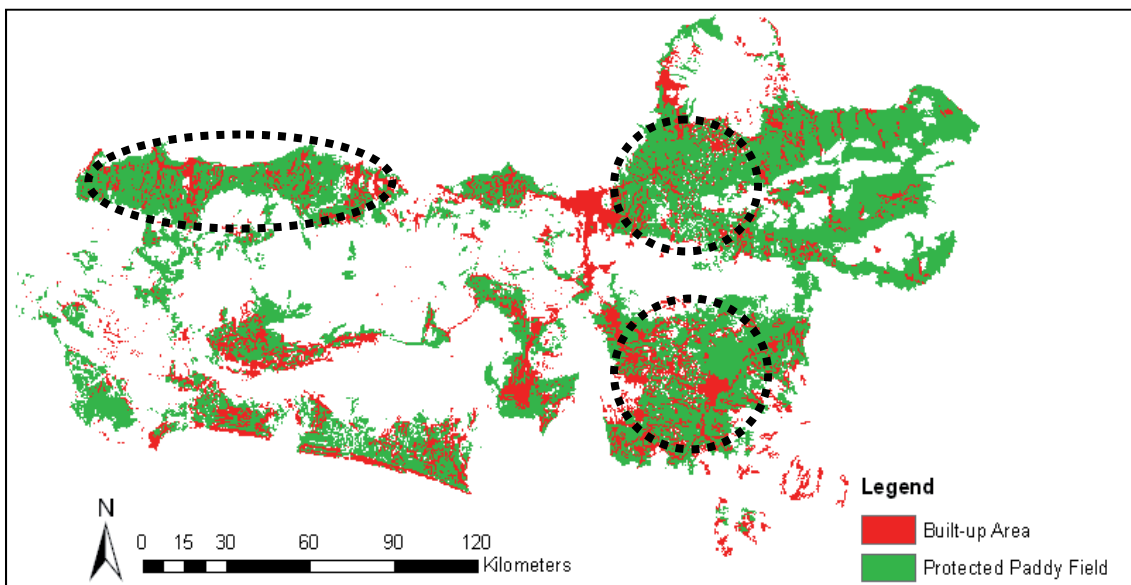
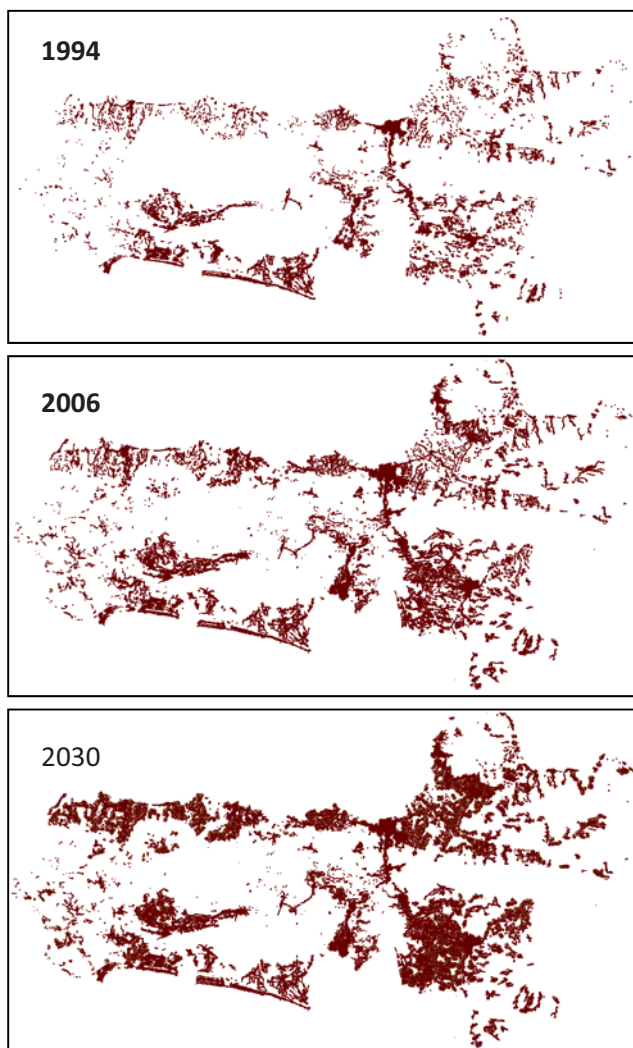


Figure 7.25 Built-up Area and Protected Paddy Field In Central Java, 2006

Note: spots of high potential of transferability

5. Summary: Built-up Area in Central Java 1994, 2006, and 2030



The figures illustrate that in 1994-2006, the research area has experienced relatively significant land conversion.

If there is not any appropriate control mechanism, the situation in 2030 will badly influence staple food supply as well as problems related to environmental unbalanced.

Java, the island where Central Java is located, is the densest island in the country. This leads to a critical requirement to revise development policy starting from national level. The revision is mostly in regard to the urgent need to redistribute economic activities and population.

Figure 7.26 Built-up Area of Central Java 1994, 2006, and 2030



7.4.5 Good Governance Implementation

Since the decentralization era has been released in 1999, local governments in the entire district level in Indonesia have an extended authority in which requires greater responsibility and a lot of homework for self-development. Along with this decentralization task, good governance terminology appears as a key factor that should be applied for these governments in order to optimize necessary public services to effectively and efficiently develop the region.

In Central Java, efforts to apply good governance principles takes place with the help of some donor agencies including GTZ, ADB, and USAID. As illustrated in Figure 7.11, donor agencies have contributed significant assistance to establish public institutions mainly in enforcing local economic development and empowering local people.

USAID through Local Governance Support Program (LGSP) is one of the donor agencies that has significant contribution for strengthening local government based on good governance principles in particular provinces in Indonesia. The program was implemented on 2005-2009 in nine selected provinces including Central Java. LGSP addresses three core competencies of local administrations, including:

- 1) Strategy and participatory planning
- 2) Finance, budgeting, and accounting
- 3) Management systems for public service delivery

According to the LGSP final report (RTI International, 2009), Central Java has made significant improvement in the three core subjects of LGSP. Some significant outcomes are:

- 1) Central Java made good connections. This includes connections among local governments, connections to the provincial government, as well connections to universities. This good connections lead on the establishment of RDC (Resource Development Center) to ensure the sustainability of LGSP achievement. RDC functioned as a stimulus for maintaining local governance principles at the local (district) level by linking local governments with technical support and service providers. Therefore, RDC members area related experts from universities as well s professionals who receive operational funding from provincial government to facilitate local government in the sphere of local economic development including local institutional development and local empowerment.
- 2) Formation of a technical team at the district level to oversee sustainability and activities following the closure of LGSP. This technical team is representatives of all related stakeholders to ensure that all parts of local institutions are actively taking a part in developing the region.



- 3) Integrated planning and budgeting clinics. Expectedly, these clinics will continue the LGSP program to provide information and consultations any budgeting issues that should be handled by local government.

All the outcomes at least have made certain that at the moment the province has been developed in the right corridor to achieve more balanced development in the future. As it is believed that strong locally based institutions will lead to strong based local economic development, the establishment of RDC along with good performance of related institutions to support local economic development (see Figure 7.11) will perform as advanced ammunition to enforce local based development in a broad spectrum.

7.4.6 Scenarios for Future Spatial Formations in Central Java Province

By compiling all aspects that are considered as significant factors, the very final part of future spatial formation in Central Java is described in three versions of the scenario. The first scenario is based on status quo population projection, the second scenario is based on the low population projection scenario, and the third scenario is called an ambitious-balanced development scenario. However, apart from population, there are at least three other influencing factors that are acknowledged to be briefly overviewed. They are economic stimulus, infrastructure development, and good governance implementation.

- Economic stimulus

Framework for economic development in Central Java as has been clearly stated in the long-term development plan 2005-2025 and medium-term development plan 2008-2013 is highlighted with the spirit of balanced economic growth and equality. Institutional supports by forming the Economic and Resources Development Forum (ERDF), Forum for Economic Development and Employment Promotion (FEDEP), and Cluster Consultation Forum (CCF) with the involvement of various related stakeholders could be seen as a concrete output indicating how the economic development would develop in the following decades. Looking from this perspective, it is likely that economic development or to be more precise, industrialization in most districts in Central Java will be dominated by local small-medium sized industries. There would be only particular districts, defined as urban districts, which would have higher possibility to develop based on big industries that are likely to be footloose in character. This key factor, in any case, may slow down economic growth of the province in a way that it will create a more relatively balanced economic performance among districts within the province.



- Infrastructure development
As can be seen from Central Java Spatial Plan 2003-2018, the most critical infrastructure development in the province in following years is in regard to toll road construction. The construction has prioritized upgrading current road network in particular developed corridors in the province instead of developing new networks or upgrading current networks in less developed corridors. In one viewpoint, this prioritizing is not really in the spirit of balanced economic growth and is equity stated in long-term development plan 2005-2025 and medium-term development plan 2008-2013. From the contrary point of view, the prioritizing could be acceptable since this prioritized toll construction is located in the most strategic area in the province. Therefore, there is a big expectation that the construction in this particular area will increase potential networks as it will also effectively accelerate economic growth of such backward regions.
- Good governance implementation
Strong local based institutions will lead to strong based development. Good governance performs a very critical role in building a good foundation of local institutions. However, good governance should be considered as 'big words' as the term implies various different parties with different interests and capabilities. Therefore, to further predict how Indonesia or Central Java will achieve better governance implementation would require more research work. Indeed, it is currently quite obvious that the term is considered as an important part in development agenda in the country.

Considering three points mentioned above, in addition to some empirical analyses explained in earlier chapters, there are three proposed scenarios to explain some possibilities for the future of Central Java.

1. Status quo scenario

Rationales for the scenario are:

- The cluster analysis as has been explained in Chapter Six clearly provides evidence that the urbanization and rural-urban transition that had been taking place at least since 1994 until 2006 lead to the existence of rural-urban regions that are concentrated in the inner corridor and eastern part of the capital city. This finding is likely being supported by kernel density analysis which has shown the same phenomenon. Based on kernel density calculation, concentration of density will take place in rural-urban regions that are identified in cluster analysis.
- Main road construction as clearly stated in the Central Java Spatial Plan 2003-2018 also located in the corridor of these potential developed regions.



- Based on population projections, the inner corridor also is predicted to have the highest concentration of population density, accompanied by the new potential developed coastal region in northern corridor.

With those three basic considerations, in the status quo scenario, spatial formation for Central Java Province would be unbalanced in several perspectives i.e. population distribution, infrastructure provision, land use allocation for urban and non-urban activities, as well as the performance of economic activities (see Figure 7.25)

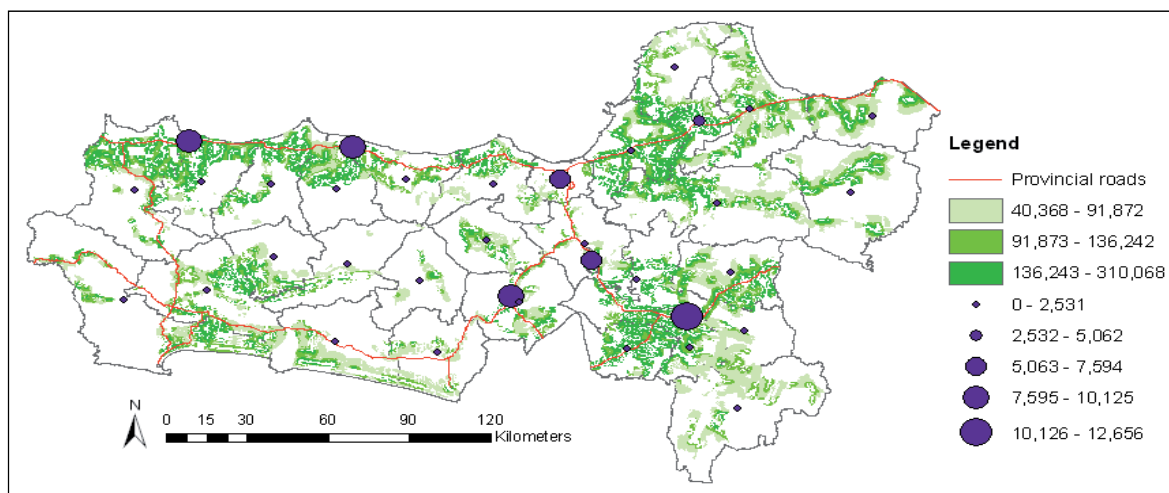


Figure 7.27 Status Quo Scenario: Potential Value of Transferability and Gross Density (People per Km²)

2. Low Projection scenario

Rationales for the scenario are:

- The trend of the urbanization phenomenon as explained in Chapter Five may provide an optimistic expectation that urbanization and rural-urban transition in the province is relatively balanced at least in comparison to the neighboring provinces. In addition to that, the spirit of decentralization and provincial economic development framework stated in the long-term development plan 2005-2025 and medium-term development plan 2008-2013 also may lead to a constructive willingness to emphasize economic growth and equality in a more proportional position.
- The national census in 2000 and 2010 provides facts that in comparison with other provinces in Java, population pressure in Central Java province is in general under control. Central Java has been having the lowest population growth rate in the country and a relatively balanced in and out migration. As Central Java is located between two most influential urban growth centers in the country in addition to the fact that 35 per cent of the area is located in a moderately hilly site which in a way will impact the speed of the development process.

Those two points mentioned above lead to another possibility of Central Java by 2030. As illustrated in Figure 7.26, in this scenario there would be a more relatively balanced population distribution. The only similarity with the status quo scenario is that in both scenarios, the southern coastal corridor will be keep stagnant and potentially perform as a backward region. Due to this reason, the third scenario is considered to be proposed mainly to offer the possibility of creating balanced development to the whole part of the region.

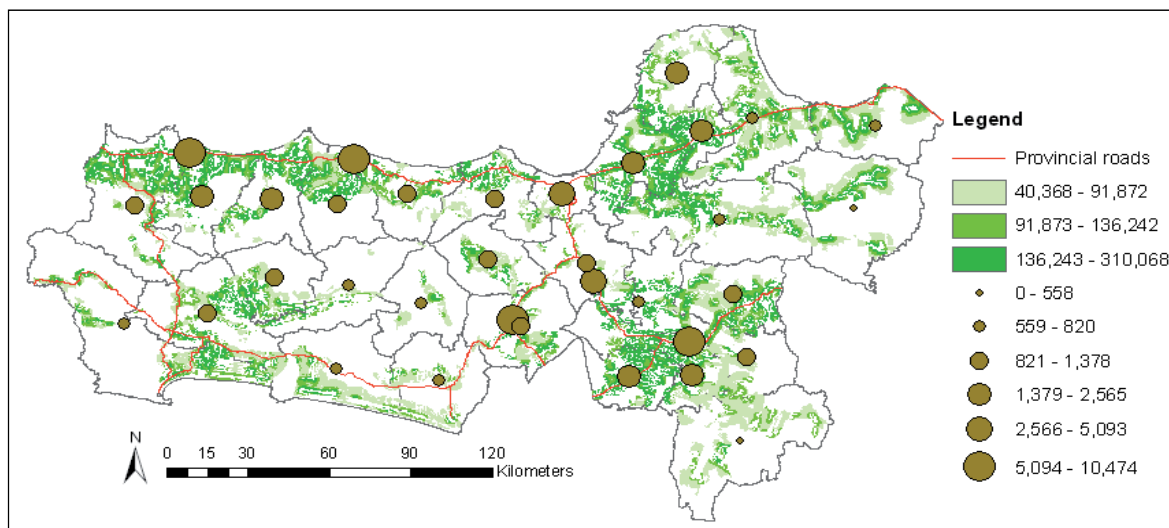


Figure 7.28 Low Projection Scenario: Potential Value of Transferability and Gross Density (People per Km²)

3. 'Ambitious'-balanced development scenario

Rationales for the scenario are:

- The fact that most developed districts in the province also function as protected paddy fields as well as there are relatively significant areas categorized as disaster prone areas should be anticipated with a form of 'ambitious' spatial formation. The ambitious terms refer to a required great effort to maintain land allocation as it should be allocated under the principle of sustainable rural-urban development. According to Federations of Surveyors (in UN Habitat, 2005:101), the pillars of sustainable rural-urban interrelationship are good governance and good land policy.
- Food security issues should be taken into account as critical issues as the calculation of land potential of transferability indicates that 66 per cent of all converted land during the 1994-2006 period took place in protected paddy field area.
- Integrated policy evaluation and intervention including road network development and status of existing urban hierarchy are very crucial to force urbanized activities into the southern corridor. Accordingly,



effectiveness of current spatial structures in the province could be re-evaluated.

Figure 7.27a illustrates the T Scenario (as implied in the status quo and low projection scenario) that should be anticipated with a more ambitious scenario described in Figure 7.27b as H scenario.

