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THE EMERGENCE OF JAKARTA-BANDUNG MEGA-URBAN REGION AND ITS FUTURE CHALLENGES

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Abstrak

Studi ini mengeksplorasi hubungan antara dua wilayah metropolitan yang berdekatan, Jakarta dan Bandung, selama 10 tahun terakhir. Proses penyatuan antara dua wilayah metropolitan ini telah diprediksi oleh banyak studi, akan tetapi variable-variabel yang mempengaruhi proses tersebut masih belum jelas. Artikel ini berusaha untuk menutup kesenjangan tersebut dengan melakukan dua pendekatan. Pertama, mengukur hubungan antara Jakarta dan Bandung dengan melihat pada aliran manusia, investasi, dan komoditas. Kedua, mempelajari implikasi hubungan antara kedua pusat urbanisasi tersebut dengan koridor di antaranya. Ditemukan bahwa selama sepuluh tahun terakhir hubungan yang semakin intensif antara Jakarta dan Bandung dalam aliran manusia, investasi, dan komoditas. Pada periode yang sama, proses urbanisasi yang cepat juga berlangsung di koridor antara kedua metropolitan tersebut. Ada hubungan langsung dan tidak langsung antara kedua fenomena geografis yang pada akhirnya akan membentuk wilayah mega urban Jakarta-Bandung.

Kata kunci: Jakarta, Bandung, wilayah mega-urban, wilayah koridor, konurbasi

Abstract

This present study explores the relationships between two adjacent metropolitan centers, Jakarta and Bandung, over the past ten years. The merging process between both of the metropolitan areas has been forecasted by many studies, yet the variables that lead to the process are still not very clear. The present article attempts to fill the gap by undertaking two approaches. First, it measures the relationships between Jakarta and Bandung by looking at the flows of people, investment and commodity. Second, it examines the implications of the relationships between both urbanization centers to the corridor area between them. It is found that over the past ten years there has been an intensifying relationship between Jakarta and Bandung in the flows of people, investment and commodity. At the same period, a rapid urbanization process has also been occurring in the corridor area between both metropolitan centers. There are both direct and indirect relations between these two geographical phenomena which finally lead to the emergence of the Jakarta-Bandung mega-urban region.

Keywords: *Jakarta, Bandung, mega-urban region, the corridor area, conurbation*

1 Introduction

There are already several studies on how both Jakarta and Bandung are connected and interacting (for example: Firman & Dharmapatni (1995), Hidayati & Kuncoro (2004), Manaf (1998)). However, none of them have described concretely and comprehensively the consequences of the connection between the two metropolitan areas. Hidayati & Kuncoro (2004) highlighted the process of industrial agglomeration along the corridor between Jakarta and Bandung, however, they only focused on the labor impacts and industrial activities, whereas changes in other activities and types of land use may also happen in the corridor (e.g. housing). Manaf (1998) identified the

implications of commuting activities between Jakarta-Bandung in relation to the role of the toll road that connects both metropolitan areas. However, as argued by McGee (1995), commuting is only one aspect in identifying the emergence of mega-urban regions. Study by Firman & Dharmapatni (1995) tries to put the development in the "Jakarta Bandung region" (1995) in the appropriate framework, however, it rather discusses Jakarta Metropolitan Area (JMA) and Bandung Metropolitan Area (BMA) as separate entities.

Considering these limitations in the available studies, this present study will try to give a more comprehensive picture of the emergence of the Jakarta-Bandung Mega Urban Region (JBMUR) by using data and processes identified by the former studies. First, the relation-ships between both metropolitan centers, Jakarta and Bandung, shall be examined; in terms of the flows of people, investments and, to some extent, commodities. Recent developments in the region, such as the establishment of the new toll road that connect directly Bandung and Jakarta (the Cipularang toll road) in 2005 are also being taken into account. Second, the impacts of those relationships to the socio-spatial restructuration (such as industrial agglomeration, land use change, housing demand and population growth) of the corridor area will also be probed. Yet to further clarify the merging process of Jakarta and Bandung, the corridor areas between these two cities become important. If a megalopolis (or mega-urban regions) refers to continuous urbanized areas that connect metropolitan centers, and if there is an intensified relationship between Bandung and Jakarta, the implications of that relationship to the corridor areas need to be explored. For this matter, a field trip in Purwakarta District has been conducted. The analysis of this research applies especially to the period after the monetary crisis, which is 1997 until present. The conceptual model below (figure 1) will guide the steps in our study.

The conceptual model also leads to the research questions:

1. Is there any intensified relationship between Jakarta and Bandung that can lead to the merging process of both metropolitan areas over the past ten years? If it is the case, in what sense the relationships can be measured?
2. What are the implications of such intensified relations between Jakarta and Bandung for the corridor of the JBMUR? Particularly, what are the implications for the socio-spatial restructuration of the municipalities and districts located in the corridor area?

The JBMUR is a unique case, particularly in Southeast Asia. The mega-urban region can be differentiated from other metropolitan areas such as Singapore and Kuala Lumpur in terms of population density. The JBMUR, particularly the Jakarta Metropolitan Area (JMA) has higher population density compared to both of them. Compared to Bangkok and Manila Metropolitan Areas, the JBMUR is slightly different in terms of cities primacy. In both Bangkok and Manila, the capital city of the country is the primate city of the metropolitan areas. As for the JBMUR, Jakarta may still be the main international gate to the global network; however, adjacent metropolitan area, the Bandung Metropolitan Area (BMA), has also influences in the development of the JBMUR as a whole, as indicated by Firman & Dharmapatni (1995). Furthermore, the country is in the early period of implementing the regional autonomy (since 2001). Fragmented administrative authorities[i] will definitely be a main challenge for the

development of inter-regional areas, such as the JBMUR. This research aims to shed light on these issues by unraveling the socio-spatial restructuration happened in the corridor area between Jakarta and Bandung.

Secondary data collection and interviews to key informant officials (and other related stakeholders), and a field trip in Purwakarta District[ii] have been conducted. Due to the data and time limitation, it should be admitted that not all of the plans outlined by the conceptual model can be answered and be explained. There are no precise data on the flows of commodities and capital (investments) between Jakarta and Bandung. Therefore, this present study uses several approaches to explain the phenomena, i.e. by using interviews with key informant officials and the structure of Gross Regional Domestic Products (GRDP) of both centers. Also, due to the data limitation, several figures (i.e. housing demand) related to the corridor development cannot be properly presented and will be accompanied by several interviews to complete the picture. Finally, this thesis tries as much as possible to collect the data for the last 10 years (1997-2007), however, due to the data limitation, not all of the data could be presented in that time-frame.