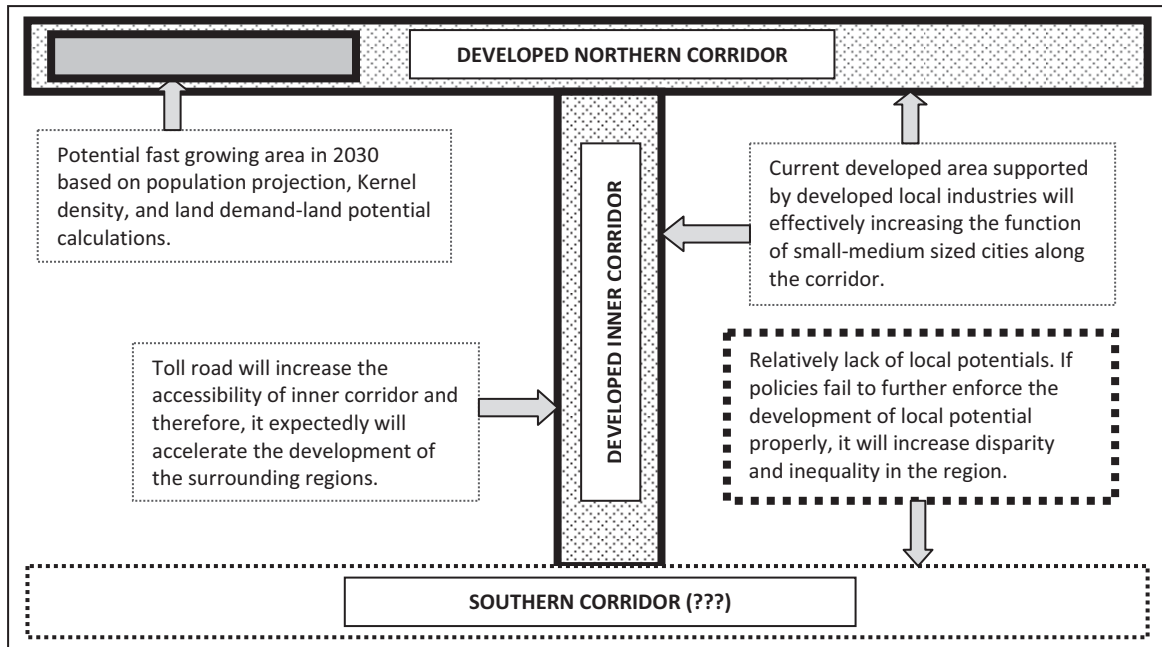


Figure 7.29a T Scenario

(Development concentrates only in Northern and Inner corridor)

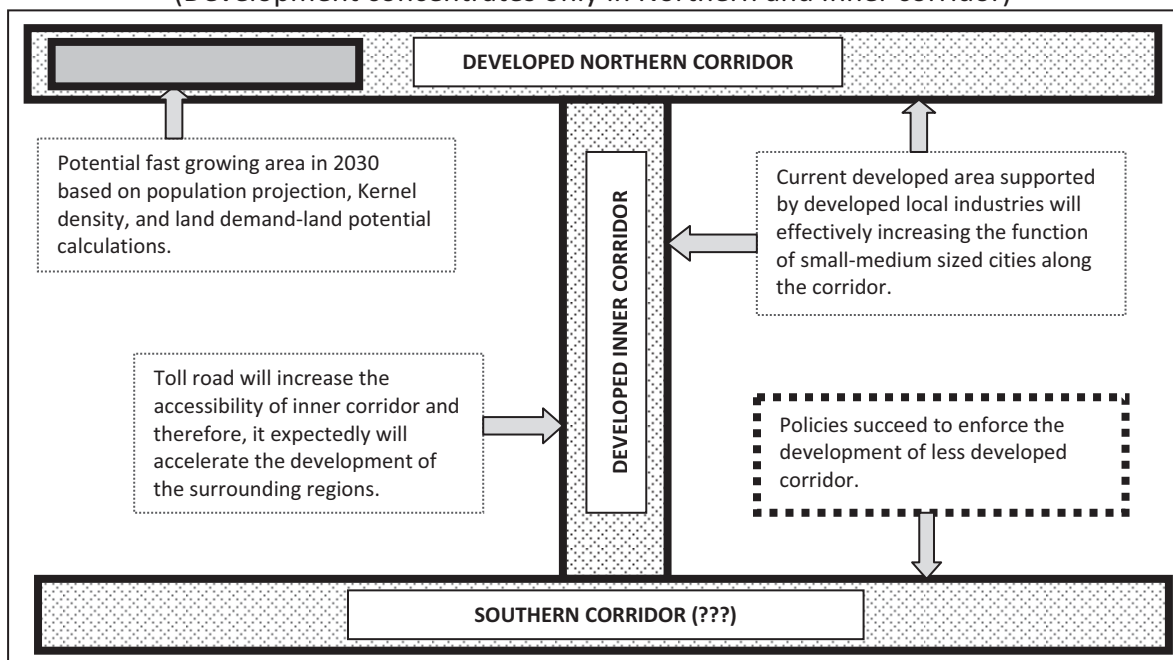


Figure 7.29b H Scenario

(Development relatively balance in Northern, Inner and Southern corridor)





8 Conclusions and Policy Recommendations

This chapter highlights four closing remarks. It begins with a brief overview of research findings as rationale for policy recommendations. Following that, three policy challenges are briefly discussed. The challenges include a requisite for a shift to new format of regional development policy, inevitable impacts of decentralization that might lead to a particular form of regional urbanization, environmental sustainability and food security issues. Policy recommendations to address the challenges are further discussed in the third part of the chapter. The policy recommendations are divided into three main parts; those are recommendation in national context, recommendation addressing Central Java as the research area, and recommendations regarding the institutional basis. The last closing remark is the future research agenda as current research findings could be followed up to pursue deeper and wider perspectives of regional development planning in Indonesia.

8.1 Brief Overview of Research Findings: Rationale for Policy Recommendations

Inter and intra regional perspectives supported by descriptive analysis, cluster analysis, population projection and distribution calculation, as well as the land potential – the land demand spatial analysis presents some empirical evidence on particular characters of urbanization and the rural-urban transition process in the study area. There are two critical points. First, the identified characters lead to strengthen the argumentation of rural-urban regions (McGee, 1991) which have been creating the blurring of the distinction between rural and urban. Second, based on some analyses in the scenario building, balanced development in various dimensions including economic activity distribution, infrastructure provision, as well as spatial structure could be achieved only if there are fundamental changes in the political concept of development.

• Typology of Rural-Urban Regions

Based on the cluster analysis results, it was identified that industrialization considered as a prominent indicator to examine rural-urban transition process occurs in at least two different paths. The first path is defined as urbanization from above in which the transition takes place as a part of the extended metropolitan regions. The second path is defined as urbanization from below where rapid industrialization that leads to a particular type of



urban transition occurs far from the location of the highest hierarchy urban centre.

The different path of industrialization between typical urbanization from above and urbanization from below is clearly recognized from the GDRP and employment structure of the districts. Districts that are categorized as rural-urban regions in the form of the urbanization from above model are located in urban fringes or as a part of extended metropolitan region development. The economic activity of these districts are mostly characterized by big manufacturing industries which are 'footloose' in character. Since the districts are relatively located in favorable areas for foreign and local big investors mostly due to the consideration of infrastructure provision and supply of blue-collar workers, these industries do not significantly generate backward and forward linkages within the local economy. The existence of this particular type of industry has proven to be very effective to accelerate economic growth since they significantly contribute to the regions' GDRP but in fact, they absorb only a relatively small amount of employment.

Quite the reverse, the emerging type of urbanization from below may provide evidence that industrialization in developing countries does not necessarily always take place as a part of the urban growth process or as a part of extended metropolitan regional development, as well as should not always depend on the existence of big manufacturing industries. Rural-urban regions in the form of urbanization from below are mostly located in a quite distant from the urban districts. Accordingly, the economic activity of these districts is mostly characterized by local based small-medium industries. This implies that these particular industries have a strong bonding with local potential. Generally, the industries absorb significant numbers of workers but unfortunately contribute only a small amount to the GDRP. This further means that the industries still perform at a relatively low level of productivity.

Apart from the emerging of the two types of rural-urban regions, the existence of relatively well-developed urban districts along with significant numbers of districts categorized as highly rural, provide evidence that previous policies which have been applied lead to a concentrated spatial development pattern. This pattern may indicate a significant difference in urbanization speed among districts in the study area.

Nevertheless, rural-urban regions particularly in the form of urbanization from below should be acknowledged as a promising spatial form that may lead to a more balanced development pattern in the future. It is strong



embedded with local potential which implies a stronger foundation for the economy in addition to its ability to absorb significant numbers into the labor force. The form of urbanization from below which appears in the research indicates that the concept of endogenous growth for developing countries is essentially down-to-earth.

From the inter-regional perspective, one critical fact that should be considered regarding urbanization in Central Java is that the speed of urbanization in the province is relatively restrained in comparison to its neighboring province. Using urban population, density, share of built-up area, GDP, and employment as the main variables, it is found that the primate city phenomenon and disparity are still there but in a relatively lesser gap compared to other provinces on Java Island.

The East Asian (Japan, Korea, and Taiwan) model in a way they have succeeded to maintain a good combination of outward orientation economic policy with a good protection of local resource leakages should also be acknowledged to evaluate current Indonesian development framing policy (see sub chapter 3.3.3). Relatively smooth rural-urban transformation with a gradual but significant shift from mass production orientation to flexible specialization under the principle of industrial cluster proposed by Porter (2000) applied in these countries should be further comprehended for practical lessons learned.

- **Population distribution, land demand, and land potential (supply) for 2030**

Apart from cluster analyses that mostly examine the situation of 1994-2006, scenario building for Central Java is based on population projections and distribution calculations and land potential – land demand spatial analyses observed in any possible situation of 2030.

Not in line with the promising rural-urban transition that potentially takes place based on one of the rural-urban forms explained in the previous part, an optimistic view of future balanced Indonesian (or Central Java) development in the scenario building analyses would be achieved only if there are fundamental changes in the framework of Indonesian development policy.

At any rate, the future of Indonesia will highly depend on the two driving forces:

1. Degree of openness of Indonesian economy which potentially will be getting higher but should be controlled.



2. Good governance implementation to improve institutional capacity. It is decisive and therefore, it requires sustained effort to achieve a satisfactory outcome.

Uncontrolled openness will lead to unbalanced development in any dimensions. As can be currently observed, the implementation of relatively open economy under the principle of neo-classical exogenous growth with lacking adequate local institutional capacity since new order era in 1960s, has led to the existence of great disparity and severe poverty in Indonesia. There is not any indication, yet, to achieve local-regional convergence. Indeed, there are problems of potential resources leakages and unbalanced distribution of economic activities as it has led to unbalanced spatial distribution.

Under the status of the status quo scenario in the scenario building process, there will be a significant number of districts categorized as shrinking regions while few others will be defined as developed regions. The development process under the similar orientation of openness in addition to stagnant performance of local institutions is potentially to maintain current unbalanced development instead of reducing the imbalanced or even worse, lead to more imbalance in the future.

In the context of Central Java, as has been analyzed in the scenario building part under the status quo scenario and low projection scenario, it is likely that rapid urbanization in terms of growth of density and land conversion in the study area are only concentrated in a particular potential corridor. The southern coastal corridor will potentially perform as a lagging region if there is not any significant policy intervention.

Accordingly, based on the result of land supply – land potential analyses, it was found out that there is still a lot of discrepancy between available land supply and estimated land demand. Food security and disaster issues, then, rise as another two important tasks to be worked out. Calculation on land potential of transferability reveals that 66 per cent of land conversion during the period of 1994-2006 was invaded protected paddy field. In addition, it is also important to take into account that almost 35 per cent of total area in Central Java are categorized either as steep hillside and therefore should function as protected zone or categorized as a disaster prone area.



- **Summarizing the research findings**

In brief, the research findings can be summarized as followed:

- Rural-urban regions present in various characteristics as an inevitable process, these regions should be treated with appropriate policy interventions.
- A fundamental change of policy framework is required to create a more balanced regional development in Indonesia as well as in Central Java.

Considering all the phenomena, a step to move ahead with a kind of Keynesian approach to regional policy through consistent stronger state intervention instead of highly relying on an open economy, or a step to an extended neo-classical-endogenous growth approach, are relevant to be further considered.

8.2 Policy Challenges

8.2.1 A Shift to a New Format of Regional Development Policy

As there is still a continuing debate with regard to the implementation of balanced and unbalanced regional development policy in developing countries, a failure of any regional development policies that have been implemented in Indonesia is quite obvious. Java Island still contributes a very dominant role in the Indonesian development while disparity, inequality, and poverty still persist in the whole part of the country. As indicated from the research findings, development policies that have been applied at least in the last five decades in the country fail to meet their objectives. The unbalanced development approach which is characterized by urban oriented development becomes the main stream of Indonesian development at least during the New Order era from 1966 to 1999 ended with bad macroeconomic performance. Decentralization that began immediately after the fall of the New Order era also has not produced a satisfying result.

In the tradition of neo-classical regional economics, it is argued that spatial disparities that were predicted to be appeared in the initial stage of unbalanced development strategy implementation will reduce and move toward the long run reduction of geographical disparities. According to economic rationality and market orientation in the neo-classical model, there will be market adjustment or self-correcting capital and labor movement. Thus, unbalanced regional development followers who mostly develop their argumentation based on the ideology of neo-classical economics really believe in the concept of regional convergence in the development process.



However, as Barro and Sala-i-Martin (1991) and Martin and Sunley (1998) revealed, there is a slow and discontinuous process of regional convergence. Martin and Sunley (1998) believe even further that economics of scale and agglomeration under the orientation of economic growth takes place with the cost of uneven regional development or in more social terms, means disparity. Those argumentations, in fact, clearly illustrate the phenomena of Indonesian development.

As can be seen in the brief view of urbanization in Central Java in Chapter Five, distribution of urban population in Indonesia is highly uneven. Almost 70 per cent of the urban population was located in Java during 1980-2000 while the Island only consists of 6.75 per cent of the total area of Indonesia. In Java, distribution of activities also takes place unevenly. At least, it can be identified from urban population rank-size (Figure 5.6). In 1990-2000, Semarang the capital city occupied around 1.3 million inhabitants potentially reaching 1.7 million in 2030 while other urban areas in the province occupy less than 150,000 people in average, remain stagnant from 1990 to 2030.

The failure of the unbalanced growth oriented approach that has been implemented in Indonesia in the New Order Era followed by unclear development mainstream in the beginning of first decade of decentralization era should be taken as a challenge for the current government to move ahead with clear-streamlined regional development policy. There are two critical points that require further examination. First is in relation to the degree of government intervention to control the market force as it has been proved that market driven mostly lead to the agglomeration of economic activity which then in Asian developing countries reflects on the primate city phenomena and disparity. Second is in relation to the degree of exogenous as well as endogenous factor utilization in which traditional neo-classical unbalanced growth is highly exogenously oriented and therefore it should be gradually shifted into higher degree of endogenous forces utilization. Following are the further arguments:

- **Role of the Government**

Building upon the critique of the traditional neo-classical unbalanced growth theory, it was John Maynard Keynes an economist who proposes the Keynesian approach to regional development policy. The main principle of the Keynesian approach is that balanced growth would be attainable under proper government intervention (Pike et al, 2006). Though, this approach has also been criticized as over simplistic since the model is likely to ignore such critical factors within regions, namely entrepreneurialism and social capital (Armstrong and Taylor, 2000). But, it has been proved that the free



market approach under neoclassical political ideology simply gives more benefits to rich countries through their tariff barrier and export subsidies. It is very difficult for developing countries to create a kind of mutual collaboration since there is still a significant gap mainly in innovation and technological developments between the developed and the developing countries.

Despite the different point of view of neo-classical and Keynesian economics, more focus on the unfair market mechanism between developed and developing country, Thirlwall (2006) proposes four aspects which should be carefully ruled by the government. They are:

- Public goods. There are several kinds of public goods but the most important is related to regional development is basic infrastructures such as roads, clean water, and electricity.
- Market imperfections. This includes government intervention to manage allocation of resources (including the price of labor, tariffs, subsidies, and monopolies), and to supervise both positive and negative externalities.
- Income distribution. Government should play a significant role in ensuring an equitable distribution of income among people, among groups, among regions, as well as across generations.
- Institutional environment. This relates to government credibility to address law and order, to maintain macroeconomic stability, to invest in basic services including soft and hard infrastructure, and to protect the vulnerable and the environment.

Along with Thirlwall's (2006) point of view, more in the context of regional unemployment disparities, Armstrong and Taylor (2000) proposes three forms of government intervention:

- Inducing inward investment
- Stimulating indigenous growth
- Regenerating high-unemployment area through public investment in the socio-economic infrastructure.

• **Endogenous Growth**

As has been implied in Armstrong and Taylor's (2000) proposal mentioned above to reduce disparity in an interventionist approach, endogenous potential appears as another critical factor mainly since exogenous treatment that has been applied in most developing countries leads to unsatisfying results.



Thirlwall (2006) believes that each region has its own character in which preconditions for development are not equal among regions. To illustrate, there are differences in institutional structures, the state of agriculture, knowledge and ideas capability. These differences require different treatments to achieve optimum results in development. In this regard, endogenous value contributes a significant role to the development. Extended neo-classical theories such as the endogenous growth theory (Pike et al, 2006; Martin and Sunley, 1998) emphasizes the importance of endogenous capital. Furthermore, Martin and Sunley (1998) address two important aspects of this endogenous capital. Those are technological changes and human capital. Technological changes, in general, could be generated from two basic processes i.e. learning by doing and knowledge spillover in which these processes will only succeed with adequate human capital support. Thus, the concept of spillover is very important to guarantee that the existence of big-external based industries in a way will be beneficial to accelerate the development of local based industries. As discussed in sub-subchapter 3.3.3 and 3.3.4, such East Asian countries have been successful in utilizing knowledge and technological spillover to strengthen local based industries with the spirit of competitiveness.

According to Goddard (1979 in Pike et al 2006), the most important part of the endogenous approach is to find the most suitable way to utilize the underutilized local and/or regional assets and resources to increase their substantive contribution to development. In this regard, policy intervention is supported by solid institution contributes as the most significant role. The policy intervention should ensure that any external economies in the development process would result in increasing return of local players. Hence, institutions in regard to the endogenous approach include not only formal organizations but also informal aspects such as local networks.

The discussion of endogenous growth in an Indonesian context cannot be separated from the important role of small and medium industries. Cluster analysis explained in the earlier chapter provides evidence on the important contribution of these industries to force development and to create an advantageous form or a rural-urban region. The research findings supported by the related official profile lead to a recognition that the endogenous potential of Indonesian economy lies in these small and medium industries. Rural-Urban Type A includes districts that have particular developed local industries (see sub-chapter 6.3). Though their innovation and their technology is still low which means a lot of issues should be worked out, these tasks should be completed in such a way since these particular



industries show a promising outcome for future Indonesian development. Furthermore, Frankcs et al (1999) and Berry and Mazumdar (1991) also have revealed that small and medium local based industries that have the ability to create good co-operation with big industries through subcontracting schemes have succeed to perform smooth rural-urban transformations in East Asia namely Japan, Korea, and Taiwan.

8.2.2 From Decentralization to Regional Urbanization

Decentralization that commenced in 1999 has significantly influence development policy and, in turn, development patterns in Indonesia. As Castells (1993 in Pike et al et al, 2007) point out, development is necessarily spatial in the sense of its requirement of space and scale. Thus, the decentralization that has been taking place in the country , either economic or political in the end has reflected on the spatial context.