To answer the research questions formulated above, this present study will be structured as follows. The second section will discuss the concept of "megalopolis" or "mega-urban regions". This section will focus mainly on how such regions develop in Asian countries by outlining their differences from Western countries. The third section will give an overview on the study area and reveal how Bandung and Jakarta influence each other as well as the type of their interaction. In this section it will also be made clear that whether there is an intensified relationship between these two cities or not. The fourth section will display the prominence of the JBMUR in the national context. This section comprises of series of secondary data which show that rapid

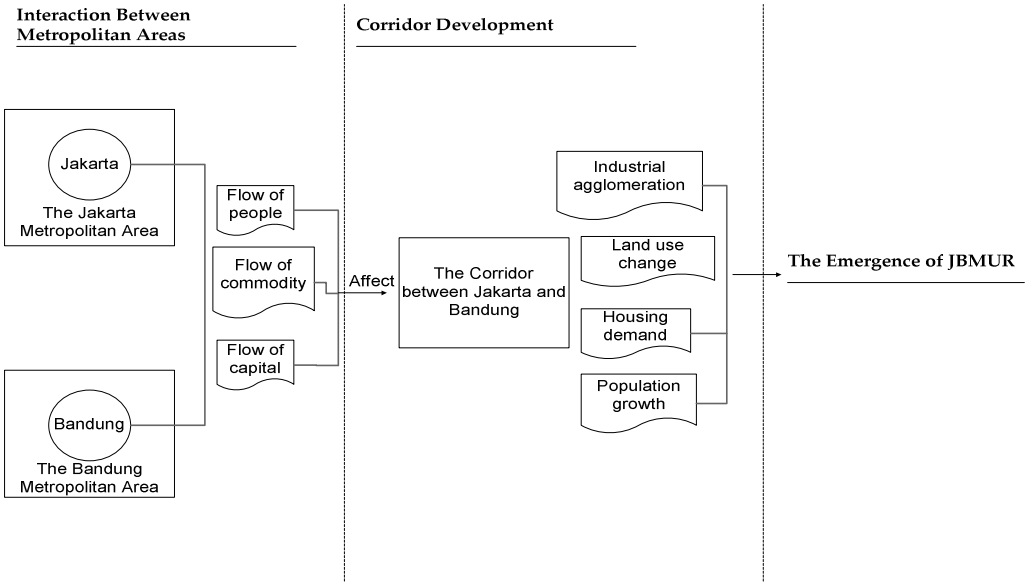

Figure 1 The conceptual model

urbanization is occurring in the JBMUR. The urbanization affects social and economic development in the JBMUR, particularly over the last ten years. The fifth section will probe what the impacts of the Bandung-Jakarta relationship are on the corridor areas between them. A full report of the field survey conducted in one of these areas, Purwakarta District, will be presented. From the result of these sections, it will be possible to test whether the "mega-urban region development" hypotheses presented in this study are real or not. This section also connects the geographical phenomena on section three and section four. The final section, the conclusion, will discuss findings from other sections and answer the research questions posted before.

2 Theoretical Framework

It is possible for two or more adjacent metropolitan areas to become connected with each other. Over time, the influence of each metropolitan area's core center is increasing; there-fore, the size of each metropolitan area is also getting bigger. The potentials of the area or the corridor between two metropolitan areas are thus being tapped by both of them. One can identify this phenomenon by looking at the change of the land use and the urbanization process alongside the corridor. In the end, both metropolitan areas and the corridor between them are merging into one big conurbation. This big conurbation was first identified by a French geographer, Jean Gottmann, in late 1950s. He referred to an extensive urbanized area along the northeastern seaboard of the United States as "megalopolis". Other scholars, like McGee (24), defined it as "Mega Urban Regions" (MURs) areas consisting of a city core, a metropolitan area spreading out from the city core and "extended metropolitan regions", where rural and urban activities intermingled in the distant area and are influenced by the power of functions in the city core. As argued by McGee (1995), considerable improvements in transportation and communication have increased the accessibility of regions close to the urban cores, and in some cases have led to corridor development between two major urban centers, which in the end will form new MURs or megalopolises.

For the purpose of this study, it is of important to explain further the nature of mega-urban regions in Asian countries. As observed by McGee (1991), in the Asian context the conventional view of the urban transition, "which assumes that the widely accepted distinction between rural and urban will persist as the urbanization process advances, needs to be reevaluated" (p. 4). The conventional view is drawn from the experience of Western countries. In fact, what is happening in the Asian countries is slightly different. There are no clear differences between rural and urban areas. In the extended metropolitan regions, people are being urbanized in the way of life and in the way they work; however, most of the people do not move to the city centers (urbanization without dislocation). McGee, in referring to this hinterland area, used the terms "desakotasi", in which rural-urban characteristics and agricultural and non-agricultural activities are being mixed intensely. Thus, rural-urban boundaries are becoming blurry and along the corridor between two (or more) urban cores, there are intermingled activities carried out by the residents. This framework of analysis is particularly important in defining the urbanized areas along the corridor between Jakarta and Bandung. In general, McGee (1991) identified five main regions of spatial configuration in Asian countries: (1) the major cities; (2) the peri-urban regions, which are areas within a daily commuting reach of the

city core; (3) the "desakota" regions; (4) densely populated rural regions, and (5) the sparsely populated frontier regions. All of these are clearly outlined in figure 2.

Looking underneath the emergence of megaurban regions, Douglass (2000) pointed at two interwoven processes as the main causes. The first one is "globalization", defined in economic terms as "accumulation of the three major circuits of capital; production, commodity trade and finance; at the global scale" (Douglass, (2000), p. 2316). This leads to the international division of labor marked by the shift of labor-intensive assembly operations to a select number of newly industrializing economies. Globalization of production, commerce and finance requires "a physical geography of cities, urban networks and transport and communication linkages to effect its expanding spatial reach" (Douglass, (2000), p. 2318). Hence, the second process, which involves urban agglomeration, also plays a role. Urban agglomerations in the MURs offer perfect sites for the accumulation of those circuits of capital, e.g. manufacturing sectors (Scott, A.J. et.al, 2001). The MURs, thus, are becoming "the sites of major tensions between the economics of globalization and local politics over the quality of the city for daily living" (Douglass (2000), p. 2320). Consequently, many of the MURs are reported to dominate a large share of their national economies. MURs, along with the international development corridors and trans-border regions, are part of what can be called "a trans-nationalization of territorial space through an accelerated urban transition organized into extensive spatial networks that transcend the nation-state in all forms of economic interaction" (Douglass, (2000), p. 2321). These forces of globalization and urban agglomeration are reinforced by international competition of metropolitan centers in several fields (cf. (Friedmann, 1998)).

Several physical characteristics of MURs can be identified. MURs can be easily identified in two or more regions in a country that contain 15%-40% of the total population on less than 5% of the total area of the country (Gottmann (1990), p.154). Gottmann also set 25 million as a basic standard for the population size of the megalopolis/MURs. Besides these physical characteristics, two other prominent characteristics of the megalopolis/MURs can

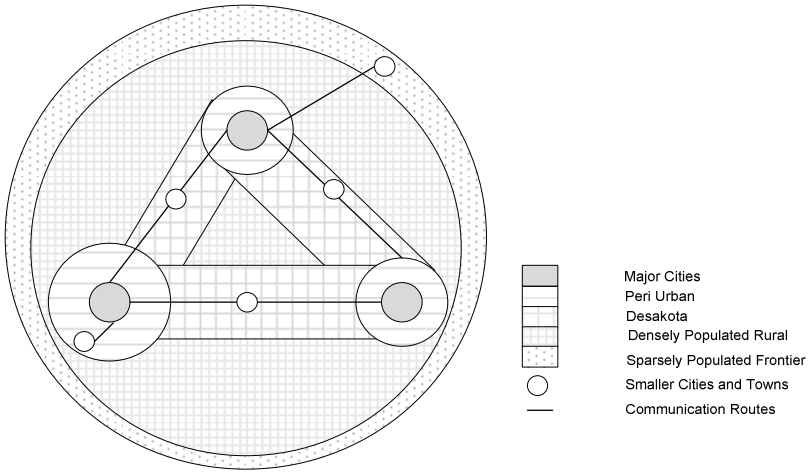

Figure 2.
Spatial configuration of a hypothetical Asian urban system (adapted from McGee, (1991), p.6)

also be outlined. The first one is a constant series of transactions flowing through national and international space, in the form of people, commodities, capital and information (McGee, 1995). Rimmer (1995) argued that "a tri-level structural arrangement is envisaged to accommodate interdependent movements of goods, people and information on a global network" (p. 155). It consists of:

1. Low-speed transportation to accommodate commercial transactions (i.e. shipping, trucks);
2. High-speed transportation to accommodate the movements of individuals and the transfer of complicated information that needs a face-to-face contact (i.e. cars, airplanes, trains);
3. Telecommunication networks for the transmission of uncomplicated oral and written information.

Although Rimmer (1995) talked about global networks, a similar network could also be established between two or more major metropolitan centers in the megalopolitan areas. Intensified relations between the major centers of two or more metropolitan areas can be measured in terms of people movements (commuting), commodities trading (i.e. freight volume), capital flow (i.e. bank transfers) and information flows, for which Staple (1996) proposed the use of Minutes of Telecommunication Traffic (MiTT) to measure the flow's volume. Otherwise, Rimmer (1997) also argued that the flow of information can also be assumed to be embodied in goods or people movement. For the purpose of this study, we shall use the flows of people (approached by average daily flow of vehicles between Jakarta and Bandung), capital (approached by domestic investment figures) and commodity (approached by GRDP structures of both centers).

The size and composition of the flows of commodities and capital lead to the second characteristic of MURs, which is their function as a hinge for the national economy in the global networks ((Gottmann, 1990b), (Hidayati & Kuncoro, 2004)). The corridor between two metropolitan areas is the best location to see how this economic function is performed. Industrial agglomeration, land use change and the increasing demand for residential areas will likely be spreading along the corridor. The corridor will likely also attract either domestic or foreign investments. In the end, the corridor, together with its adjacent metropolitan areas, is becoming one of the biggest contributors to the national economy as reflected by their share in the Gross National Products (GNPs) or Gross Regional Domestic Products (GRDPs).

All of these characteristics have made the megalopolis a special area with special potentials and problems as well. Megalopolises, for example, may act as the "incubator of new trends" (Gottmann, 1990b) in the economy and technology because of the composition of their population and their dynamic character, which can also influence other cities. On the other hand, as also noted by Douglass (2002), MURs are currently facing the contradictory issues of environment sustainability and economic resilience. Mutually reinforcing linkages between these two important aspects should be established in order to maintain the sustainability of the MURs.

3 Bandung and Jakarta: Bridging the Two Centers

Bandung and Jakarta are connected by toll roads as well as artery roads; and as mentioned before in the first section, in the year 2005 a new toll road was constructed, shortens time travel between two centers (from 3.5-4 hours

to 2-2.5 hours). The toll road, namely Cipularang, gives a hint that perhaps there has already been increasing flows between two centers so that demands of a new toll road also arise. This research then will measure the flow of vehicles between Jakarta and Bandung over the past ten years by using data collected from Jasa Marga (Indonesia Highway Corporation). The data set provides the number of the vehicles (cars, buses and trucks) that use the toll roads.

There are two toll roads that connect Jakarta-Bandung, which are: Jakarta-Cikampek and Purwakarta-Bandung-Cileunyi (Purbaleunyi). The first one has been built since the year of 1988, connecting Jakarta to the sub-district Cikampek (Karawang District). The second one, Purbaleunyi, consists of two sections. The first section, Padaleunyi toll road, is the toll road that connects two sub-districts under the jurisdiction of Bandung District; Padalarang and Cileunyi. The toll-road is by-passing the city of Bandung with several interchanges. The Padaleunyi (Padalarang-Cileunyi) toll road is built on the year of 1991. The second section, which is built on the year 2005, is the toll road that connects Cikampek to Purwakarta District until Padalarang (sub-district under the jurisdiction of Bandung District), thus it is named Cipularang (Cikampek-Purwakarta-Padalarang) toll road. The Cikampek toll road made the continuous toll-road access from Jakarta to Bandung complete (see figure **3**). Before 2005, people would have to exit at Cikampek and then continue their journey through artery roads before entering the Padaleunyi toll road.

The data set provided by Jasa Marga allows us to know the numbers of vehicles in and out from every gate in the toll roads. The journey between Bandung and Jakarta can be divided into two sections, as illustrated in figure 4. There are also more alternatives for the journey after the construction of the Cipularang toll road in 2005. This present study calculates the growth of average daily flow (ADF) between toll gates that correspond to the Bandung-Jakarta journey. The calculation is done on the basis of three points of observation: May 1998, March 2003 and April 2007. Based on the calculation, it is found that over the past ten years there has been a huge increase in the ADF in every pair of toll gates that correspond to the Bandung-Jakarta journey (see figure 5[iii]) over the past ten years. The growth averagely reaches more than 100%. It is also can be seen, particularly in toll gate pairs A and B that the ADF increase higher after 2003. Both pairs are the main gates for Bandung-Jakarta journey. Preliminary conclusion is perhaps people preferred to go through the main gates after the establishment of the Cipularang toll road.

In the ADF report from Jasa Marga, the types of vehicle can be divided into three. Type I are cars, small buses and pickups; type II are big buses and trucks with four pairs of wheels; type III are bigger trucks (more than four pairs of wheels). Despite the increase of ADF in all of these three types, type I dominate the ADF with more than 80%. This indicates that the traffic flow between Bandung and Jakarta is dominated by the individual purposes or matters that do not relate to the transportation of goods and commodities, which can only be handled by vehicles type II and III. It is becoming important, therefore, to know the motives of those travelers and to ensure whether they are really coming from Jakarta to Bandung, and *vice versa*, or not. A study on the identification of the Cipularang toll road's[iv] users by Umbou (2006a) revealed that most of the travelers came to Bandung for the purposes of leisure and business.