Under the scheme of decentralization, local (districts – municipality) governments have a greater authority to develop their regions. Looking inside the territory, the authority has lead to an improvement of such public products and services. Open space, pedestrian path, and public transport services are three urban elements that are relatively better off due to decentralization in Indonesia. Fiscal decentralization, in particular, resulted on a more flexible red tape system at the local level and is better familiarized with public needs. In this point view, it is quite obvious that decentralization brings some significant benefits to the development of many local regions in the country.

However, under the spirit of decentralization, problems occur mostly at the regional level due to 'egocentric' orientation of each local region. Since actual urbanization, mega urban, and rural-urban regions have cross administrative boundaries in character, there are a lot of development issues that should be handled with good co-operation at the regional level. Hence, despite some positive impact gain at the local level, there are challenges to find effective way to harmonize the interests among local level authority as well as to bridge local level and national level (central government) needs under the decentralization scheme.

Apart from coordination issues, local regions are also challenged to improve their economic performance. To one extent, under the decentralization format, there will be more opportunities for the local regions to optimize the utilization of their local assets. However, without sufficient technological, infrastructure support, and human capital, the effort to utilize local assets will not lead to promising outcomes. Indeed, the local regions will get tempted to easily attract exogenous based industries that are more promising to accelerate economic



growth but might not solve disparity and poverty problems. Thus, back to previous argumentation regarding the role of government and indigenous growth, decentralization will only work optimally if there is government intervention to ensure that each local region has been prepared with sufficient soft and hard infrastructures.

Taking into account the result of cluster analyses, population distribution analyses, as well as the land potential – land demand analyses, they all lead to the obvious fact of the particular character of urbanization and rural-urban transition process in the study area. There would be a gradual shift from the typical Asian mega urban-primate city phenomena to regional urbanization. As referred to in the results of cluster analysis, the existence of particular forms of rural transition or urbanization from below may lead to greater opportunity to density convergence. In combination with more ‘Keynesian policies’ and endogenous orientation in the industrialization process, rural transition potentially performs faster and creates a particular character of regional urbanization. Despite these argumentations, advanced and established transportation and communication networks may also play a significant role in accelerating the development of particular lagging regions. Even though, unlike particular type of regional urbanization models in Europe that are characterized by independency of the urban centers and established balanced infrastructure and network (i.e. policentricity model), regional urbanization in the research area is fragile in achieving balanced development in the whole spectrum if there is not enough (accurate) policy, governance, and institutional support mainly to equipped the local regions.

Soetomo (2002) proposes three possibilities of regional urbanization in Java:

1. Due to regional axis (main road corridor)
2. EMRs (in the form of extended metropolitan regions)
3. Independent local growth centre.

The first and the second form will lead to unbalanced spatial structure as the process highly depends on the development of the core region. The third one, as the most ideal situation due to its independency concept, will only be achieved under the circumstances of proper government intervention and proportional utilization of the local potential.

8.2.3 Environmental Sustainability and Food Security

Supported by the Malthus theory, it is generally believe that population growth will exceed the available natural resources. Even though, this Malthusian point of view is disagreed by Boserup who believes that technology in a way will always help human beings to survive. As a matter of fact, the problems of



hunger indicate that neither growth nor development not takes place everywhere.

In the case of Indonesia, there are no doubts about the country's economic performance. According to the World Bank (2011), Indonesian GDP increased significantly from US\$ 165,02 billion in 2000 to US\$ 540,27 billion in 2009 in addition to 6 per cent real growth rate in 2010. But, looking further to the development indicators, the opposite impression then appears. In the situation of incredible economic growth performance, in fact, there are still more than 30 million people or 13.3 per cent of the total population living in poverty in addition to almost nine million unemployed, 7.41 per cent of total labor force in 2009 (CBS, 2011).

The brief illustration above leads to a discussion of growth and development. Capello and Nijkamp (2009) argue that regional growth, in fact, has resulted in disparity. Supported previous argumentation on the failure of the unbalanced-growth theory, the disparity is mainly derived from the fact that regional convergence does not take place in all situations; there are certain pre-conditions as one size definitely does not fit all. Thus, regional development is a matter of geography of welfare. This implies that regional development is not only related to economic efficiency but also it is about equity. As Goodland (1995) points out, growth implies quantitative achievement while development refers to improvement.

Discussion on environmental sustainability is relevant in the context of regional development as our planet does not grow but it should be developed over time. Addressing environmentally sustainable development, the most important factor is to maintain sustainable levels of production (sources) and consumptions (sink) (Goodland, 1995). It requires an integrated concept between development priorities that is improvement of human well-being and the spirit of environmental sustainability that is to maintain source capacities. Problems appear where in general, the population keeps growing in which the people need to be provided with their basic needs in the situation where environmental support is varied from place to place.

Still in the end of the second stage of population transition, the Indonesian population is still growing. As can be estimated based on the emerging trend, the growing population is likely to concentrate only on Java Island. It becomes a great challenge for the government since actually Java has limited environmental support. There are significant areas which should be maintained as protected zones for natural balance as well as for agriculture areas for food supply while there is the massive force of urbanization. As the most developed



area as well as the most fertile area in the country, Java has a double burdened that should be anticipated.

Even though Central Java experiences the lowest growth rate compared to other provinces in Indonesia, still, there is significant population growth which needs space to live and requires productive fertile land to provide them with food.

Quite similar with the characteristic of Java Island, there are four critical research findings about land in Central Java in need of further consideration:

1. Significant areas categorized as disaster-prone areas. There were frequent landslides and floods which took place mostly due to protected zones that should be allocated as water catchment areas.
2. Arable land for paddy rice (staple food) is very significant in Java as 60 per cent of Indonesian rice is produced on this Island.
3. 66 per cent of land conversion during 1994-2006 invades arable land (protected paddy field) which is definitely not promising for the purpose of food security.
4. The most urbanized area that requires land to be converted to accommodate such urban activities takes place also on Java Island including Central Java.

Concerning the four facts mentioned above, environmental sustainability and food security in the country should be considered as a great challenge for Indonesian development in the future.

8.3 Policy Recommendations

8.3.1 New National Regional Policy Framework

- **Framework for new national local and regional development policy:**

Considering the research finding and policy challenges explained above, the very basic recommendation addresses the urgent need to change the main principle of old growth-oriented development policy toward new regional development policy. In the last five decades of Indonesian development, unbalanced - growth orientation has become the mainstream of regional development policy in which the growing region should 'serve' the lagging region in the format of a spread effect or trickling down formulation. Decentralization that has been implemented almost for a decade has not changed the mainstream of the policy as it should be. The decentralization that has been taking place is not really empowering the local asset by facilitating the local region with minimum adequate infrastructure to make them partially self-governing.



Nevertheless, the undesirable outcome of the old regional development policy should be replaced by a principle revision on the current regional development policy framework. This requires fundamental changes to new growth oriented policies that might effectively assist local regions to perform development in a more equal way. As illustrated in Figure 8.1, the main principle of the new growth regional development concept is to empower local regions so they will be able to grow independently. Indeed, inequitable interdependency among regions or between growing and lagging regions should be reduced gradually.

However, following the proposal to shift to the new growth orientation model as illustrated in Figure 8.1, there are at least three basic requirements to ensure that the new model will lead to an optimum result:

1. Governance, the basic ingredient of soft infrastructure (institution). Central government should make a significant effort to boost improved governance. Good governance will ensure that design, implementation and monitoring of any development strategy takes

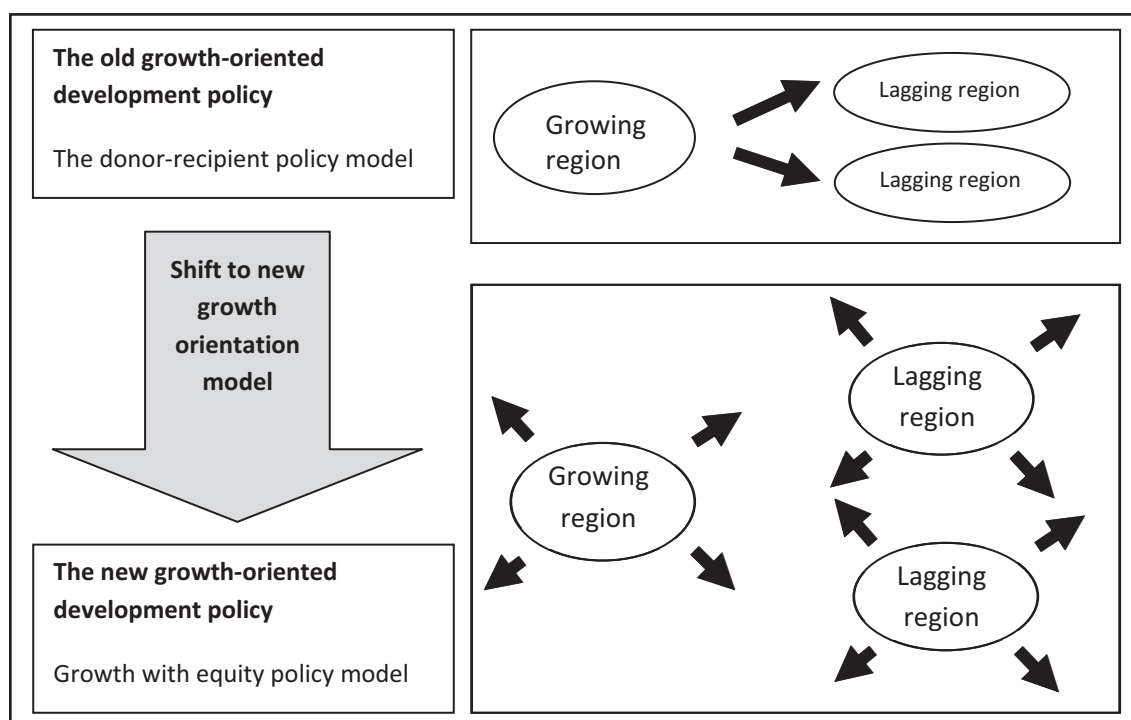


Figure 8.1 Framework for New Local and Regional Development Policy

Source: inspired from Pike et al, 2006

place as it should be. Even though, non-economic factors such as the term 'governance' is likely not to be specifically accommodated in economic (i.e. neo classical economics) development discourse. Efforts to consistently improve governance could be done by sustained institutional capacity development, accountable public sector management, more



transparent political process, and better mechanisms to involve civil society in the development process.

2. Transportation and communication, the basic ingredient of hard infrastructure. Concerning this, a significant amount of government expenditure should be used effectively (under the principle of good governance) to ensure that every local region is already equipped to independently develop their regions. Though in the perspective of development strategy, infrastructure is only relevant where there are qualified human resources, innovation and technology, but, particular basic form of infrastructure should be initially fulfilled to facilitate human resource development, and further to force technology and innovation development. Indeed, transportation and communication (or other infrastructures) that are able to effectively improve economic linkages should be prioritized as the resulting linkages are expectedly will create a multiplier effect to generate the local economy of a particular local (lagging) region.

3. Controlled inward looking policies including at least trade policies and public investment policies to proportionally protect local based industries with two main purposes:

- Mobilizing endogenous resources.

It could be further considered to mobilize endogenous resources by creating a scheme of protection for industries that utilized various local resources and provide the industries with potential markets. For example, policy to support local industries with affordable raw materials and soft loans would be beneficial to maintain business continuity of local players. Korea has been successful in using this approach (see Pike et al, 2006:219-226). Indeed, proportional protection that could be done through inward looking trade policy will efficiently provide local industries with potential markets for selling their products. Moreover, Indonesia is a big country with a large population which should be considered as having significant potential consumers. Indeed, the local based industries should be able to provide competitive products/commodities and therefore, it is also important for the government to facilitate the industries with sufficient schemes for knowledge/skill improvement (such as training and project cooperation with university/research institution), and incentive regulation (such as credit facilities).

- Embedding the endogenous with the exogenous resources

In the era of globalization and openness, it is almost impossible not to have a connection with any exogenous resources, and therefore it is



very crucial to ensure that the influence of the exogenous aspect of development will bring only positive influence to local development. As discussed in sub chapter 3.3, East Asian countries are the best example in performing mutual connection between exogenous (foreign) and local based industries, for example through sub-contracting schemes. Learning from these countries, there are at least two factors which should be considered:

1. Foreign investment could only be proceeded with under the principle of optimization of mutual and balanced links between the investment and the local economy.
2. There should be a framework of knowledge and technology transferability from particular foreign based industries to respective local based industries.

As mentioned in the policy challenges section, considering current characteristics of Indonesian industrialization such as a wide-open economy will harm local industries as it should be admitted that there are significant gaps of technology and innovation between local and foreign-based industries. Therefore, sustained and consistent effort, time, and integrated supporting policy (from national to local) are critical to optimize local potential mobilization.

Learning further from the research study area, located between two developed provinces, Central Java has more opportunity to develop the local potential in comparison to its neighboring province. Due to its geographical position, Central Java is not very favorable for the location of footloose big industries development. This may explain why the local government has been given sufficient support for small-medium based industry development in the province. The existence of ERDF, FEDEP, CCF (see Figure 7.11) is one of concrete commitment from the local government to develop local based industries that are mostly concentrated in relatively lagging regions. However, there are a lot of problems in implementation at the district level such as bad government performance, lack of transportation and communication, limited number of skilled human resources, as well as low innovation and technology transferability which lead to the fact that a minimum requirement of particular pre-condition must be fulfilled as the basic ammunition for the local regions to run the development independently. Thus, three conditions mentioned above are regarded as the basic ingredient that should be initially accomplished through a form of government intervention to move on to the new growth-oriented development policy.



Figure 8.2 further illustrates interdependency among the three requirements explained above. Efficiency in whole economic system will be achieved if there is integrated infrastructure development supported by controlled inward looking policies. The concept of spillover due to the existence of particular foreign investment should be carefully managed to control footloose type of industries. A good combination between endogenous orientation of hard and soft infrastructure development policy will lead to strong mutual economic linkages. The linkages are very important for a self-contained development concept to create balanced development. Innovation, another critical factor for local region's independency, will form under the circumstances of appropriate support for human resource development and governance under integrated controlled inward policies. In the end, the three combinations will lead to balanced form of development.

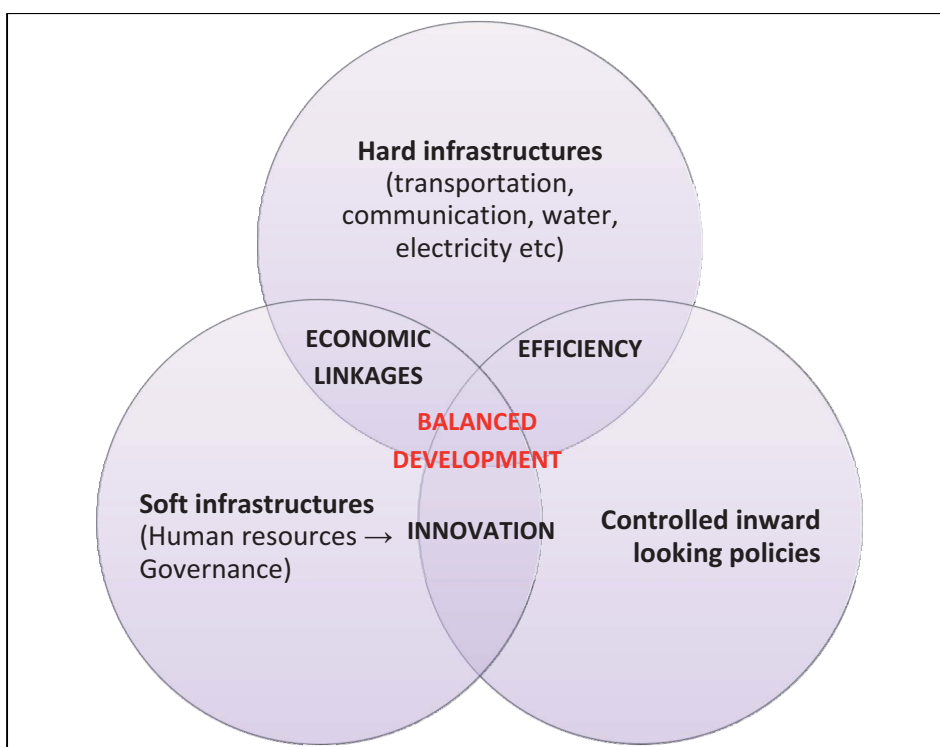


Figure 8.2 Proposed Integrated Macro Policy Frameworks

- **Food security policy**

Food security is central for development in Indonesia. Food is a very basic need that should be met for every human being as currently, the population in the country is still growing while the land supply is determined as a relatively fixed value. Apart from this, there is also demand for development of the people as well as the environment in a sustainable way.



The main problem regarding food security is the fact that there is a much faster of growth rate for demand compared to supply; even further, the supply is likely to be stagnant or to decrease. The increasing demand is not only because of population growth but also because economic performance that affects people's purchasing power. Relatively stagnant or decreasing supply takes place mostly due to land conversion as the impact of urbanization, low agricultural productivity, and bad distribution of land tenure (Tambunan, 2003)

The very principle effort that is required to maintain a long-term food supply is by allocating urbanization in a more moderate way. As current urbanization is highly concentrated on Java Island, the pattern should be changed by enforcing development outside Java.

There are at least two points from the research findings that should be recognized in the of critical situation regarding food security in Indonesia. First, there is unbalanced regional development in the country. In addition, this development most of the time requires land conversion concentrated in fertile regions. Second, 66 per cent of land conversion in Central Java 1994-2006 has utilized arable land. Arable land means land with potential soil nutrients for farming. Indeed, the nutrient is simply wasted and cannot be replaced.

Concerning this phenomenon, despite the urgent necessity to force development on islands other than Java, it is also critical to create breakthroughs regarding land use and agriculturally integrated policy to ensure environmental as well as food supply sustainability. They will include further recommendation for land reform, re-examine commodity prices and subsidy policy, as well as recommendations to set incentive-disincentive regulation to protect the sustainability of fertile regions.

8.3.2 Regional Policy Framework for Central Java

As has been discussed in previous parts, equity and efficiency are not mutually exclusive objectives, but in such a way regional policy should aim to address both in one framework. That remains as the main challenge as the policy recommendation proposed in the following parts is likely to put equity on the first priority with an expectation to achieve efficiency in the end.