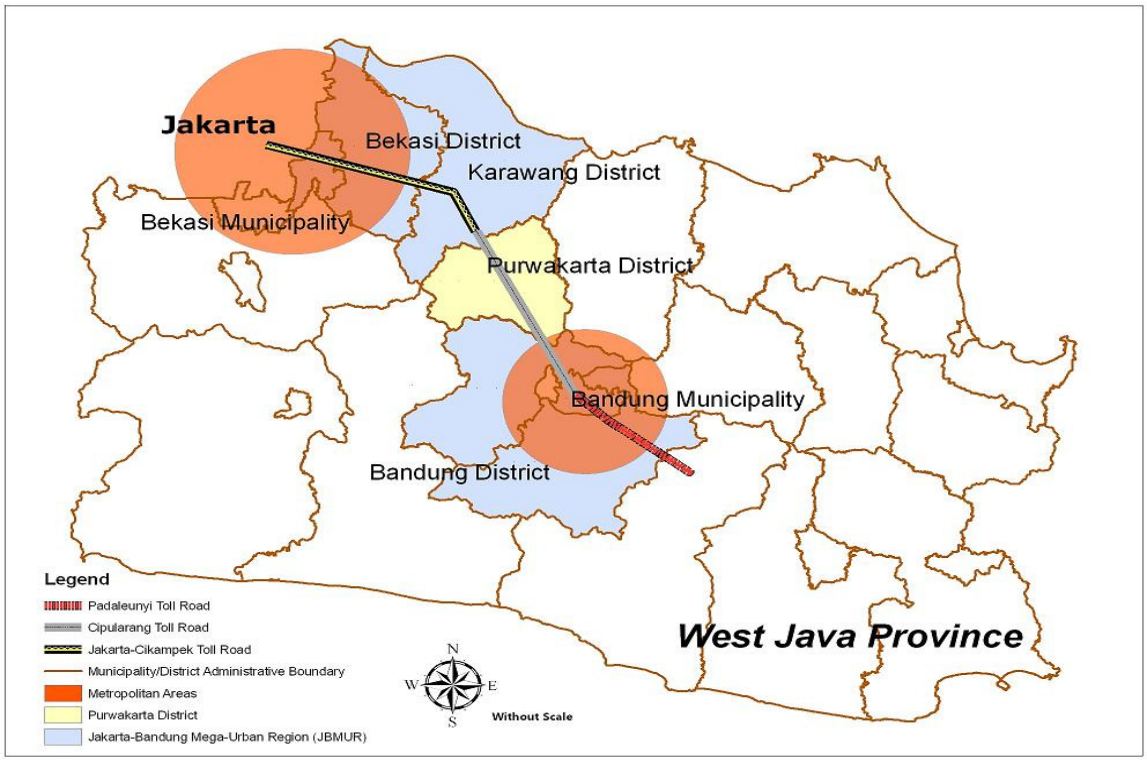

Figure 3.
Jakarta-Bandung Mega-Urban Region
(*Inset Map Source: http://en.wikipedia.org/wiki/File:IndonesiaWestJava.png* (assessed March 10, 2009))

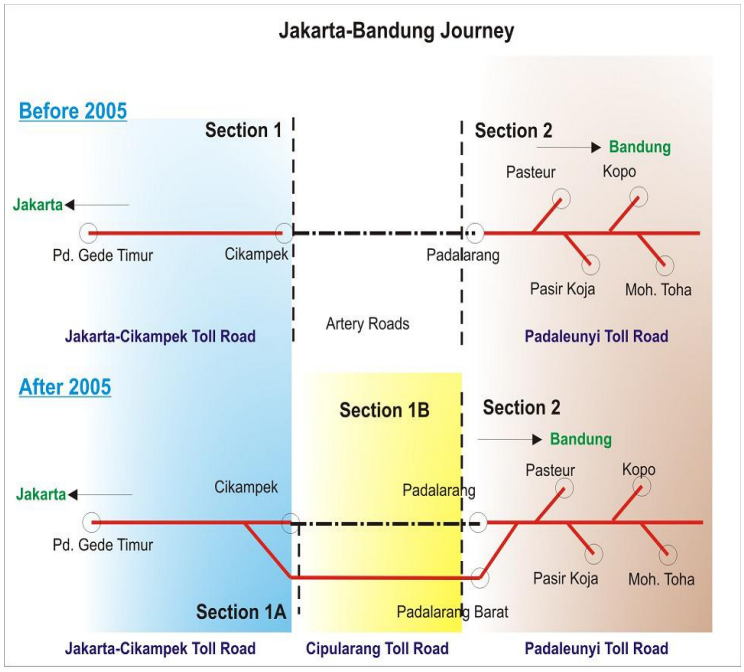

Figure 4. Illustration of Jakarta-Bandung, and vice versa, journey (Jasa Marga , 2007, 2003 & 1998)

Travelling between Bandung and Jakarta for doing business or working has already been one of the main purposes since the 1980s. A study by Rosmiyati (2001) revealed that during the period of 1983-1987 there is an average of 3.3 million people who made annual trips between the two cities. These people used air-planes, trains, private cars or buses. From those means of transportation, the proportion of the people who traveled for the purpose of business or working were 71.3%, 43.9%, 60% and 31.7% respectively. Business tends to correlate strongly with investments. Indeed, at least for the last 6 years, investments in Bandung have been growing tremendously, especially in the investment sectors that correspond with services and tourism, which is the tertiary sector. This can be seen from two tables below (table 1 and 2) that explain the growth of domestic investments[v] for the last 10 years as well as of non- facility investments for the last 6 years in Bandung.

Table 1. Domestic investments in Bandung (in million Rupiahs)

Sectors	**1997**	**1998**	**2000**	**2003**
Primary	-	-	-	-
Secondary	37,829	191,706	6,489	24,213
Tertiary	108,319	32,876	21,764	20,308
Total	146,148	224,582	28,253	44,521
Sectors	**2004**	**2005**	**2006**	**2007**
Primary	-	-	-	-
Secondary	10,553	52,693	19,202	10,500
Tertiary	1,133,200	-	7,611	-
Total	1,143,753	52,693	26,813	10,500

Source: (BPMPPT, 2000), (BKPM, 2008)

Table 2. Non-facility investments in Bandung (in million Rupiahs)

Sectors	**2002**	**2003**	**2004**
Primary	n.a.	n.a.	765
Secondary	n.a.	n.a.	114,846
Tertiary	n.a.	n.a.	1,566,282
Total	538,963	808,002	1,681,892

Sectors	**2005**	**2006**	**2007**
Primary	-	-	-
Secondary	193,715	488,471	316,950
Tertiary	3,225,415	3,441,860	4,857,593
Total	3,419,130	3,930,331	5,174,543

Source: (BPMPPT, 2007), (BKPM, 2008)

Since either the Indonesian Investment Coordinating Board (BKPM) or the Bandung Investment Coordinating Board (BPMMPT) did not record the origin of the investments, our study conducted interviews with the BPMPPT's officials and the head of KADIN (Indonesia Chamber of Commerce and Industry) Bandung. From these interviews it was revealed that among six economic categories under the tertiary sector of investment, the tourism and the offices sectors were the two top contributors for the yearly investment in Bandung. The activities classified under the offices sector is including building new branch or headquarter company offices in Bandung. The investment comes from municipalities/ regencies nearby Bandung, i.e.: Bandung District, Purwakarta and Jakarta. The tourism sub-sector is including building hotels, shopping facilities, and attraction places. From these investments, according to the head of KADIN Bandung, the majority came from Jakarta with a proportion averagely around 60-70% for the last 10 years. For these investments, he referred to the newly-built and on-going constructions of 26 hotels in Bandung. All of them built by investors who came from Jakarta. Especially for the last 5 years, since Bandung is officially designated as a tourist destination city and after the establishment of the Cipularang toll road, investments in services and tourism have been increasing more quickly than before. There are several reasons why Jakarta investors dominate investments in the tourism (and services) sub-sectors. The first reason is because of decreasing distance. Since Jakarta

and Bandung are neighboring metropolitan cities and Bandung is now easily accessible, it becomes easier for the investors to see the locations and opportunities, to decide whether to invest or not. The second reason is due to technical aspects. Investors from Jakarta are considered easier to deal with administration procedures such as applying for permits to the BKPM, which is located in Jakarta. Moreover, Jakarta entrepreneurs/investors are considered to perform better than other investors in Indonesia.

Despite for business, Bandung has also been long pictured as one of the favorite tourism destinations. A lot of attractions, places of interest and, especially after the year of 2000, shopping facilities have been established in Bandung. Soewondo (1996) found, by observing the traffic flow on the Pasteur gate (which is considered as the main gate for tourists), that after the establishment of the Cipularang toll road, the traffic flow has been increasing from around 600,000 vehicles per month in July 2004 until more than 750,000 vehicles per month in July 2005. In fact, the number of either domestic or foreign tourists has been continuously increasing for about 162.81% during the last 7 years, i.e. from 1,021,751 (year of 2002) to 2,685,241 (year of 2008), with an average annual growth rate of 18.87% (Bandung Tourism Office, 2008). The impact on the regional income of Bandung is quite evident. Two sectors that are related to tourism have been in the top-four sectors (out of nine) which contributed to the Bandung Gross Regional Domestic Product (GRDP) for the period of 1996-2006. Those two sectors are the Trade, Hotel, Restaurant sector and the Services sector (West Java Bureau of Statistic, 2006b, 2005). The Trade, Hotel and Restaurant sector contributed for about 32.57% (year of 1996), 36.14% (year of 1998) and 37.87% (year of 2006), while the Services sector contributed for about 11.98% (year of 1996), 11.74% (year of 1998), and 9.8% (year of 2006) of the Bandung GRDP. The prominence of the tourism is becoming clearer when we look at the income generated by taxes from hotels, restaurants, entertainments as well as regional tourism retributions. From the year of 2001 until 2007, income from those sources has been increasing 130.4%, 136.54% and 72.11 % respectively ((Bandung Regional Income Office, 2001, 2007), (Bandung Tourism Office, 2008)).

In the context of the Bandung-Jakarta relationships, it becomes important to know more about the origin of these tourists. Where are they coming from? Are domestic tourists coming mainly from Jakarta? Soewondo (1996) conducted a survey of 150 people who stayed overnight on several hotels in Bandung during long and short weekends and on weekdays. She came up with the result that around 81.3% respondents were coming from Jakarta. Another finding comes from the Bandung Tourism Office. In 2007 it conducted a study called *The Profiles of Bandung Tourists 2007*. The study aimed at gaining a macro picture regarding geographical distribution, psychographic and behavioral characteristics of Bandung tourists. The study was conducted on the 12 places of interests all around Ban-dung and one of its results came up with similar findings as Soewondo (1996), the largest domestic tourist group (45.3%) came from Jakarta. In both studies, tourists who came to Bandung also preferred to use private cars through the toll road[vi] rather than other means of transportation. The growth of either commuting or staying overnight tourists increased especially after the establishment of the Cipularang toll toad. It can also be observed by the growth of the shuttle service companies that serve the journey between Jakarta and Bandung. Until the year 2004-

2005 the companies still numbered not more than five. Today, they are everywhere around Bandung or Jakarta. These companies use mini-buses with a capacity of 7-10 people. They make use of the Cipularang toll road and provide door-to-door services for the people either on weekends or weekdays. Some of them even depart for every half-hour and offer more than five different routes between Bandung and Jakarta, reflecting the high traffic flow between these two cities.

Our study admittedly could not collect the trade data between Jakarta and Bandung; however, as have been said before, the flow of vehicles types II and III have also been increasing for the past ten years; albeit the increase was not as high as the vehicles type I. This may give us a hint to the trade relationship between Bandung and Jakarta. Bandung, as an inland metropolitan area is producing both manufacturing goods (textiles) and export crops (from plantations), while its construction activities and tourist services need the import of many materials (i.e.: cement, timber, concrete iron, luxury goods, cars, etc) from other parts of Indonesia and abroad. Jakarta is the only center that can offer the necessary outlets to foreign markets (harbor, airport, trade houses, and banks) or the necessary import channels. Thus, the increasing average daily flow of big vehicles (such as trucks, containers, etc) indicates the presence of the intensified trade relationships between Bandung and Jakarta. Materials have been transported from Jakarta to Bandung, and in return, products have been transported back to Jakarta for either domestic or foreign needs. This phenomenon can also be seen from the GRDP growth and structure of both cities. During the past 10 years, the top 3 sectors in Jakarta have been (1) Finance, Ownership and Business Services, (2) Trade, Hotels and Restaurants, and (3) Manufacturing Industry. In Bandung, the top 3 sectors have been (1) Trade, Hotels and Restaurants, (2) Manufacturing Industry, and (3) Transport and Communication (which replaced Finance, Ownership and Business Services). The prominence of Manufacturing Industry as well as Trade, Hotels and Restaurants in both Bandung and Jakarta seems could never have been achieved without increasing interaction between the two major economic centers. Moreover, the availability of business facilities and services in Jakarta has been increasing the need to travel between Bandung and Jakarta, reflected by the growth of Transport & Communication sector in Bandung.

The increasing flow of tourists from Jakarta to Bandung and the presence of trade relationship between the two cities explain, partly, the growth of the average daily flow at the gates that correspond to the Bandung-Jakarta journey (see figure 5). Altogether with the findings on the origin of the bulk part of investments in Bandung, they prove that indeed there obviously is an intensified relationship between Bandung and Jakarta over the last 10 years. In the context of the emergence of a new mega-urban region, issues on how this intensified relationship affects the corridor area between both of them need to be further clarified. The next two sections will be devoted to this task.