Based on the proposed macro policy framework explained in Figure 8.2, Figure 8.3 illustrates the basic policy framework to address balanced development in Central Java. There are three different approach priorities for three different types of districts.

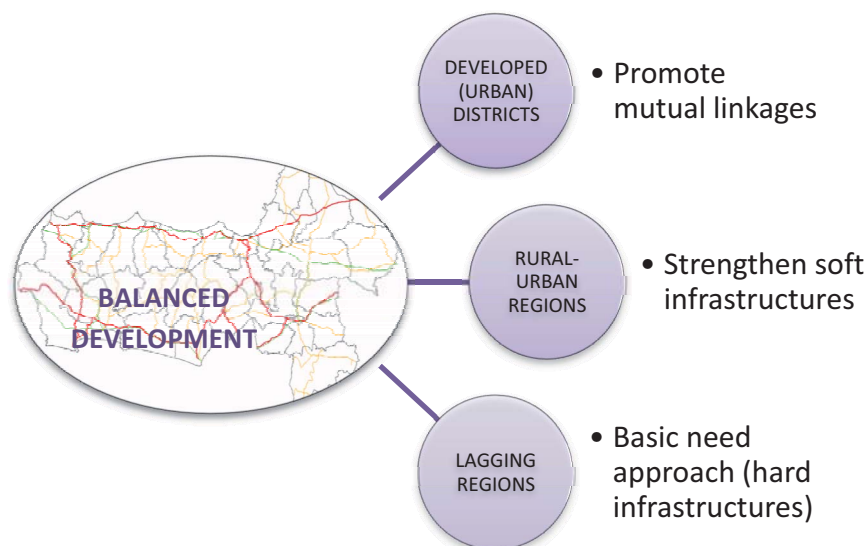


Figure 8.3 Three Development Policy Priorities for Three Different Types of Districts

- **Urban districts: promote mutual linkages**

Linkages are essential in promoting balanced development. As policentricity, the spatial form of balanced development is created based on the conception of self-contained development, which means specialization and independency are two critical factors that further need to be acknowledged. To have a balanced spatial formation, each urban centre should contribute its function and contribution proportionally to create mutual as well as proportional linkages. It could begin with promoting policies that may generate mutual linkages between big urban centers and the intermediate urban centers, as well as between big urban centers and the rural areas.

The existence of primate cities in the study area (see Figure 5.6) as well as in many other regions in developing countries provides evidence that there is still a problem in creating mutual relationships (linkages) among cities or between cities and rural regions. To overcome the problem, despite the need to anticipate any urban biased policies that mostly appear due to dichotomization between urban and rural, any spatial development policies should be constructed under the framework of promoting linkages.

Essentially, this linkage is very important to create efficient growth of agricultural market economy. As smooth rural-urban transformation takes place mostly if there is a significant expansion of agricultural activities, the targeted policy should address this expansion process.

There are at least three important policy agendas:

1. Promoting small and intermediate urban centers to link the rural regions with the big urban centers by broadening the local economy. This could



begin by creating more non-farms but agricultural based working opportunities in these centers. The principles of backward and forward linkages should be further elaborated as the guideline to enforce the performance of the small-medium urban centers.

2. Forming efficient outlets for any agricultural products to create a smooth rural-urban transformation. This could be performed only if there is enough infrastructure support and effective role of intermediate cities. Regarding this issue, a review of current distribution patterns of any agricultural based products including further evaluation of involvement of any related stakeholders is needed.
 3. Promote specialization based on region competitiveness under the spirit of co-operation instead of competition. As mentioned in the previous part, decentralization will lead to particular forms of regional urbanization. There are issues at the regional level including environmental issues, population distribution and many others that are in principle, across boundaries. Concerning this, further elaboration to find specialties for each urban center or local region is considered as another critical policy component to avoid unnecessary competition.
- **Rural-urban regions: a shift for innovation and technology development**

It is obvious that hard infrastructures are not enough for development. The research findings have provided evidence that well developed infrastructure cannot simply reduce disparity and gaps among regions. The existing districts categorized as rural-urban regions (see cluster analysis result) should be employed to further control the gap. It is mainly because these rural-urban regions have succeeded in formulating the basic frame of development to drive their economy. As has been discussed in Chapter Six regarding the rural-urban transition process, these rural-urban regions are relatively dynamic in their economic performance.

Human capital is the key to further utilize the dynamics of the economy for a better development outcome. This is critical due to the fact that only qualified, skilled or knowledgeable workers will be granted a good income to improve their quality of life. It is the very nature of the development cycle. In the perspective of regional development, human capital performs as a critical role in creating innovation and technology. As has been discussed in the previous part, these two key words are very important to further utilize local potential so each local region has the ability to be self-contained, which is the principle of balanced development principle.



Besides the importance of the classical approach by using formal and informal education to improve the quality of human resource, in line with controlled inward looking policies proposed in the previous part, there are at least two important policy agenda which could be followed to enforce innovation and technology development particularly in the rural-urban regions:

1. Promoting linkages between local industries in the regions with universities and research institutions. The linkages will be beneficial to produce applied innovation and technology to improve competitiveness of products of the industries.
2. Promoting linkages between foreign based industries and local small-medium based industries that may create a positive knowledge and technological spillover.

- **Promote lagging regions**

Based on the research findings, it is obvious that policy intervention is necessary to create balanced development as well as to create a constructive figure of rural-urban regions in the study area. One of the main issues, infrastructure development proposed in the provincial master plan for the following decade is likely to concentrate only in the inner corridor. Indeed, the toll road construction in the inner corridor would be beneficial to create a good economic performance for Central Java. On the other hand, it is also potential to create bigger gaps among district regions within the province.

With the intention of controlling the gap mainly between developed regions (northern and inner corridor) and less developed regions (southern corridor), considerable attention is needed to develop lagging regions located in the southern corridor. As implied in the previous argumentation regarding the necessity of basic hard infrastructure, efforts to develop lagging regions in the study area could be done by initially building adequate integrated infrastructure and creating the linkages in the less developed (southern) corridor. Adequate infrastructure mainly road improvement will definitely reducing traveling times for any purpose of commodity distributions and people movement. This will be a good start to further utilize local assets for the self-contained concept of development.

In any case, the infrastructure construction in the corridor is not aimed at solving the problems of lagging regions as adequate infrastructure without qualified human resources, innovation and technology will not create smooth rural-urban transformation as expected to come from strong based industrialization. This provides argumentation that a fragmented approach will not lead to satisfying outcomes. Indeed, a coherent and effective



approach is very essential to reduce 'knowledge gaps' among local regions. Thus, the infrastructure constructions, in principle, aimed to provide required basic ingredients to start development at least to begin reducing the gaps. Further, the infrastructures should be developed for the purpose of linkage improvement. To illustrate, an economic linkage (i.e. trade) will only occur where there is sufficient transportation and communication support.

Starting with the point of view of putting infrastructure as the priority to create linkages among regions, it is expected that small-medium industries will effectively contribute their role. Unlike building roads that need relatively shorter time to have an explicit output, generating qualified human resources to have the ability to produce technology and innovation requires time and consistent effort. Therefore, as small-medium local based industries in generally characterized as having low productivity, 'at least' as the initial step, the industries should be forced to develop along two important agendas. First is to reduce unemployment. Second is to control immigration to big urban centers.

Certainly, in the long run, small-medium industries should be improved under the principle of learning regions. It is so obvious that in the era of knowledge economy, only local regions that have the ability to develop local human capital to create special skills and innovation will survive and be able to provide wealth. Thus, it is very important to carefully understand that infrastructure development is not enough to create self-contained balanced development. Infrastructure without being accompanied by improvement in human capital and other kinds of soft infrastructures would certainly be a waste of public investment.

- **Tailored approach to facilitate local regions**

As Pike et al et al (2006) argues, there is not one standardized regional development policy that could be easily replicated to different areas of the world. Local economic, social, politic, institutional conditions are different among regions, therefore, should be taken into account once we intend to transfer any kind of policy framework. In fact, the failure of any implemented centralized top-down policies in Indonesia in the previous eras is due to of any differences among local regions.

A tailored approach in the study area could begin with further examining three important facts as part of research findings:

1. Geographical location of Central Java which is less favorable for FDI should be acknowledged as an advantage instead of disadvantage as most FDI is likely to lead to disparity and inequality among regions.



2. There is natural resource as well as cultural endowments in almost every district in the province that can be further utilized to form local potential as the engine of growth (see Figure 7.12).
3. Four districts are currently categorized as potentially self-contained out of 35 districts (see result of cluster analysis: Rural-Urban Type A) provides a promising pattern of local-endogenous based development in the province.

8.3.3 Institutional Basis

Policy will not lead to an optimum outcome without sufficient institutional capacity. As a single dynamic process, policy making, implementation, and evaluation will come to an expected result if only with the support of sufficient mechanisms and capable human resources, in which these two are the most significant components regarding institutions. However, it is also important to be admitted that institutional building is a time-consuming and a complex process in addition to its requirement of sustained effort. Moreover, most of the time, sustainability is difficult to be maintained due to low commitment of the political leaders (Picciotto, 1995). Concerning the reasons, institutional capacity building seems always regarded as a big challenge to be worked out in a development process.

Discussion in sub chapter 4.2 has resulted two important emerging priorities to optimize the institution role in development. Those are the capability of the respective institutions to coordinate creating cooperation instead of rivalry and to cope with such cross-sector development issues by creating an integrated policy framework (see Figure 8. 4). Indeed, coordination and integration are very important terms as given the fact that there are at least two types of development planning policies namely spatial development plans and sectoral plans have been applied in Indonesia (see Figure 4.3, 4.4, 4.5). Spatial plans or master plans are mostly regarded as 'locational' policy to plan 'where the activity' should be allocated while sectoral plans are planning for the development of each economic sector. Accordingly, under these two frameworks of development planning, there are several emerging concerns which should be anticipated to further create a strong institutional basis:

1. Integration among sectoral planning as well as integration between spatial planning and sectoral planning.
2. The fact that the question of 'where to allocate' cannot be easily be separated with the question of 'how to allocate' in the development planning product. This may easily lead to an inefficient double assessment



or confusions due to overlapping substance between sectoral and spatial plans.

3. There are a lot of cross-sector and cross-border issues in development that require integration, synchronization, co-ordination, and co-operation.
4. The evidence that most of the time, political leaders are likely to ignore or to disobey the formalized planning products.

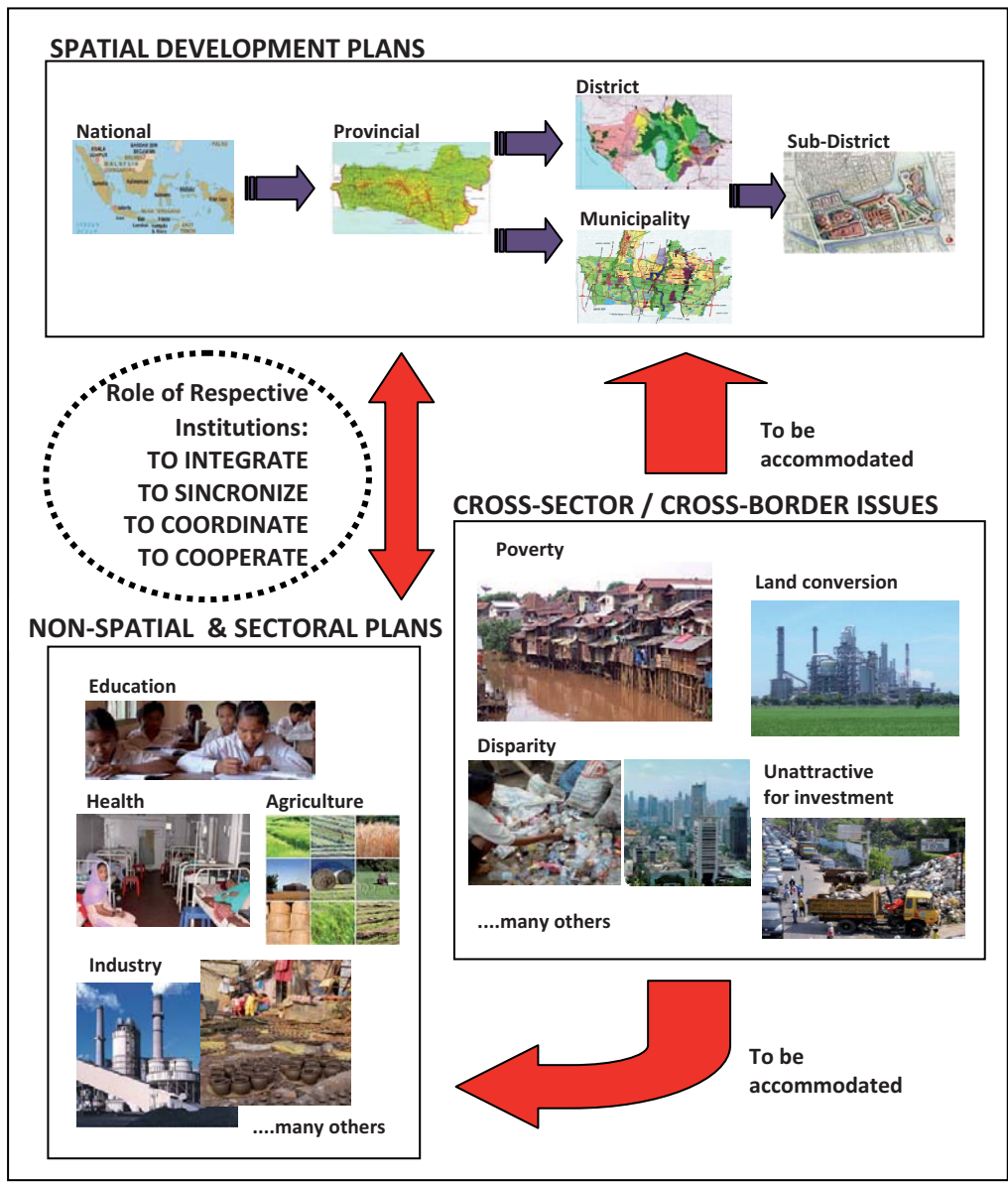


Figure 8.4 Generic Framework for Integrated Development Planning

Following the four problems mentioned above, it is also important to acknowledge policy instruments that are highly relevant in development planning to be maintained. They include instruments of formulating, budgeting, and implementation and controlling process (see Figure 8.5).

Formulating requires three important instruments including instruments to integrate, to synchronize, and to coordinate. Even though in most cases, like in

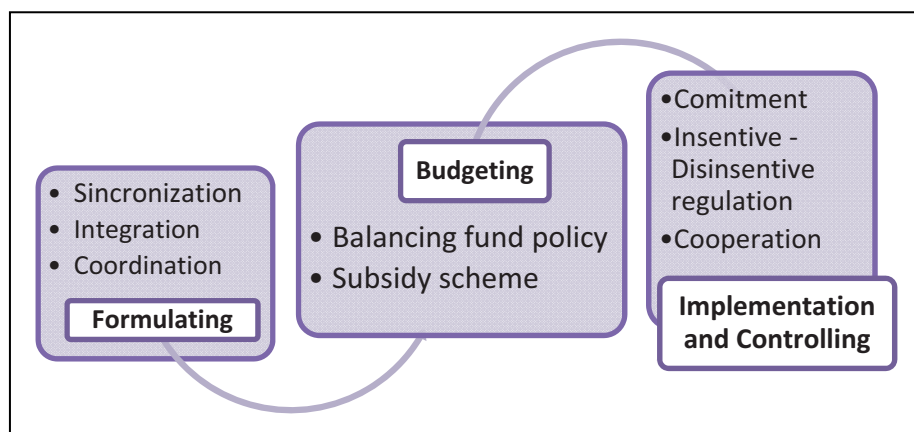


Figure 8.5 Instruments for Robust Development Planning Policy

Indonesia, the mechanism of integrating, synchronizing, and coordinating are already there, but unfortunately it is only a kind of formality mostly is due to the lack of human resource capability in most local regions and weak regulation regarding stakeholder participation mechanism. Budgeting is another issue to be further comprehended as the ‘money follows function’ principle under the fiscal decentralization will not work properly without clear regulation and capable human resources mostly in the local regions level. Even, developed countries like Japan (see sub-subchapter 3.3.4) find difficulties in reducing the gap of institutional capacity among the local regions to promote fiscal decentralization. Indeed, balancing fund policy and subsidy scheme instruments without proper supporting regulation and mechanisms will not be sufficient. Lastly, commitment of political leaders supported by robust mechanisms regarding human resource improvement and decentralization regulation will be the most important factors towards improved institutional capacity and mutual cooperation among respective development institutions in different tiers of government.

Lastly, focusing on the mechanism of development planning in Indonesia, thinking ‘out of the box’ by considering to unify spatial and non-spatial planning aspects and by creating a kind of strategic ‘spatial’ planning product is noteworthy to be further examined (see subchapter 4.2). The unification will still preserve the comprehensiveness and the hierarchical approach in which these two are regarded as the main character the of development plan in Indonesia in general. Indeed, it will make the planning mechanism simpler and therefore, will be easier for the policy makers to integrate cross-sector or cross-border issues in addition to the more down-to-earth mechanism to accommodate the grey area (rural-urban) regions.



8.4 Future Research Agenda

• Deepening the topic

There are several related topics that are considered as critical with regard to the emerging feature of rural-urban regions in Indonesia. Therefore any further research related to the following points is considered to be very constructive for regional development planning in Indonesia.

- Further elaboration of the concept of ‘self-contained’ regional development by conducting research in the topic in a relatively smaller study area (local level).
- Advanced research regarding governance implementation as well as institutional development to further evaluate the effectiveness of current regional development policy in Indonesia.
- Considering land supply as the fixed value, research mainly to find breakthrough related to land use policy in particular to address rural-urban transition or agricultural transformation will be very beneficial. Further thought of land reform, land consolidation, and other approaches regarding land tenure is urgently required.
- Environmental issues and food security particularly with regard to climate change are very up to date issues that require further research to upgrade current provided solution.

• Following-up the research findings

As the research area is at the provincial level, the scope of the analyses are relatively macro and may not be able to specify analyses results. Further research in a smaller research area would give more detailed findings to solve the puzzle of the rural-urban regions dynamics in Indonesia. More interest should be given to address developed districts that have the double burden of development that is district with arable land but located in strategic location and therefore, the districts experience significant land conversion. Furthermore, the Geographical Information System has been developed very fast as it has provided advanced tools for regional planners to further elaborate spatial dynamics.