4 Economic and Social Developments in the JBMUR

The population of the JBMUR area (see figure **3** for details of the study area) has been increasing rapidly during the last decade. Population growth of the JBMUR area is 1.16%, quite similar with national figure, 1.17% in the period of 1995-2006[vii]. Concentration of people in the mega-urban regions, as argued by Gottmann (1990c), is

also apparent in the JBMUR. In 2006, 10.15% of the national population lived in the region, which has a size of only 0.38% of the country's size. Most of this population lives in the urbanized areas and the proportion has been increasing from 74.67% to 81.61%, grew more than 15%, for the period of 1990-2005.

The Gross Regional Domestic Product (GRDP) figures of the JBMUR also reveal the increasing prominent role of the region. The GRDP growth of each sub-region of the JBMUR, most of the time, has been outnumbering either West Java Province or the national figures during the last ten year period, with the exception of the year 1998, when Indonesia was severely hit by the economic crisis. Besides surpassing the national per capita figures, the GRDP of the JBMUR also constantly contributes more than 20% of the total GDP of Indonesia during the past ten years. The contribution of the JBMUR reached its highest level in 2006 and 2003 with 23.31%, while the contributions for other years were also notably high: 22.67% (1997), 21.35% (1998), 21.31% (1999), 23.13% (2004), and 23.21% (2005)[viii]. Given that there are more than 400 municipalities/regencies in Indonesia, and that JBMUR only comprises of 2 municipalities, 4 regencies and 1 special region/province, this fact reflects that the JBMUR has indeed been acting as a hinge for the national economy over the past ten years.

For the past ten years, JBMUR has also been the main destination of both foreign and domestic investments. In 1997 the region attracted 57.72 % and 46.31% of respectively the foreign and domestic investments in Indonesia. The share of foreign investments increased for the year 2002 to 61.83% and decreased to 55.71% for the year of 2007; albeit this still represented the bulk of the national foreign investments. The share for domestic investments decreased for the year 2002 to 30.99% but it increased again to 43.66% in 2007 (Jakarta Bureau of Statistic, 2007).

Assuming that there is a huge influence from Jakarta and Bandung on these figures, our study also calculates the proportion of the corridor areas without the two city centers. It comes up with the results that Jakarta adds even more to the proportion; however the corridor itself also developed rapidly. For the year of 1997, the region contributed 31.1% to the national foreign investments and 27.42% to the national domestic investments, where Bekasi District and Karawang District are the two most desired investment destinations in this year. Foreign investment figures indeed decreased for the years 2002 and 2007, however they still contributed a big part of the national foreign investments, where Bekasi District, Purwakarta District and Bandung District ranked as the top-three among the other corridor areas.

According to the BKPM most of either foreign or domestic investments in the corridor areas are in the secondary sector, such as: textile industry in Bandung District and Purwakarta District; metal goods, engine and electronic industry in Karawang District and Bekasi District. However, this is not the case for both city centers, Jakarta and Bandung, where tertiary sectors such as Hotels and Restaurants, Transport, Storage and Communication, Trade and Reparation are dominating the types of investments. This phenomenon becomes even clearer when we take a look at the growth figures of the large and medium size industries in the JBMUR. Most sub-regions of JBMUR experienced an increase in the number of large and medium size industries, with the exception of Bandung and Jakarta, as well as Bandung District. The growths are: 14.58%, 70.21%,

16.28%, 25% respectively for Purwakarta District, Karawang district, Bekasi District and Bekasi Municipality. Due to a strong decrease in Jakarta and Bandung (11.56 % and 15.7 % respectively), the number of large and medium industries in JBMUR as a whole declined with 8.88% from 1996 to 2006. However, the decrease manifested itself also in West Java Province. Moreover, in proportion to the national figure, JBMUR contributed more than 20% of the number or enterprises in the year 2002 and 2005. This fact shows, again, that the corridor areas outside Bandung and Jakarta, are facing a process of massive industrial growth. The presence of 58 industrial estates[ix], out of 225 in Indonesia, in the JBMUR (BKPM, 2008) also supports the conclusion.

Exploring the housing provision figures, our study also found that during the past ten years, the corridor areas have experienced a massive development of settlements. According to the West Java Real Estate Association, between the years 1994 and 2005, 10,346.99 ha of location permits have been issued in the corridor area. Most of them have been allocated to Bandung District (5,663.88 ha), followed by Bandung Municipality (1,730.63 ha) and Bekasi District (1,216.9 ha). During the last 3 years (2005-2007), 63,091 houses have been realized, of which the bulk are located in Bandung District (40,740 units). Most of these houses are low and middle income houses (32,072 and 28,802 respectively). These developments, together with the growth of industries and industrial areas in the JBMUR have clearly influenced the land use patterns in the region. The growth of industrial and settlement areas have been increasing 20.33% and 22.19% respectively from 1994 to 2005 (West Java Bappeda, 2008). Settlement areas were mushrooming especially in Bekasi Municipality, Bandung Municipality and Bekasi District for the last ten years, while industrial areas are mostly located in Bekasi District and Karawang District.

5. The Impacts of the Relationships between Bandung and Jakarta on Purwakarta

A field trip in Purwakarta District has been conducted to explore the relationships between the emergence of JBMUR and the development of a Bandung-Jakarta corridor area. The reason for choosing Purwakarta is because it is located exactly on the intersection between the Cikampek and Cipularang toll roads (see figure 3 & 4 in section 3). Since the reason for building Cipularang toll was to accommodate the increasing flow of vehicles from Bandung to Jakarta, Purwakarta might be the best location to study the impact of the increasing relationships between the two cities. Moreover, Purwakarta is not so close to Jakarta in comparison with either Karawang or Bekasi. Thus, the effects of Bandung and Jakarta might be more balanced in this district. Another reason is because developments in Purwakarta resemble those which McGee (1991) has called “desakotasi”. It is a place where the dominant type of land use still is rural or agricultural. However, recent development has shown that urban-industrial types of land use are increasing in a high pace. Therefore, agricultural and non-agricultural types of land use now are being mixed intensely and sometimes even may conflict.

Looking at the spatial-functional division in Purwakarta (figure 6 below), it is clear that it is taking into account the presence of the main axis road from north to south, i.e. both the toll and provincial roads. The construction of the Cipularang toll road, bypassing the center of Purwakarta, indeed seems to have given major impacts to the city, e.g., the land use of Purwakarta has gradually changed from

agricultural to industrial and settlement areas. Both industrial and settlement areas have been increasing 191.59% and 47.42% respectively from 1994 to 2005 (West Java Bappeda 2008). The issued location permits in settlements and industries increased respectively 52.07 to 891.22 ha, 137.44 to 787.73 ha in the period of 1985-2000 (National Land Agency Purwakarta Office 2008). During 1996-2005, the number of large and medium size industries in Purwakarta has been increasing almost 15 %. According to our interviews with the Executive Director of the Indonesian Industrial Estate Association (HKII), the head of Indonesian Entrepreneurs Association (APINDO) Purwakarta Office and the Estate General Manager of Bukit Indah Industrial Estate (KIBIC)[x] indeed the proximity to Jakarta and the presence of the Cikampek-Jakarta toll road have been the main reasons for many industrial entrepreneurs to locate their factories in the corridor area. Their preferences for Purwakarta in particular are based on their comparative advantages, such as: cheaper labor and land than Bekasi or Karawang, a better environment and the presence of the container train station. One clear example is the newly established garment factory Eins Trends (see figure 6, box number 6).The construction of the Cipularang toll road makes it easier for entrepreneurs and industrial workers to live in Jakarta or Bandung and commute daily. This factor, however, does not seem to be decisive in establishing new factories. Hence, the relationship between Bandung and Jakarta has only played a minor role in the industrial development in Purwakarta.

Clear cases of the impact of the growing relationship between Bandung and Jakarta on Purwakarta, however, can be clearly seen in the growth of housing or settlement areas and other infrastructural facilities established mainly after the presence of the Cipularang toll road. Our study found that recently four settlement areas have been built and two of them currently are on sale already. The two housing estates, Kota Permata and Bumi Inti Persada, are located along the provincial road(number 1 and 2 in figure 6) and have a size of 30 ha and 20 ha respectively. Interviews have been conducted with both of the estate managements. Bumi Inti Persada received its location permits in April 2007 and already started to sell their units by the end of 2007. By the time of the interview (November 2008), 80% of total 1,674 units had been sold out. Kota Permata, on the other hand, received its location permits in April 2007 and by the year of 2008 it has started to build and sell out its first 585 units. Most of the units now have been sold out and they are planning to build more units to achieve their total target of 1,956 units. The most interesting fact is the attraction

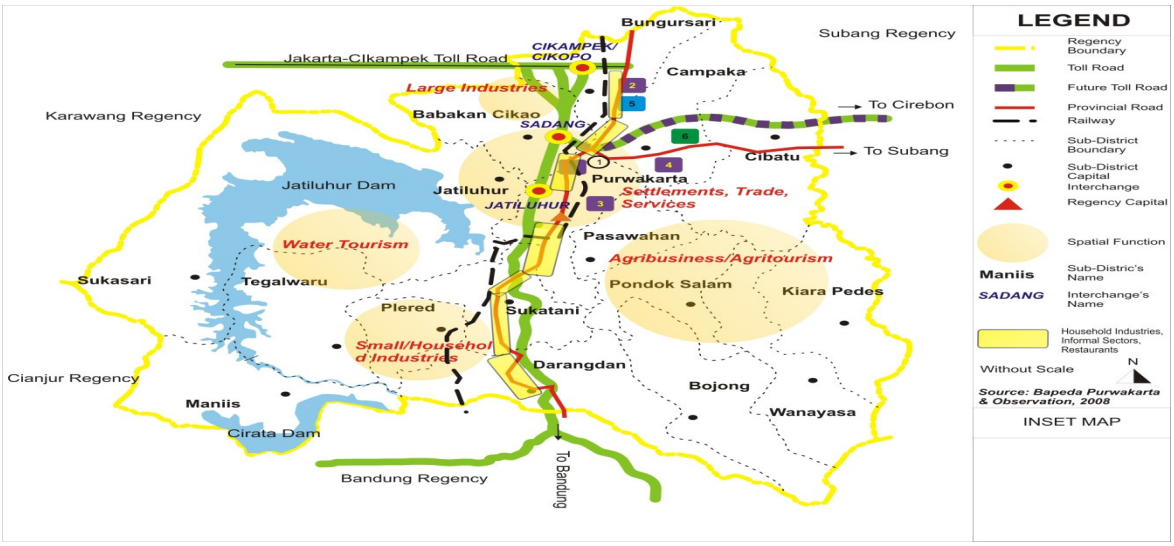

Figure 6. Land use around major axis in Purwakarta

of non-Purwakarta residents who bought houses in both settlement areas. Many residents of both settlement areas are people from Bandung and Jakarta. Reasons for buying houses there are varying from their strategic location, cheap prices compared to Bandung and Jakarta or investment purposes. Two other settlement areas, named Pesona Purwakarta and Sadang District, were located nearby the Sadang interchange and city center (boxes number 3 and 4 in figure 6). Albeit they have not built any units yet (because of a few permit problems), there are some interesting features in their profile. According to the Head of the Infrastructures and Physical Planning Section of Purwakarta Planning Agency (Bapeda), the planned prices of their units are higher than the ones normally offered to Purwakarta residents[xi]. According to the official, again, the market targets of Pesona Purwakarta are owners of shops alongside the provincial road, Jakarta residents who moved because of traffic congestion or annual floods, and Bandung residents. On the other hand, the market targets of Sadang District are clearly the commuters between Bandung-Purwakarta, Jakarta-Purwakarta, as well as Bandung-Jakarta. The increasing number of commuters between Jakarta and Purwakarta also can be seen from the increasing number of bus lines that go from Bandung to Jakarta (or *vice versa*) through Purwakarta. This phenomenon is getting more pronounced since the establishment of the Cipularang toll road. Based on field observations in the early morning there are many people standing along the provincial road, waiting for the buses. These people are workers who commute daily to either Jakarta or Bandung. Most of the buses go to Jakarta via the Cikampek gate, serving almost the entire provincial road between the southern part and the northern part of Purwakarta (see figure 6).

Another supportive fact about the impacts of the Bandung-Jakarta relationships on Purwakarta is the establishment of a private type B hospital, named Thamrin hospital, beside the provincial road (box number 5 in figure 6) in 2008. Type B hospitals, in Indonesia, serve inter-regional residents. As for this case, according to an official of Bappeda Purwakarta, the hospital is aiming to serve also expatriates who work for factories in

Purwakarta as well as commuters from Jakarta and Bandung. Considering that none of such hospital also took into account the presence of the Cipularang toll road. Another evidence for this is supplied by the fact that the Purwakarta government, by implementing a spatial division of functions (in figure 6), also established a water recreation area near the Jatiluhur dam in 2004, named "Water World". The recreation area with a size of 1.6 hectares indicates that even the local government anticipated the increasing traffic flow between Bandung and Jakarta, which it seeked to tap to develop its tourism sector. This eventually became true, for nowadays many tourists from the big cities come to the recreation area by using the Cipularang toll road.

On the other hand, the intensifying relationships between Bandung and Jakarta, which manifested in the establishment of the Cipularang toll road, also caused the decrease in numbers of household industries, restaurants and informal sector activities (such as small shops, hawkers/food stalls, and tire patchers) along the provincial road in Purwakarta (LPPM-ITB, 2007). They lost their potential customers because most of travelers now use the toll road instead of the provincial road. However, our field trip also reveals that there are few exceptions. These are particularly for household industries and restaurants which already had their permanent customers, enjoyed a strategic location, and had achieved a certain degree of specialization[xii].