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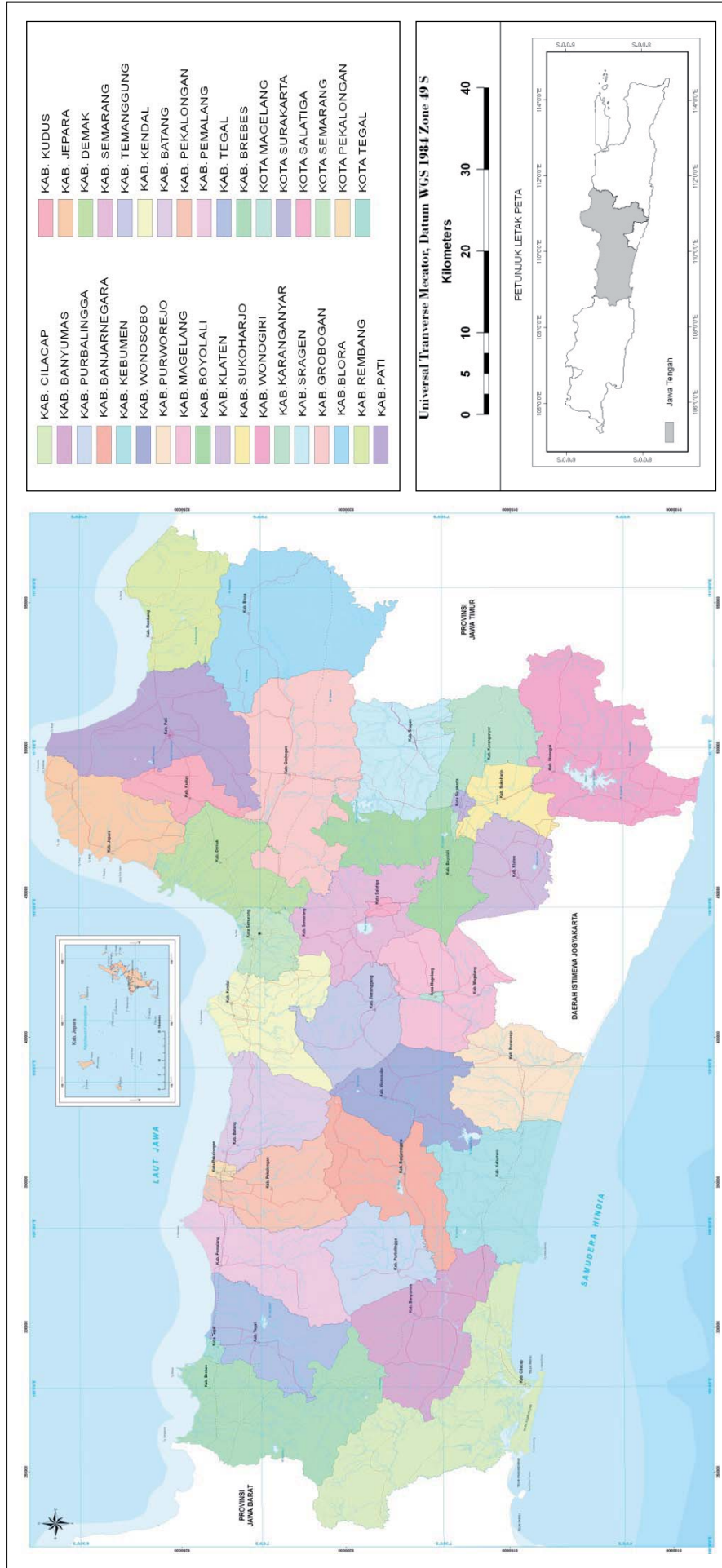


Zegras, C., Sussman, J., & Concklin, C. (2004). Scenario planning for strategic regional transportation planning. *Urban Planning and Development*, 130(1).

Zhu, Y. (1999). *New path to urbanization in China: seeking more balanced pattern*. New York: Nova Science Publications, Inc.

Appendix A: Thematic Maps

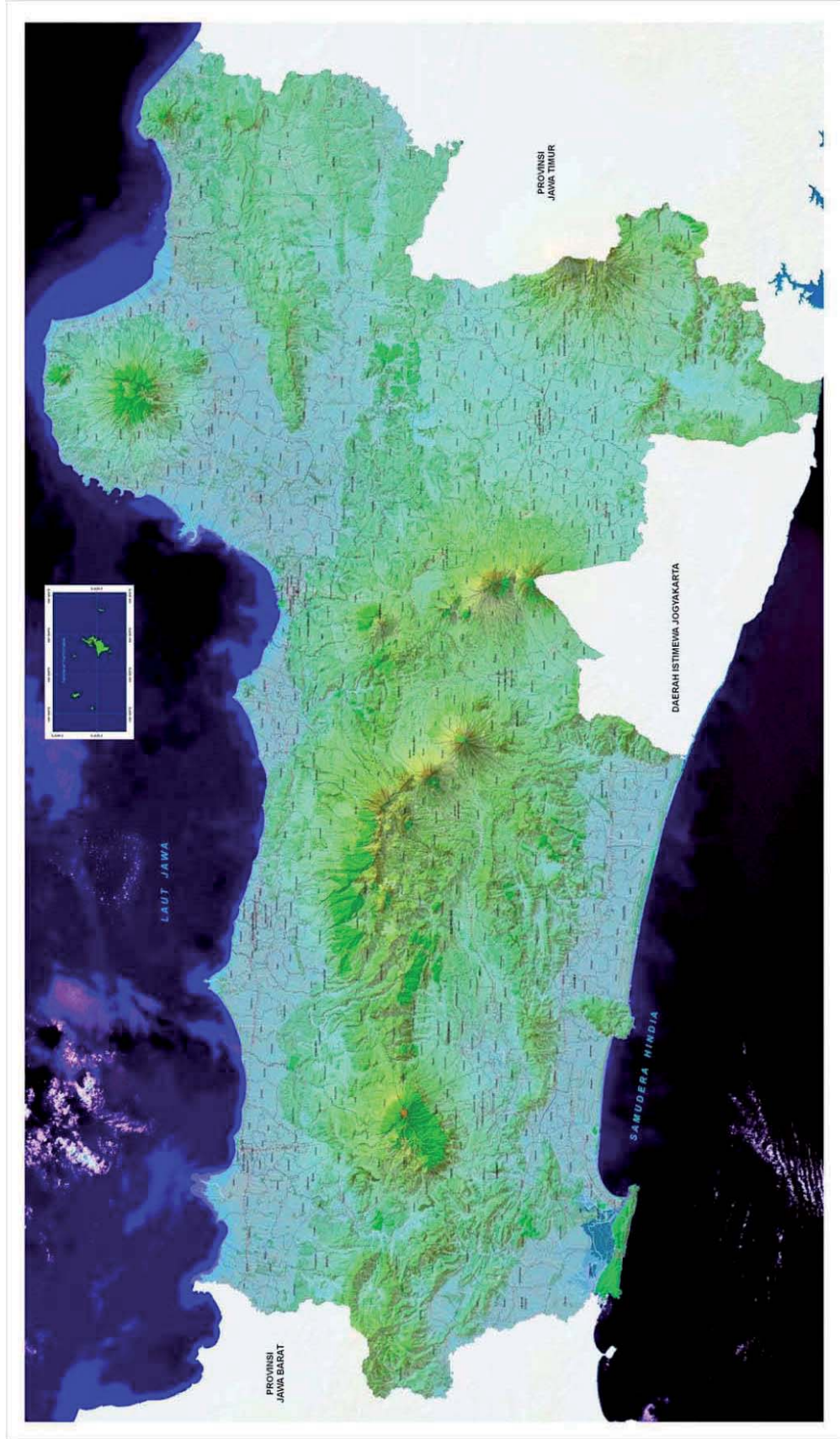
A.1 Administrative Map



Source: BAKOSURTANAL (Badan Koordinasi Survey dan Pemetaan Nasional - Indonesian National Mapping and Survey Agency), 2000
 Law No. 13, 1950 on Central Java Government Formation



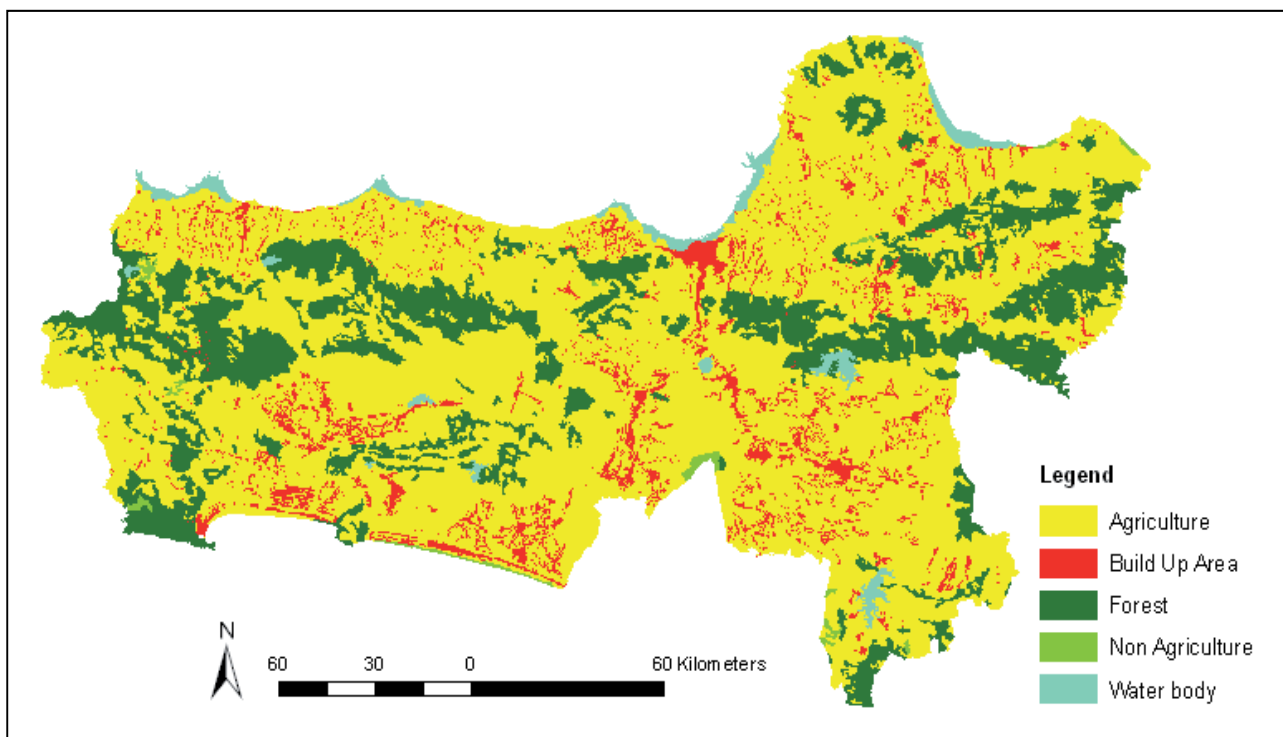
A.2 Topographic Map



Source: BAKOSURTANAL (Badan Koordinasi Survey dan Pemetaan Nasional - Indonesian National Mapping and Survey Agency), 2000

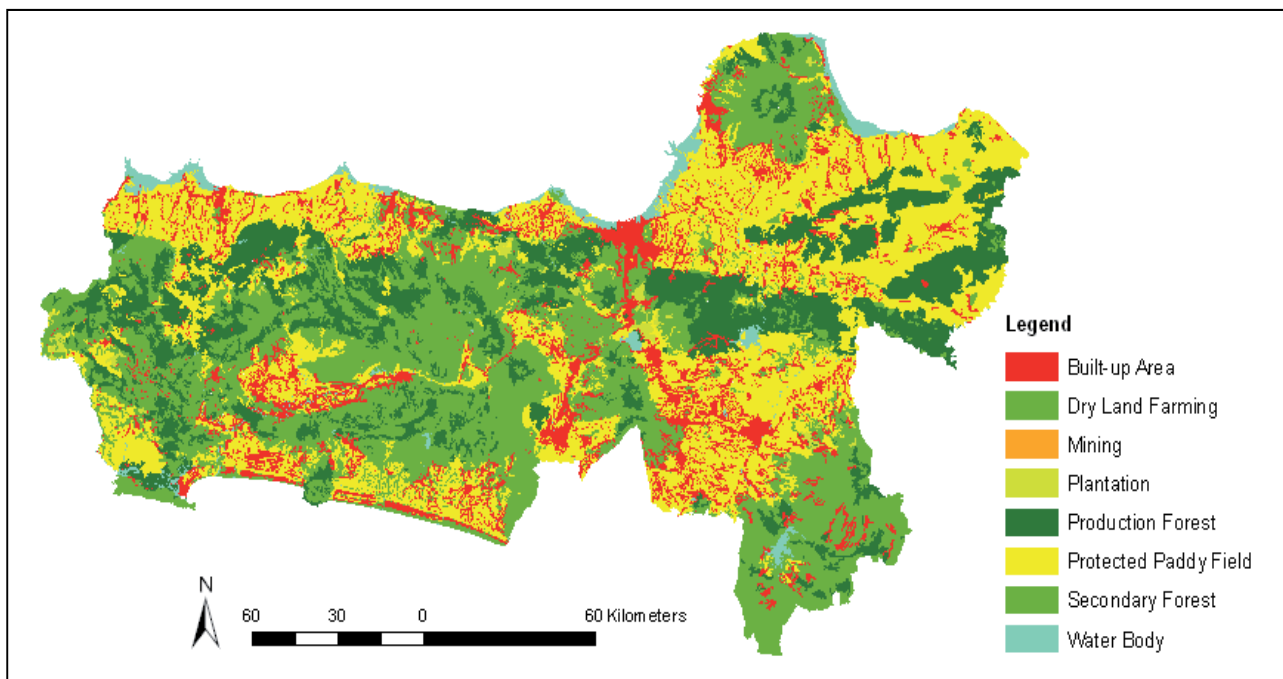


A.3a Land Use 1994



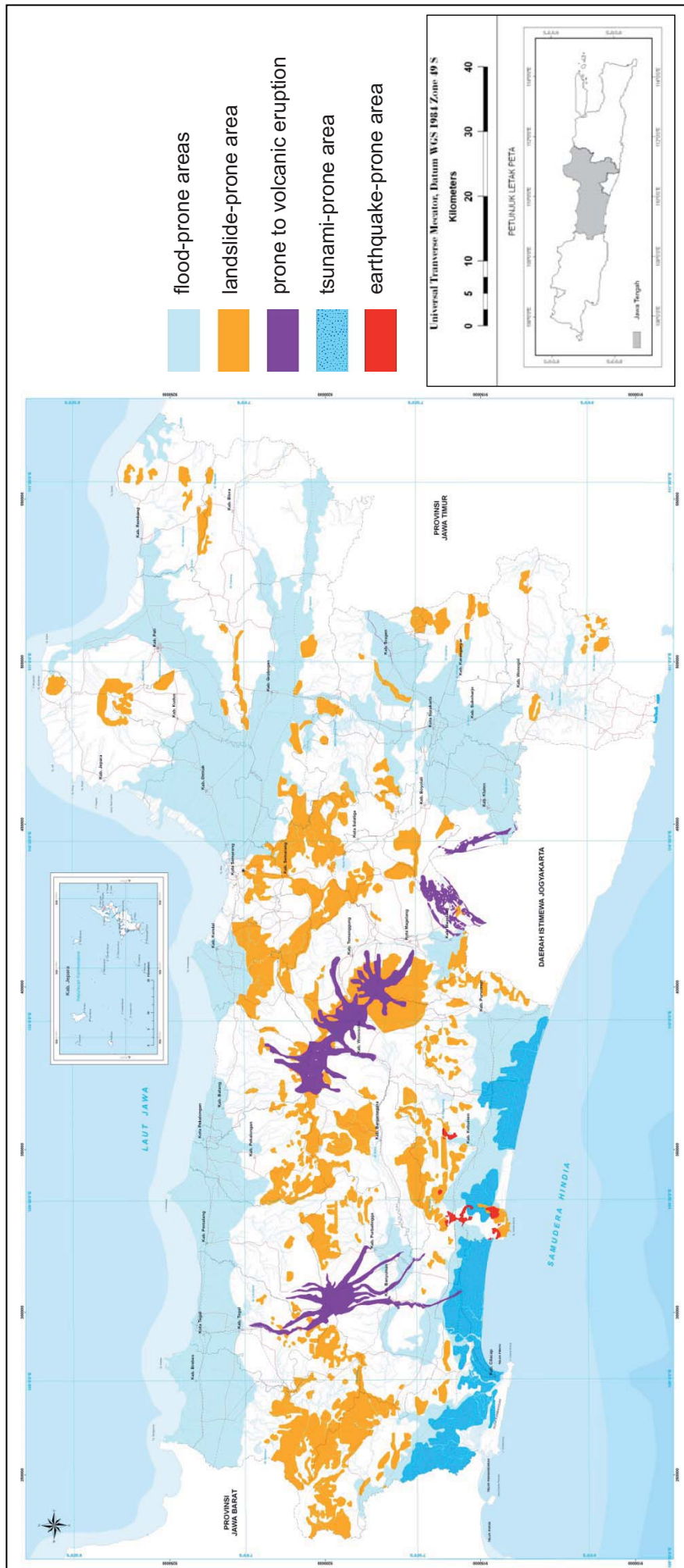
Source: BPN (National Land Agency of Central Java Province), 1994

A.3b Land Use 2006



Source: Bappeda (Provincial Planning Board and Development Agency of Central Java Province), 2006

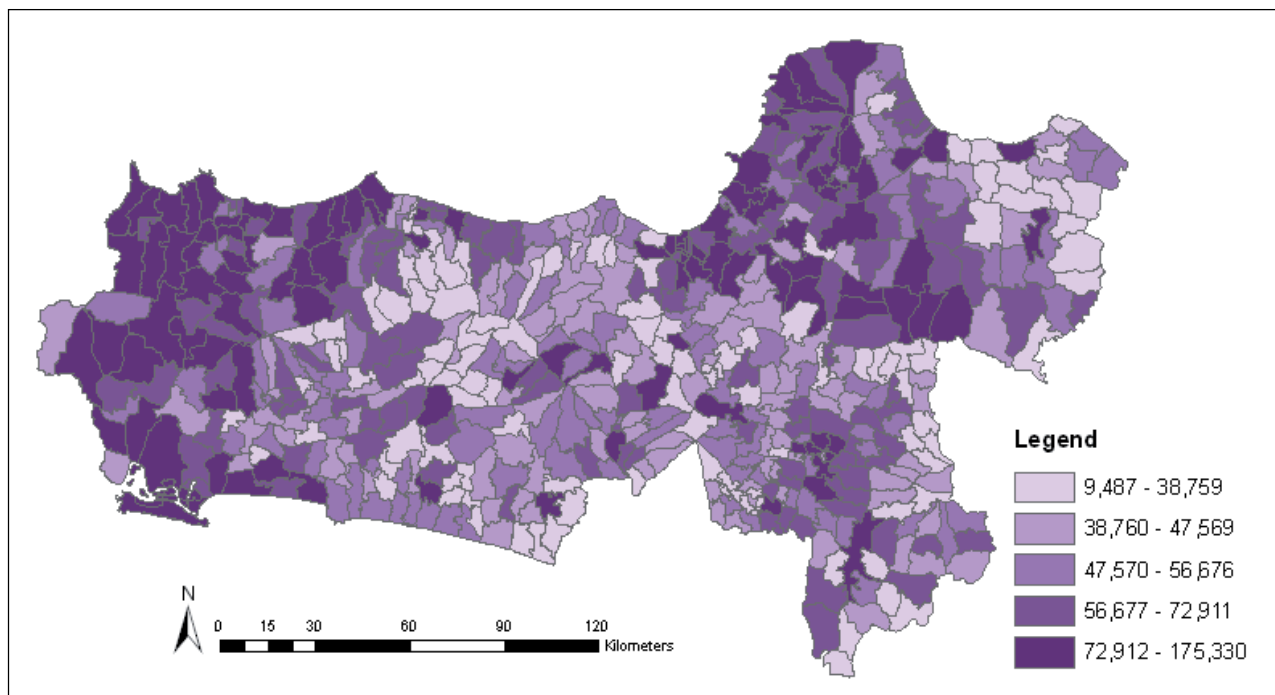
A.4 Disaster Prone Area



Source: BAKOSURTANAL (Badan Koordinasi Survey dan Pemetaan Nasional - National Coordination Agency for Survey and Mapping), 2000

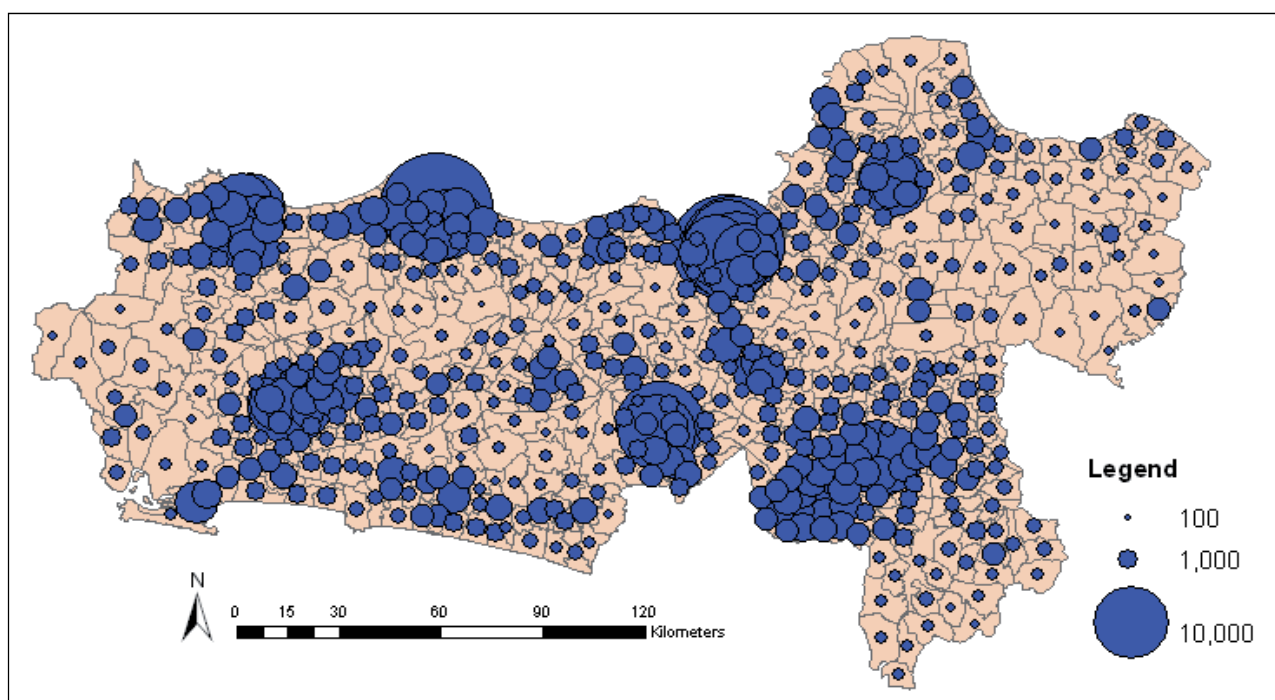


A.5a Population in Sub-district Level, 2000



Source: Bappeda (Provincial Planning Board and Development Agency of Central Java Province), 2006

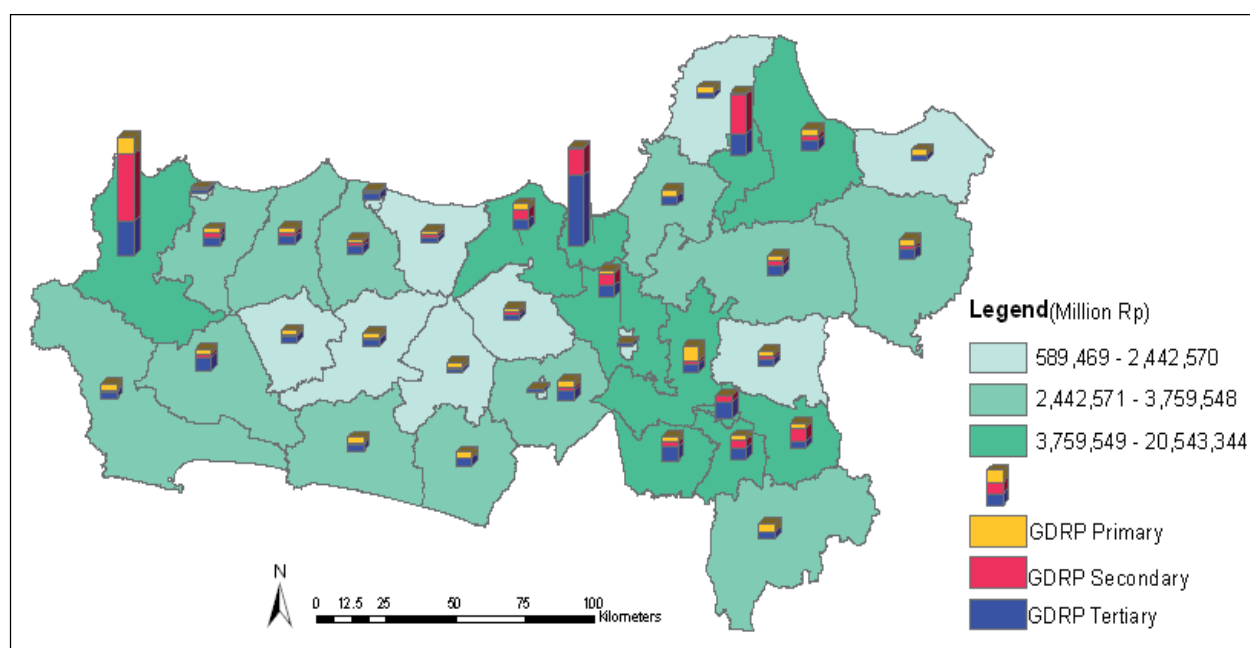
A.5b Gross Population Density with Proportional Symbols, 2000



Source: Bappeda (Provincial Planning Board and Development Agency of Central Java Province), 2006



A.6 Gross Domestic Product (GDP), 2000



Source: CBS – Central Bureau of Statistics Indonesia, 2006



Appendix B: Classification to Define Urban / Rural Places

NO	VARIABLE (in village level)	SCORE
1.	Population density (people per Km ²)	
	- < 500	1
	- 500-1250	2
	- 1250-2500	3
	- 2500-4000	4
	- 4000-6000	5
	- 6000-7000	6
	- 7000-8500	7
	- > 8500	8
2.	Percentage of farming households	
	- 70.00+	1
	- 50.00-70.00	2
	- 30.00-50.00	3
	- 20.00-30.00	4
	- 15.00-20.00	5
	- 10.00-15.00	6
	- 5.00-10.00	7
	- < 5.00	8
3.	Percentage of households served by electricity	
	- > 90.00	1
	- < 90.00	0
4.	Percentage of households served by telephone network	
	- > 8.00	1
	- < 8.00	0
5.	Accessibility to main urban facilities	
	a. Kindergarten	
	- Distance < 2.5 Km	1
	- Distance > 2.5 Km	0
	b. Junior high school	
	- Distance < 2.5 Km	1
	- Distance > 2.5 Km	0
	c. High school	
	- Distance < 2.5 Km	1
	- Distance > 2.5 Km	0
	d. Permanent / semi-permanent traditional market	
	- Distance < 2.5 Km	1
	- Distance > 2.5 Km	0



NO	VARIABLE (in village level)	SCORE
	e. Cinema	
-	Distance < 2.5 Km	1
-	Distance > 2.5 Km	0
	f. Modern shops	
-	Distance < 2 Km	1
-	Distance > 2 Km	0
	g. Hospital	
-	Distance < 5 Km	1
-	Distance > 5 Km	0
	h. Hotel and amusement facilities	
-	Available	1
-	Not available	0
Total score		1 – 5.h
Accesibility to supporting facilities (only for urban villages)		
	a. Street lighting	
-	Available	1
-	Not available	0
	b. Bank	
-	Available	1
-	Not available	0
	c. Public phone / telephone booth	
-	Available	1
-	Not available	0
	d. Supermarket	
-	Available	1
-	Not available	0

Source : CBS, 2000a

Explanation :

1. Population density is the number of people per unit of village area (Km²).
2. Percentage of farming households is the result of the division between the numbers of farming households with a total number of households multiplied by one hundred (100). The smaller percentage of farm household has a greater score.
3. Percentage of households served by electricity is the result of the division between the amounts of household served by electricity with the total number of households multiplied by one hundred (100).



4. Percentage of households served by telephone network is the result of the division between the amount of household served by telephone network with the total number of households multiplied by one hundred (100).
5. Accessibility to main urban facilities. If there is a facility within distance less than 2.5 km then given a score of one (1).
6. Accessibility to supporting facilities (only for urban villages). If there are facilities as mentioned on the Table above then given a score of one (1).

Scores to determine the classification result:

- Score ≥ 10 (variabel 1 - 5.h) is classified as urban village.
- Score ≤ 10 (variabel 1 - 5.h) is classified as rural village.
- Additional score for urban village indicates hierarchy of the urban village.



Appendix C: Cluster Analysis

C.1 List of Parameters for Cluster Analyses (Before selection)

Physical environment and Population			
1	Slope	0 - 8 %	%
2		8 - 15 %	%
3		15 - 25 %	%
4		25 - 40 %	%
5		> 40 %	%
6	Share of agricultural area	Protected Paddy field (2006)	%
7		Total agriculture (2006)	%
8	Share of environmentally protected area	Owned by govt (2007)	%
9		Owned by civil soc (2007)	%
10		Total (2007)	%
11	Share of disaster prone area	Floods (2007)	%
12	(including earthquake and volcano eruption)	Landslides (2007)	%
13		Total (2007)	%
14	Share of conservation area	(2007)	%
15	Urban population growth	(1994-2007)	%
16	Urban population	(2007)	%
17	Share of built-up area	(2006)	Km ²
18	Built-up area annual growth/land conversion	1994-2006 (average)	%
19	Length of road in good condition	(2007)	Km
20	Distance average to closest urban centre	(2006)	Km
21	Distance average to closest airport facility	(2006)	Km
Economic			
1	GDRP	GDRP-Industry (contribution-2006)	%
2		Share of GDRP-industry (2006)	%
3		GDRP-industry growth of contribution 1994-2006	%
4		GDRP-industry annual growth 1994-2006	%
5		GDRP-service (contribution-2006)	%
6		Share of GDRP-service (2006)	%
7		GDRP-service growth of contribution (1994-2006)	%
8		GDRP-service annual growth (1994-2006)	%
9		GDRP-non primary (contribution-2006)	Rp
10		Share GDRP-non primary (2006)	%
11		Share of GDRP-non growth of contribution (1994-2006)	%
12		GDRP-non primary annual growth (1994-2006)	%
13	Employment	Employment-Industry (contribution-2006)	%
14		Share of employment-industry (2006)	%
15		Employment-industry growth of contribution (1994-2006)	%
16		Employment-industry annual growth (1994-2006)	%
17		Employment-service (contribution-2006)	%
18		Share of employment-service (2006)	%



19		Employment-service growth of contribution (1994-2006)	%
20		Employment-service annual growth (1994-2006)	%
21		Employment-non primary (contribution-2006)	%
22		Share of employment-non primary (2006)	%
23		Employment-non primary growth of contribution (1994-2006)	%
24		Employment-non primary annual growth (1994-2006)	%
25	Flow of good	In	Ton
26		Out	Ton
Economic			
27	Medium industries	Number of industries (1993)	unit
28		Number of industries (2006)	unit
29		Growth (1993-2006)	%
30	Large industries	Number of industries (1993)	unit
31		Number of industries (2006)	unit
32		Growth (1993-2006)	%
33	Small Industries	Number of industries (2005)	unit
34	Medium and large industries	Number of industries (1993)	unit
35		Number of industries (2006)	unit
36		Growth (1993-2006)	%
37		Contribution	%
38	LQ (Location Quotient)	GDRP-Industry	
39		GDRP-Service	
40		GDRP-Non primary	
41		Employment-Industry	
42		Employment-Service	
43		Employment-Non primary	
Social			
1	Education attainment	Share of population graduated from high school (1994)	%
2		Share of population graduated from high school (2006)	%
3		Share of population graduated from university (1994)	%
4		Share of population graduated from university (2006)	%
5		Share of population graduated from high school and university (1994)	%
6		Share of population graduated from high school and university (2006)	%
7	Unemployment annual growth		%
8	Employment rate		%
Politic			
1	Rank of political intervention		Dummy

Note:

Final parameters that were applied (after selection)

C.2 Data Compilations: Physical Environment and Population

District/City	1		2		3		4		5		6		7	
	0 - 8 %		8 - 15 %		15 - 25 %		25 - 40 %		> 40 %		Agriculture		Environmentally protected area	
	%	%	%	%	%	%	%	%	%	%	Hectare	%	Hectare	%
1 Banjarnegara	24.20	5.87	41.09	25.83	2.39	12,146.64	1.19	2,505.14	2.71	15,008.96	6.79	17,514.10	5.59	
2 Banyumas	49.07	4.63	34.61	6.67	5.02	36,616.14	3.58	10,200.75	11.02	14,991.14	6.78	25,191.89	8.03	
3 Batang	57.21	17.50	13.26	10.31	1.72	25,945.79	2.54	2,313.70	2.50	5,763.84	2.61	8,077.54	2.58	
4 Blora	93.96	5.86	0.00	0.00	0.00	58,404.47	5.71	0.00	0.00	3,077.75	1.39	3,077.75	0.98	
5 Boyolali	73.45	17.40	2.83	2.11	2.40	16,245.30	1.59	0.00	0.00	1,417.45	0.64	1,417.45	0.45	
6 Brebes	58.86	10.10	16.16	11.17	3.27	62,998.62	6.16	6,582.70	7.11	2,805.37	1.27	9,388.07	2.99	
7 Cilacap	59.59	9.22	28.77	2.00	0.43	65,050.85	6.36	0.00	0.00	11,779.17	5.33	11,779.17	3.76	
8 Demak	96.15	3.04	0.81	0.00	0.00	58,891.54	5.76	0.00	0.00	0.00	0.00	0.00	0.00	
9 Grobogan	83.50	15.90	0.60	0.00	0.00	71,948.89	7.04	0.00	0.00	23.18	0.01	23.18	0.01	
10 Jepara	76.94	15.26	3.23	0.88	3.69	23,063.19	2.26	3,078.00	3.32	4,131.27	1.87	7,209.27	2.30	
11 Karanganyar	53.09	36.77	3.14	4.57	2.25	23,618.53	2.31	7,311.50	7.90	10,850.28	4.91	18,161.78	5.79	
12 Kebumen	50.89	7.79	38.33	0.50	2.21	44,986.28	4.40	4,010.54	4.33	23,410.11	10.59	27,420.65	8.74	
13 Kendal	60.53	24.54	11.31	3.20	0.41	22,666.63	2.22	1,709.80	1.85	11,574.63	5.24	13,284.43	4.24	
14 Klaten	93.83	3.78	1.26	0.33	0.58	40,772.65	3.99	39.20	0.04	363.67	0.16	402.87	0.13	
15 Kota Magelang	100.00	0.00	0.00	0.00	0.00	206.63	0.02	0.00	0.00	44.10	0.02	44.10	0.01	
16 Kota Pekalongan	100.00	0.00	0.00	0.00	0.00	1,522.16	0.15	0.00	0.00	0.00	0.00	0.00	0.00	
17 Kota Salatiga	90.48	6.65	2.87	0.00	0.00	478.76	0.05	0.00	0.00	44.92	0.02	44.92	0.01	
18 Kota Semarang	73.15	8.85	15.64	2.36	0.00	1,353.03	0.13	0.00	0.00	2,036.35	0.92	2,036.35	0.65	
19 Kota Surakarta	100.00	0.00	0.00	0.00	0.00	111.14	0.01	0.00	0.00	0.00	0.00	0.00	0.00	
20 Kota Tegal	100.00	0.00	0.00	0.00	0.00	1,060.21	0.10	0.00	0.00	0.00	0.00	0.00	0.00	
21 Kudus	81.24	9.70	3.54	2.05	3.47	25,333.97	2.48	1,693.40	1.83	2,171.33	0.98	3,864.73	1.23	
22 Magelang	52.90	34.54	6.82	4.09	1.65	42,070.18	4.11	1,563.41	1.69	10,262.17	4.64	11,825.58	3.77	
23 Pati	86.70	10.69	0.41	1.86	0.24	58,917.65	5.76	1,065.20	1.15	2,388.95	1.08	3,454.15	1.10	
24 Pekalongan	42.17	3.80	2.40	38.46	13.17	24,194.85	2.37	2,475.50	2.67	11,506.26	5.21	13,981.76	4.46	
25 Pemalang	58.09	8.62	6.05	23.87	3.37	30,299.41	2.96	3,892.90	4.21	3,136.02	1.42	7,028.92	2.24	
26 Purbalingga	52.23	13.49	1.86	22.96	9.47	22,792.31	2.23	10,688.75	11.55	4,496.43	2.03	15,185.18	4.84	
27 Purworejo	51.74	19.64	22.73	3.72	2.17	30,092.37	2.94	5,655.88	6.11	8,964.31	4.06	14,620.19	4.66	
28 Rembang	87.77	6.93	5.30	0.00	0.00	37,320.17	3.65	2,629.00	2.84	3,687.30	1.67	6,316.30	2.01	
29 Semarang	46.19	19.47	24.31	6.79	1.18	22,896.10	2.24	1,427.43	1.54	8,337.67	3.77	9,765.10	3.11	
30 Sragen	82.37	14.97	0.00	0.00	0.00	41,082.39	4.02	54.50	0.06	2,573.76	1.16	2,628.26	0.84	
31 Sukoharjo	96.41	2.14	0.04	1.41	0.00	23,742.97	2.32	310.90	0.34	921.98	0.42	1,232.88	0.39	
32 Tegal	71.41	5.25	1.39	18.79	2.41	41,296.13	4.04	4,689.91	5.07	1,625.02	0.74	6,314.93	2.01	
33 Temanggung	40.77	26.94	24.95	4.98	2.35	20,709.62	2.03	3,281.65	3.54	12,635.26	5.72	15,916.91	5.08	
34 Wonogiri	48.25	29.04	12.58	6.43	0.65	17,377.28	1.70	11,450.10	12.37	36,703.80	16.61	48,153.90	15.36	
35 Wonosobo	18.02	30.43	39.67	6.45	4.06	16,358.01	1.60	3,946.26	4.26	4,262.31	1.93	8,208.57	2.62	
TOTAL						1,022,570.86	100.00	92,576.12	100.00	220,994.76	100.00	313,570.88	100.00	