6. Conclusion

There are two geographical phenomena occurred in the Jakarta-Bandung Mega-Urban Region (JBMUR). First, the growth of the average daily flow at the toll gates that correspond to the Bandung-Jakarta journey (1)[xiii], caused by the increasing flow of tourists hospitals were present in Purwakarta before, it is clear that the establishment of the type B from Jakarta to Bandung and the presence of trade relationship between the two cities, and the origin of the bulk part of investments in Bandung (2) prove that indeed there obviously is an intensified relationship between Bandung and Jakarta over the last ten years. This has led to the establishment of the Cipularang toll road (3), which in turn encourages as the flows of more people, goods and investments (4). Secondly, on the same period, it can also be seen that there has indeed been a rapid urbanization process occurring along the corridor between Jakarta and Bandung. The growth of the population, the growth of region's GRDP and the expansion of urbanized areas in the region confirm this. The JBMUR also played a role as the hinge for the national economy, as argued by Gottmann ((1990b), (2009)) and Douglass (2000), given its constant huge contribution to the GRDP of Indonesia. Moreover, there was also a rapid growth of industrial and settlement areas along the corridor during the past ten years.

By using Purwakarta District as a case study, our study succeeds in connecting both geographical phenomena. The intensifying relationship between Bandung and Jakarta indeed has been influencing the development of the corridor area and lead to the emergence of the JBMUR. The intensifying relationships between both metropolitan centers affect informal and formal sector of activities, including household industries and trade areas alongside the major axis of the corridor area. Later, this influence was becoming more pronounced after the construction of the Cipularang toll road, which favored all kinds of formal sector developments in Purwakarta. Housing developments, the construction of infrastructures and public facilities, and the growing numbers of commuters have strongly

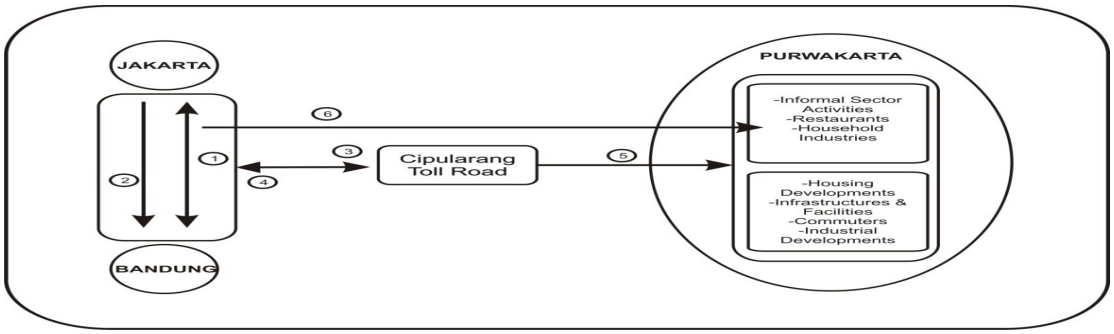

Figure 7**.** Schematic diagram of relationships among Bandung, Jakarta and Purwakarta

shaped this process. To some extent, the intensifying relationships between the two major centers has also enabled industrial developments in the corridor area, albeit indirectly because most of this development is due to international factors. In the end, all these processes have also been influencing the socio-spatial structure of the corridor area (5). However, we should also bear in mind that before the year 2005, the traffic flow between Bandung and Jakarta through the provincial road has already affected the establishment of informal sector activities, restaurants, and household industries in Purwakarta (6). All these processes are displayed in the schematic diagram (figure **7**). The numbers refer to each of the corresponding processes described in the first two paragraphs of this conclusion section

The restructuring process has not only brought benefits to some stakeholders (i.e. corporate enterprise, housing developers, commuters), but also has caused detrimental effects to others (i.e. informal sector activities, trades and services along the major axis), as revealed before on the fifth section. The driving force of these socio-spatial impacts on Purwakarta is to a large extend originating from processes in Jakarta and Bandung, such as, the increasing price of land and real estate due to congestion, land speculation and environmental limitations. The restructuring process, therefore, should be comprehensively regulated. Since the restructuring processes of municipalities and districts in the corridor area are affected by developments in both Bandung and Jakarta, any regulations on the level of municipalities, districts or provinces in the JBMUR area should also treat this area as one functionally interlinked entity. Further researches might be carried on towards this direction.

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[i] Administratively, Indonesia is divided into five tiers with different authorities and jurisdiction areas: national level, provincial level, *kabupaten* (district) or *kota* (municipality) level, *kecamatan* (sub-district) and *desa* (village) level. *Kabupaten* and *Kota* are on the same level; however, *kabupaten* is used to refer to the bigger and less-urbanized areas (regions). The regional autonomy enables the national government to give more authorities to the districts and municipalities, compared to provinces, sub-districts and villages, so that these administrative tiers now are able to carry on their own affairs.

[ii] Reasons for choosing Purwakarta will be outlined in the fifth chapter of this paper.

[iii] In figure 5, letter A-F represent toll gate pair; for example, A represents Cipularang/Cikampek and Pondok Gede Timur toll gates, B represents Pasteur and Padalarang/Padalarang Barat

[iv] In his study, Umbou (2006) uses the term "Cipularang toll road's users" to refer to the travelers that used the toll road access continuously between Jakarta and Bandung; and it is not limited only to the Cipularang toll road.

[v] There are 3 categories of investments in Indonesia: foreign investments, domestic investments and non-facility investments. Foreign investments come from abroad, while domestic investments come from local parties. Both of them gain benefits from facilities provided by the government, such as cheaper import taxes, etc. In the other hand, non-facility investments are the investments that come from local parties, just as the domestic investments, but, without facilities provided by the government. All of these three categories, however, can either come from the public sector or the private sector.

[vi] 86-90% of the respondents on Soewondo (2006) and 68.4% of the respondents on Bandung Tourism Office (2007)

[vii] Sources: West Java Bureau of Statistics (2002, 2006b), Jakarta Bureau of Statistics (2007) and internet (Retrieved February 10, 2009 from: http://www.datastatistik-indonesia.com/component/option,com_tabel/kat,1/idtabel,111/Itemid,165/)

[viii] Sources: various statistics published by BPS and IMF Report on Indonesia; retrieved February 12, 2009 from: http: //www.imf.org/external/pubs/ft/weo/2006/01/data/

[ix] Industrial estate is a location set aside for industrial development, where third parties provide industrial infrastructures and facilities.

[x] KIBIC is an industrial estate located in the northern part of Purwakarta, nearby the Cikampek/ Cikopo interchange

[xi] This is, however, in line with the new policy issued by the Purwakarta Regent. The regent, by the beginning of 2009, started to limit the housing developments for low and middle income groups, because these were already abundant. The regent now is encouraging the developments of middle and upper income groups houses in Purwakarta (*Tempo Interaktif*; retrieved February 20, 2009 from: http://www.tempointeraktif.com/hg/nusa/2009/01/20/brk,20090120-156162,id.html)

[xii] Example of household industries: ceramic; examples of restaurants are the ones who sell Purwakarta traditional foods.

[xiii] Number corresponds to each process displayed in figure **7**

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