C.2 Data Compilations: Physical Environment and Population

District/City	8		9		10		11		12		13	
	Disaster prone area		Conservation area		Urban pop.		Share built-up		Built-up an growth		Road quality	
	Ha	%	Ha	%	%	%	%	%	Km	Km	Km	Km
1 Banjarnegara	32,523.06	54.63	104.20	3.28	18.23	116.49	7.01	46.57	19.28	133.26	18.86	183.95
2 Banyumas	40,183.03	67.50	0.00	0.00	43.63	204.07	5.01	49.09	29.26	65.44	23.18	116.50
3 Batang	13,841.38	23.25	90.10	2.84	16.12	107.74	29.22	59.73	5.69	21.86	35.19	189.87
4 Blora	6,155.50	10.34	55.40	1.74	19.74	80.02	10.08	54.79	4.89	51.79	15.60	57.64
5 Boyolali	2,834.90	4.76	0.00	0.00	29.47	274.50	7.49	83.01	30.1	30.1	20.11	65.59
6 Brebes	12,193.44	20.48	48.50	1.53	52.97	129.64	9.29	35.2	20.26	18.14	14.80	34.67
7 Cilacap	23,558.34	39.57	1,079.70	33.98	28.92	230.77	4.40	30.1	7.45	24.50	21.73	129.27
8 Demak	0.00	0.00	0.00	0.00	49.22	175.55	0.03	31.13	11.76	27.69	16.50	29.28
9 Grobogan	46.36	0.08	69.54	0.09	35.25	200.63	17.98	50.29	0.03	2.90	2.90	60.53
10 Jepara	11,340.54	19.05	1,398.00	44.00	50.01	130.47	3.47	44.87	3.47	3.15	3.15	45.29
11 Karanganyar	29,012.06	48.74	64.30	2.02	31.45	101.49	4.16	61.07	4.16	12.59	12.59	38.36
12 Kebumen	50,830.76	85.39	0.00	0.00	41.78	155.36	1.21	24.50	4.30	4.22	4.22	11.09
13 Kendal	24,859.06	41.76	33.20	1.05	38.42	112.80	4.60	32.17	3.41	2.39	2.39	146.23
14 Klaten	766.54	1.29	0.00	0.00	22.83	223.75	11.76	27.69	19.25	67.37	10.48	69.89
15 Kota Magelang	88.20	0.15	0.00	0.00	100.00	14.05	0.03	31.13	4.50	18.38	18.38	54.19
16 Kota Pekalongan	0.00	0.00	0.00	0.00	100.00	23.53	17.98	50.29	4.55	16.33	16.33	97.93
17 Kota Salatiga	89.84	0.15	0.00	0.00	100.00	35.14	3.47	44.87	4.55	44.55	44.55	103.29
18 Kota Semarang	4,072.70	6.84	0.00	0.00	100.00	184.32	18.22	65.50	18.22	23.51	23.51	103.29
19 Kota Surakarta	0.00	0.00	0.00	0.00	100.00	45.19	15.39	48.71	15.39	20.59	20.59	132.81
20 Kota Tegal	0.00	0.00	0.00	0.00	100.00	22.89	4.63	53.40	4.63	13.13	13.13	160.56
21 Kudus	6,036.06	10.14	0.00	0.00	29.51	102.66	0.38	41.95	0.38	14.23	14.23	76.89
22 Magelang	22,087.75	37.10	0.00	0.00	38.57	188.43	12.52	21.83	12.52	25.82	25.82	141.32
23 Pati	5,843.10	9.82	0.00	0.00	22.38	180.94	6.47	45.17	6.47	18.50	18.50	49.19
24 Pekalongan	25,488.02	42.82	0.00	0.00	14.42	75.77	4.71	65.73	4.71	15.80	15.80	45.18
25 Pemalang	10,164.94	17.08	58.60	1.84	51.54	80.24	3.95	25.80	3.95	12.60	12.60	38.35
26 Purbalingga	19,681.61	33.06	0.00	0.00	13.19	89.64	10.67	28.99	10.67	20.79	20.79	157.09
27 Purworejo	23,584.50	39.62	0.00	0.00	39.87	160.56	3.44	48.43	3.44	16.16	16.16	78.38
28 Rembang	10,003.60	16.80	62.20	1.96	0.42	42.78	8.02	49.43	8.02	26.36	26.36	70.16
29 Semarang	18,102.77	30.41	18.30	0.58	59.76	152.98	4.02	47.74	4.02	11.89	11.89	108.75
30 Sragen	5,202.02	8.74	103.90	3.27	3.01	118.89	0.00	0.00	0.00	0.00	0.00	0.00
31 Sukoharjo	2,154.86	3.62	0.00	0.00	33.82	119.31	0.00	0.00	0.00	0.00	0.00	0.00
32 Tegal	7,939.95	13.34	8.60	0.27	47.02	112.38	0.00	0.00	0.00	0.00	0.00	0.00
33 Temanggung	28,552.17	47.96	0.00	0.00	23.39	101.31	0.00	0.00	0.00	0.00	0.00	0.00
34 Wonogiri	84,857.70	142.55	8.30	0.26	21.47	147.13	0.00	0.00	0.00	0.00	0.00	0.00
35 Wonosobo	12,470.88	20.95	43.70	1.38	30.16	21.94	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	534,565.64		3,246.54	100.00								

C.3 Data Compilations: Economic

District/City	1			2			3			4			5		
	GDRP Industry			GDRP Service			GDRP Non Primary			GDRP Non Primary			GDRP Non Primary		
	Contribution %	Share %	Growth of cont. %	Contribution %	Share %	Growth of cont. %	Contribution %	Share %	Growth of cont. %	Contribution %	Share %	Growth of cont. %	Contribution %	Share %	Growth of cont. %
1 Banjarnegara	14.25	0.79	0.55	18.93	47.17	1.72	3.82	20.19	61.42	1.35	4.37	19.89			
2 Banyumas	16.95	1.49	4.79	40.19	59.97	3.47	3.77	28.82	76.92	2.68	8.56	30.85			
3 Batang	28.83	1.36	0.56	17.95	43.05	1.34	3.23	19.53	71.88	1.35	3.79	18.87			
4 Blora	6.26	0.26	0.80	18.25	36.30	1.01	-10.41	9.69	42.56	0.71	-9.61	10.59			
5 Boyolali	16.18	1.36	-5.20	18.92	47.12	2.61	-1.52	26.54	63.30	2.11	-6.71	24.21			
6 Brebes	10.48	1.11	1.58	34.65	32.36	2.26	-7.53	21.27	42.84	1.81	-5.95	23.71			
7 Cilacap	55.89	26.79	8.86	32.23	29.86	9.43	-11.26	16.45	85.75	16.33	-2.39	24.87			
8 Demak	11.02	0.66	-2.66	18.33	45.99	1.82	2.70	26.84	57.01	1.36	0.04	24.79			
9 Grobogan	3.40	0.21	0.73	30.28	53.35	2.20	6.18	25.96	56.75	1.41	6.91	26.19			
10 Jepara	27.49	2.28	6.00	40.30	48.05	2.62	2.39	31.67	75.54	2.49	8.39	34.43			
11 Karanganyar	52.72	5.41	18.05	44.93	26.94	1.82	-14.21	14.60	79.66	3.25	3.85	28.47			
12 Kebumen	9.50	0.55	3.89	32.06	44.89	1.70	0.34	15.72	54.39	1.24	4.23	17.55			
13 Kendal	39.71	4.10	-0.29	17.97	34.81	2.37	0.15	18.28	74.52	3.05	-0.14	18.11			
14 Klaten	19.79	1.96	0.92	25.57	56.79	3.71	1.52	24.89	76.58	3.02	2.44	25.06			
15 Kota Magelang	5.11	0.07	2.59	2.59	90.19	0.82	2.64	10.75	95.30	0.52	-0.92	10.01			
16 Kota Pekalongan	20.88	0.85	29.14	29.14	67.89	1.83	5.45	35.22	88.77	1.44	4.01	33.62			
17 Kota Salatiga	21.18	0.37	22.62	22.62	72.84	0.84	-0.26	22.01	94.02	0.66	0.08	22.15			
18 Kota Semarang	27.37	10.89	25.49	25.49	71.20	18.67	0.60	25.74	98.58	15.58	0.63	25.67			
19 Kota Surakarta	27.88	2.65	45.55	45.55	72.00	4.50	-8.98	20.03	99.89	3.77	2.40	24.35			
20 Kota Tegal	22.59	0.56	22.10	22.10	65.68	1.06	-4.11	18.43	88.27	0.86	-2.62	19.28			
21 Kudus	61.35	15.61	-0.16	22.48	35.34	5.92	0.25	22.78	96.69	9.77	0.08	22.59			
22 Magelang	19.20	1.53	0.50	23.64	48.03	2.51	8.00	29.04	67.23	2.12	8.50	27.32			
23 Pati	20.24	1.78	5.09	39.17	45.35	2.63	3.66	30.35	65.59	2.29	8.75	32.70			
24 Pekalongan	27.31	1.73	-4.67	15.71	49.44	2.06	9.96	26.93	76.75	1.93	5.29	21.91			
25 Pemalang	22.93	1.53	8.35	34.47	48.62	2.14	2.19	20.17	71.55	1.90	10.54	23.59			
26 Purbalingga	9.91	0.47	-1.17	20.33	54.55	1.69	2.33	25.13	64.46	1.21	1.16	24.29			
27 Purworejo	9.56	0.55	1.53	32.50	52.26	1.96	-5.08	22.92	61.82	1.40	-3.55	24.09			
28 Rembang	4.00	0.18	-0.57	22.51	44.93	1.33	-2.03	25.38	48.93	0.87	-2.60	25.12			
29 Semarang	46.81	5.08	16.39	67.42	39.82	2.85	-3.82	36.58	86.63	3.73	12.58	49.25			
30 Sragen	21.80	1.24	8.47	45.36	42.57	1.60	3.24	27.21	64.37	1.46	11.71	31.81			
31 Sukoharjo	30.29	2.91	9.98	49.24	48.68	3.08	2.48	32.34	78.97	3.02	12.47	37.50			
32 Tegal	28.71	1.98	9.60	38.85	50.59	2.30	-0.19	22.96	79.30	2.17	9.42	27.30			
33 Temanggung	20.36	0.98	2.93	24.68	46.60	1.48	-1.92	18.82	66.96	1.28	1.01	20.37			
34 Wonogiri	4.65	0.27	-1.00	18.10	43.09	1.67	-5.76	19.98	47.74	1.12	-6.75	19.78			
35 Wonosobo	11.08	0.42	5.13	50.05	39.11	0.97	-10.1	16.58	50.19	0.75	-4.96	20.19			
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00			

C.3 Data Compilations: Economic

District/City	6			7			8			9			10			11			12			13					
	Employment Industry		Annual Growth %	Employment Service		Annual Growth %	Employment Non Primary		Annual Growth %	Employment Industry		Annual Growth %	Employment Service		Annual Growth %	Employment Non Primary		Annual Growth %	Employment Industry		Annual Growth %	Employment Service		Annual Growth %	Employment Non Primary		Annual Growth %
	Contribution %	Share %		Contribution %	Share %		Contribution %	Share %		Contribution %	Share %		Contribution %	Share %		Contribution %	Share %		Contribution %	Share %		Contribution %	Share %		Contribution %	Share %	
1 Banjarnegara	9.47	1.41	3.12	5.95	32.07	1.91	4.42	2.78	41.55	1.76	7.54	3.37															
2 Banyumas	19.54	4.54	3.04	1.66	56.94	5.30	13.76	2.79	76.48	5.09	16.80	2.48															
3 Batang	20.25	2.28	5.36	2.90	38.91	1.75	4.52	1.01	59.16	1.90	9.89	1.58															
4 Blora	5.45	0.88	3.85	22.75	31.59	2.05	7.59	3.66	37.04	1.71	14.78	4.85															
5 Boyolali	16.18	3.02	8.01	9.28	36.56	2.74	6.54	2.50	52.74	2.82	11.45	3.95															
6 Brebes	4.87	1.39	0.73	2.08	47.15	5.38	6.14	1.83	52.02	4.24	14.55	1.86															
7 Cilacap	17.18	3.93	9.06	7.48	44.79	4.10	14.74	2.81	61.97	4.05	6.87	3.80															
8 Demak	12.49	2.24	4.57	7.78	47.21	3.40	9.19	4.35	59.70	3.07	23.81	4.94															
9 Grobogan	4.97	1.21	2.24	8.59	37.99	3.72	12.96	5.78	42.96	3.00	13.76	6.06															
10 Jepara	47.30	8.78	14.96	7.08	36.26	2.70	-0.18	2.15	83.56	4.44	15.19	4.47															
11 Karanganyar	22.12	3.26	3.38	1.73	44.78	2.64	15.10	4.53	66.90	2.82	18.48	3.44															
12 Kebumen	23.39	4.28	5.41	2.13	39.36	2.89	4.33	0.70	62.75	3.29	9.75	1.19															
13 Kendal	13.39	2.29	2.50	4.76	39.47	2.70	0.63	2.49	52.86	2.58	3.12	2.99															
14 Klaten	28.30	5.79	10.30	5.60	50.22	4.12	5.15	1.54	78.52	4.59	15.45	2.70															
15 Kota Magelang	15.62	0.33	-3.56	2.09	82.54	0.69	0.48	1.14	86.73	3.78	1.99	1.28															
16 Kota Pekalongan	33.90	1.44	-1.44	-0.33	60.98	1.04	0.23	-0.34	94.88	0.59	0.43	-0.34															
17 Kota Salatiga	21.18	0.57	0.34	10.89	68.19	0.73	-10.49	5.36	89.37	1.15	-6.72	6.36															
18 Kota Semarang	21.81	5.07	0.03	2.97	74.70	6.96	-2.17	1.17	96.51	0.69	0.77	1.52															
19 Kota Surakarta	19.91	1.71	11.38	1.48	79.35	2.73	-2.48	-0.02	99.25	6.41	0.05	0.24															
20 Kota Tegal	16.86	0.64	1.48	2.02	74.15	1.13	-0.49	-0.77	91.00	2.44	3.98	-0.38															
21 Kudus	40.65	6.20	8.19	5.40	46.08	2.82	2.23	3.19	86.73	0.99	10.42	4.13															
22 Magelang	13.94	3.04	4.16	5.22	42.29	3.69	11.55	4.74	56.23	3.50	15.71	4.86															
23 Pati	11.81	2.46	5.76	8.38	39.77	3.32	10.70	3.38	51.58	3.07	16.46	4.24															
24 Pekalongan	35.34	5.23	6.53	3.60	41.07	2.44	10.20	4.61	76.41	3.24	16.73	4.12															
25 Pemalang	11.00	2.33	3.31	6.77	46.81	3.97	-0.30	2.16	57.81	3.50	3.00	2.80															
26 Purbalingga	27.69	3.74	7.14	3.35	39.43	2.14	2.49	0.92	67.12	2.60	9.63	1.79															
27 Purworejo	17.58	2.21	12.44	21.50	38.66	1.94	8.56	2.86	56.24	2.02	21.00	5.57															
28 Rembang	6.77	0.65	3.31	8.64	41.00	1.58	9.63	3.00	47.76	1.32	12.93	3.56															
29 Semarang	19.80	3.43	0.83	1.91	41.31	2.87	6.80	3.41	61.12	3.03	7.62	2.88															
30 Sragen	16.51	2.64	1.94	1.87	39.03	2.50	2.85	1.38	55.54	2.54	4.79	1.52															
31 Sukoharjo	27.11	4.10	5.17	3.47	55.27	3.35	6.26	2.44	82.38	3.56	11.44	2.76															
32 Tegal	17.72	3.93	4.55	5.29	51.93	4.62	5.72	3.04	69.65	4.42	10.27	3.54															
33 Temanggung	20.01	2.73	16.42	43.41	34.33	1.88	9.74	4.62	54.34	2.12	26.16	9.56															
34 Wonogiri	6.34	1.21	-1.99	-2.02	31.65	2.41	-4.04	-0.98	38.00	2.07	-6.03	-1.17															
35 Wonosobo	7.76	1.05	-4.18	-2.31	33.33	1.81	3.90	2.17	41.10	1.59	-0.28	0.88															
TOTAL	100.00		100.00		100.00		100.00		100.00		100.00																

C.3 Data Compilations: Economic

District/City	Flow of Good				Industries		LQ (GDRP)				LQ (Employment)					
	In		Out		Medium	Large	Contribution (M & L)	Growth (M)		Growth (L)		Service		Non Primary		
	Ton	Ton	Unit	Unit	Unit	Unit	%	%	%	%	Industry	Service	Non Primary	Industry	Service	Non Primary
1 Banjarnegara	18,718,244	18,820,107	18	4			0.40	-1.81	2.78	0.47	0.61	0.79	0.32	0.42	0.66	
2 Banyumas	34,549,145	33,808,625	83	11			1.70	1.69	1.85	0.60	0.77	0.99	0.57	0.76	1.22	
3 Batang	3,276,414	2,281,641	68	24			1.66	13.46	5.00	0.43	0.72	0.92	0.39	0.59	0.94	
4 Blora	817,090	3,135,746	33	4			0.67	19.17	8.33	0.47	0.63	0.81	0.32	0.37	0.59	
5 Boyolali	16,864,812	19,774,078	126	25			2.73	2.84	5.56	0.32	0.43	0.55	0.37	0.53	0.84	
6 Brebes	2,527,196	4,806,496	37	8			0.81	13.69	25.00	0.30	0.86	1.10	0.47	0.52	0.83	
7 Cilacap	120,396,410	127,946,646	44	16			1.08	6.33	1.19	0.46	0.57	0.73	0.45	0.62	0.99	
8 Demak	2,061,254	3,011,491	61	31			1.66	12.85	2.90	0.53	0.57	0.73	0.47	0.60	0.95	
9 Grobogan	1,595,219	3,658,154	33	0			0.60	16.67	-8.33	0.48	0.76	0.97	0.38	0.43	0.69	
10 Jepara	3,501,620	2,699,098	644	70			12.89	22.16	17.03	0.36	0.43	0.55	0.36	0.84	1.33	
11 Karanganyar	11,516,044	11,563,980	104	79			3.30	8.02	3.22	0.27	0.80	1.02	0.45	0.67	1.07	
12 Kebumen	20,469,689	22,797,313	151	10			2.91	-1.18	0.93	0.45	0.54	0.70	0.39	0.63	1.00	
13 Kendal	3,517,265	2,662,492	39	19			1.05	13.33	0.98	0.35	0.75	0.96	0.39	0.53	0.84	
14 Klaten	25,407,088	25,046,581	406	23			7.75	4.48	1.75	0.57	0.77	0.98	0.50	0.79	1.25	
15 Kota Magelang	451,587	69,020	24	6			0.54	-3.21	0.00	0.90	0.95	1.22	0.83	0.98	1.57	
16 Kota Pekalongan	389,533	781,299	263	23			5.16	11.96	-2.53	0.68	0.89	1.14	0.61	0.95	1.51	
17 Kota Salatiga	1,235,623	598,777	15	8			0.42	7.29	5.00	0.73	0.94	1.21	0.68	0.89	1.43	
18 Kota Semarang	2,341,707	9,889,997	304	162			8.41	5.90	3.30	0.71	0.99	1.27	0.75	0.97	1.54	
19 Kota Surakarta	37,311,262	25,396,387	173	31			3.68	1.82	-0.26	0.72	1.00	1.28	0.79	0.99	1.58	
20 Kota Tegal	1,053,845	1,681,808	102	21			2.22	6.32	9.17	0.66	0.88	1.13	0.74	0.91	1.45	
21 Kudus	3,092,548	4,547,585	130	79			3.77	4.88	2.46	0.35	0.97	1.24	0.46	0.87	1.38	
22 Magelang	23,402,907	22,768,076	78	23			1.82	3.48	1.75	0.48	0.67	0.86	0.42	0.56	0.90	
23 Pati	3,064,642	2,687,114	214	19			4.21	9.86	0.46	0.45	0.66	0.84	0.40	0.52	0.82	
24 Pekalongan	4,775,726	1,998,148	463	30			8.90	23.29	0.00	0.49	0.77	0.99	0.41	0.76	1.22	
25 Pemalang	3,185,154	4,451,126	190	7			3.56	28.49	1.39	0.49	0.72	0.92	0.47	0.58	0.92	
26 Purbalingga	3,928,499	4,007,526	76	29			1.90	16.03	18.52	0.55	0.64	0.83	0.39	0.67	1.07	
27 Purworejo	14,363,737	14,132,914	20	6			0.47	1.47	-1.19	0.52	0.62	0.79	0.39	0.56	0.90	
28 Rembang	835,728	1,448,278	135	8			2.58	26.82	25.00	0.45	0.49	0.63	0.41	0.48	0.76	
29 Semarang	14,753,725	1,852,174	98	60			2.85	23.08	7.80	0.40	0.87	1.11	0.41	0.61	0.98	
30 Sragen	16,287,493	16,777,855	53	17			1.26	54.76	9.38	0.43	0.64	0.83	0.39	0.56	0.89	
31 Sukoharjo	25,562,374	26,498,635	154	60			3.86	1.10	11.67	0.49	0.79	1.01	0.55	0.82	1.32	
32 Tegal	6,054,601	3,327,526	130	21			2.73	13.33	5.13	0.51	0.79	1.02	0.52	0.70	1.11	
33 Temanggung	2,303,933	2,788,850	14	11			0.45	-2.50	22.22	0.47	0.67	0.86	0.34	0.54	0.87	
34 Wonogiri	19,062,004	21,345,639	26	4			0.54	4.41	-1.67	0.43	0.48	0.61	0.32	0.38	0.61	
35 Wonosobo	17,803,035	17,415,971	72	8			1.44	25.00	8.33	0.39	0.50	0.65	0.33	0.41	0.66	
TOTAL			4,581	957			100.00									

C.4 Data Compilations: Socio-Political

District/City	Education attainment (Share of population graduated from higher education)										Employment Rate %	Unemployment An growth %	Rank of intervention Dummy
	High School		University		High School and University		Unemployment		Employment				
	(1994,%)	(2006,%)	(1994,%)	(2006,%)	(1994,%)	(2006,%)	(1994,%)	(2006,%)	(1994,%)	(2006,%)			
1 Banjarnegara	9.87	9.61	0.60	3.46	10.47	13.07	11.65	61.17	0				
2 Banyumas	15.55	22.07	3.19	5.67	18.74	27.75	16.02	55.80	0				
3 Batang	13.28	8.74	1.95	2.07	15.23	10.81	7.45	60.60	0				
4 Blora	16.69	14.43	2.52	4.46	19.21	18.90	8.22	64.87	0				
5 Boyolali	17.40	21.31	2.38	5.62	19.78	26.93	5.07	67.68	1				
6 Brebes	13.10	12.32	1.43	2.32	14.53	14.64	24.35	59.90	1				
7 Cilacap	16.60	16.08	1.18	3.12	17.78	19.20	9.95	51.42	0				
8 Demak	11.78	14.99	2.38	5.05	14.16	20.04	8.85	62.55	2				
9 Grobogan	7.82	12.64	2.07	2.47	9.89	15.11	6.52	63.52	1				
10 Jepara	16.14	17.95	2.07	3.41	18.21	21.36	8.55	59.39	0				
11 Karanganyar	15.96	21.10	2.82	5.97	18.78	27.07	6.42	62.97	1				
12 Kebumen	15.17	15.72	2.24	4.16	17.41	19.88	19.96	54.48	0				
13 Kendal	18.26	20.44	2.17	5.22	20.43	25.65	11.42	65.23	2				
14 Klaten	20.46	32.06	5.39	6.87	25.85	38.93	10.10	63.23	1				
15 Kota Magelang	35.56	38.04	6.69	13.85	42.25	51.89	1.18	56.20	2				
16 Kota Pekalongan	28.76	27.45	3.31	6.93	32.07	34.38	1.09	56.56	2				
17 Kota Salatiga	36.00	35.09	8.27	9.30	44.27	44.39	8.62	56.73	2				
18 Kota Semarang	32.72	40.80	7.43	12.01	40.15	52.82	2.43	56.19	2				
19 Kota Surakarta	26.50	37.57	7.59	12.60	34.09	50.17	2.47	59.00	2				
20 Kota Tegal	25.86	26.80	6.28	6.77	32.14	33.57	0.76	56.52	2				
21 Kudus	18.71	24.81	2.77	4.75	21.48	29.56	2.48	66.87	0				
22 Magelang	17.74	21.15	2.50	4.27	20.24	25.42	4.78	64.70	0				
23 Pati	13.14	20.92	0.89	3.51	14.03	24.43	12.85	61.77	0				
24 Pekalongan	12.81	16.13	1.43	3.56	14.25	19.69	29.76	62.48	0				
25 Pemalang	9.04	12.84	3.11	4.03	12.14	16.87	22.23	59.07	1				
26 Purbalingga	12.28	12.34	2.64	3.55	14.92	15.89	5.26	57.07	0				
27 Purworejo	16.14	21.77	3.14	4.82	19.27	26.59	2.72	59.12	0				
28 Rembang	12.71	10.19	2.13	3.26	14.84	13.44	20.20	57.78	0				
29 Semarang	17.56	21.75	2.65	6.43	20.22	28.19	9.14	65.76	2				
30 Sragen	18.91	21.55	3.33	8.44	22.24	29.99	1.48	63.24	0				
31 Sukoharjo	24.96	33.03	3.85	7.65	28.81	40.68	12.00	64.12	1				
32 Tegal	9.69	13.85	1.70	2.29	11.40	16.14	1.81	57.92	1				
33 Temanggung	13.45	12.99	2.12	4.80	15.57	17.79	11.57	66.28	0				
34 Wonogiri	13.91	14.37	3.07	2.67	16.98	17.03	15.51	63.56	1				
35 Wonosobo	11.30	10.40	1.08	2.02	12.38	12.41	6.09	61.98	0				



Appendix D: GIS Application

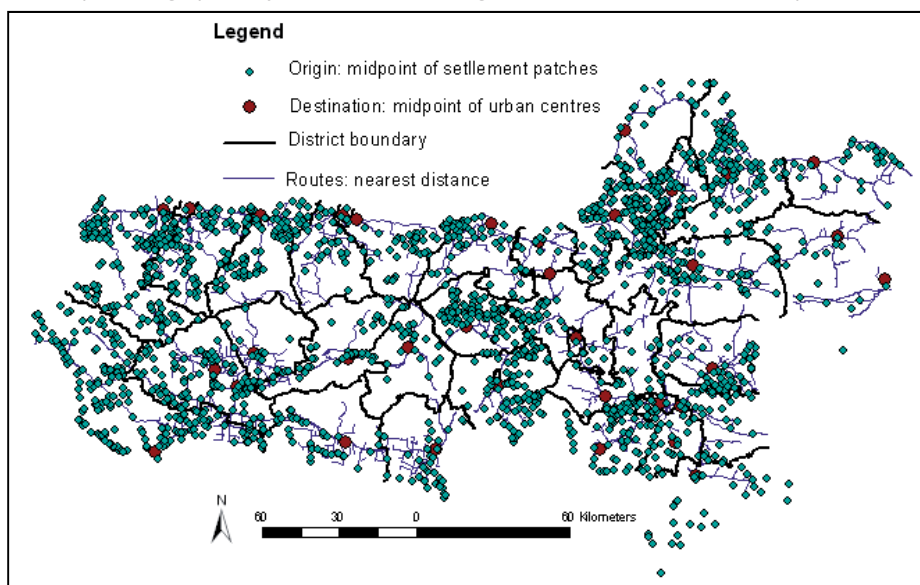
D.1 Network Analyst: Closest Facility Analysis

Closest facility is one of the network analysts tools in ArcGIS that is applied to identify direction of travel and to calculate the best route from one point to another or some others based on the nearest distance assumption. In general, the best route can be measured based on several criteria not only simply attributable to closest distance but also by considering factors such as quality of roads and lines of public transport. But, in the closest facility analysis that is applied in the study area, the best route is specified as travel time from origin (incident) to destination (facilities) in which the 'travel time' is defined as nearest distance.

The network analyst tool by finding closest facilities was applied for two main reasons in this research. The first is to find distance average for every single settlement patch in a district to the closest urban centre. The second is to find distance averages for every single settlement patch in a district to the closest airport located in the province as well as in the neighbouring province. Results of the calculations were used as variables for cluster analysis to further create a typology of rural-urban regions in the province.

There were five main steps applied:

- (1) Build a network dataset. In the network dataset, every segment has a distance. There is also speed or 'cost' as attribute in the network data set to define the best route. As explained initially, the criteria of best route was only the nearest distance.
- (2) Create points of origins and destinations. Patch of settlement (Incidents: origin layer) is changed from feature to point. Patch of urban centre and airport (Facilities: destination layers are also changed from feature to point.
- (3) Operating two new closest facility to create route layer (for urban centre and airport). It was done by defining:
 - Facilities: destination layers those are midpoint of urban centre and midpoint of airports.
 - Incidents: origin layer that is midpoint of settlement.
- (4) Join route layer attribute ('travel time': nearest distance) to midpoint of settlement.
- (5) Operating spatial joint to find average 'travel time' of each midpoint of settlement in district level.



The map illustrates the final result of calculations for defining average distance to closest urban centre. (Same approach for defining average distance to closest Airport).



D.2 Kernel Density Calculation

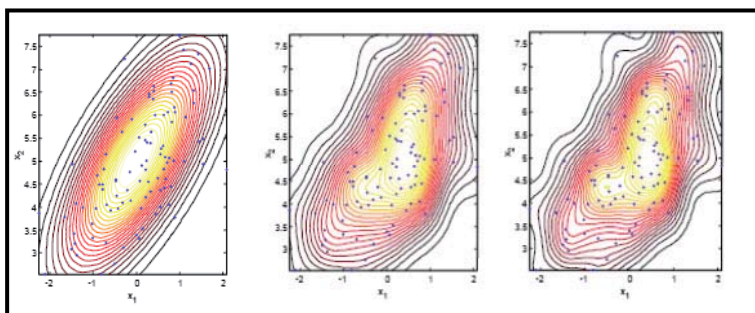
As briefly explained in the main manuscript, kernel density is a non-parametric way to measure density. The basic formula is:

$$p(x) \cong \frac{k}{NV} \text{ where } \begin{cases} V \text{ is the volume surrounding } x \\ N \text{ is the total number of examples} \\ k \text{ is the number of examples inside } V \end{cases}$$

Source: Bishop, 1995

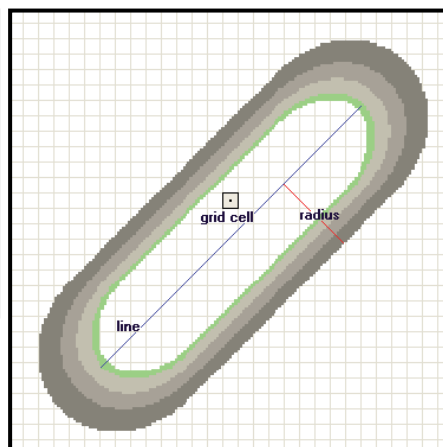
There are two types of non-parametric density calculation namely nearest neighbor and Kernel density estimation. Kernel density estimation was applied in this research instead of nearest neighbor since it was assumed that population density is not really influenced by its nearest neighbor but more related to distribution of settlement patches in general.

There are also two main considerations to understand population distribution by using the kernel density estimation. The first is grid cell (raster) size and the second is radius. As there are not any criteria to find the most suitable raster size and radius, trial and error with the help of some notes in logbooks would be the approach to have the best result.

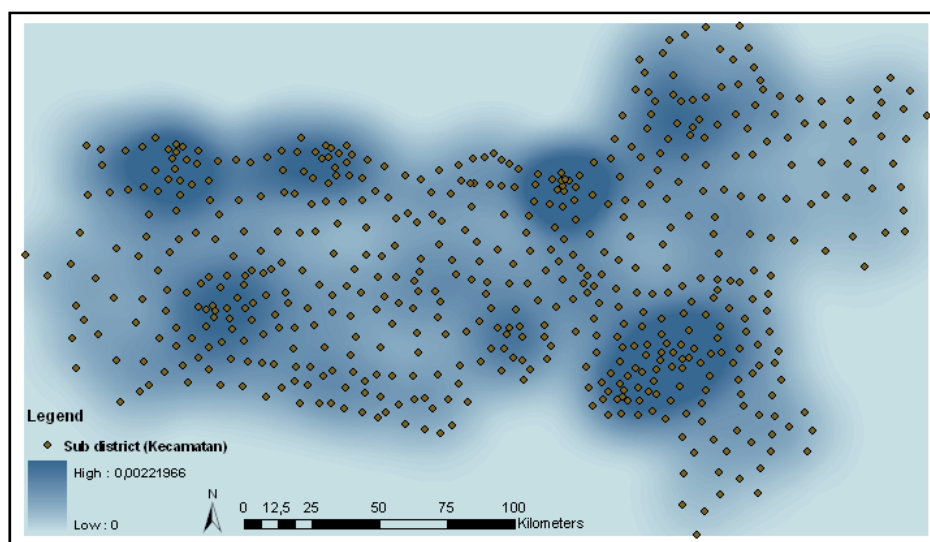


Above is illustration of different pattern of density due to different pattern distribution and intensity of referenced points.

On the right is illustration of distribution pattern in radius and grid cell in ArcGIS.



After several steps of trial and error, it was finally find out that a radius of 25 Km raster based within each 250mx250m cell sized (grid) gave the best result as the pattern can be clearly observed and supported by rational explaining factor.



Kernel density estimation for Central Java, 2000

Points represent 565 sub-districts in the province. Each point has different 'volume' that is number of population.



D.3 Model Builder for Land Use Change Scenario

