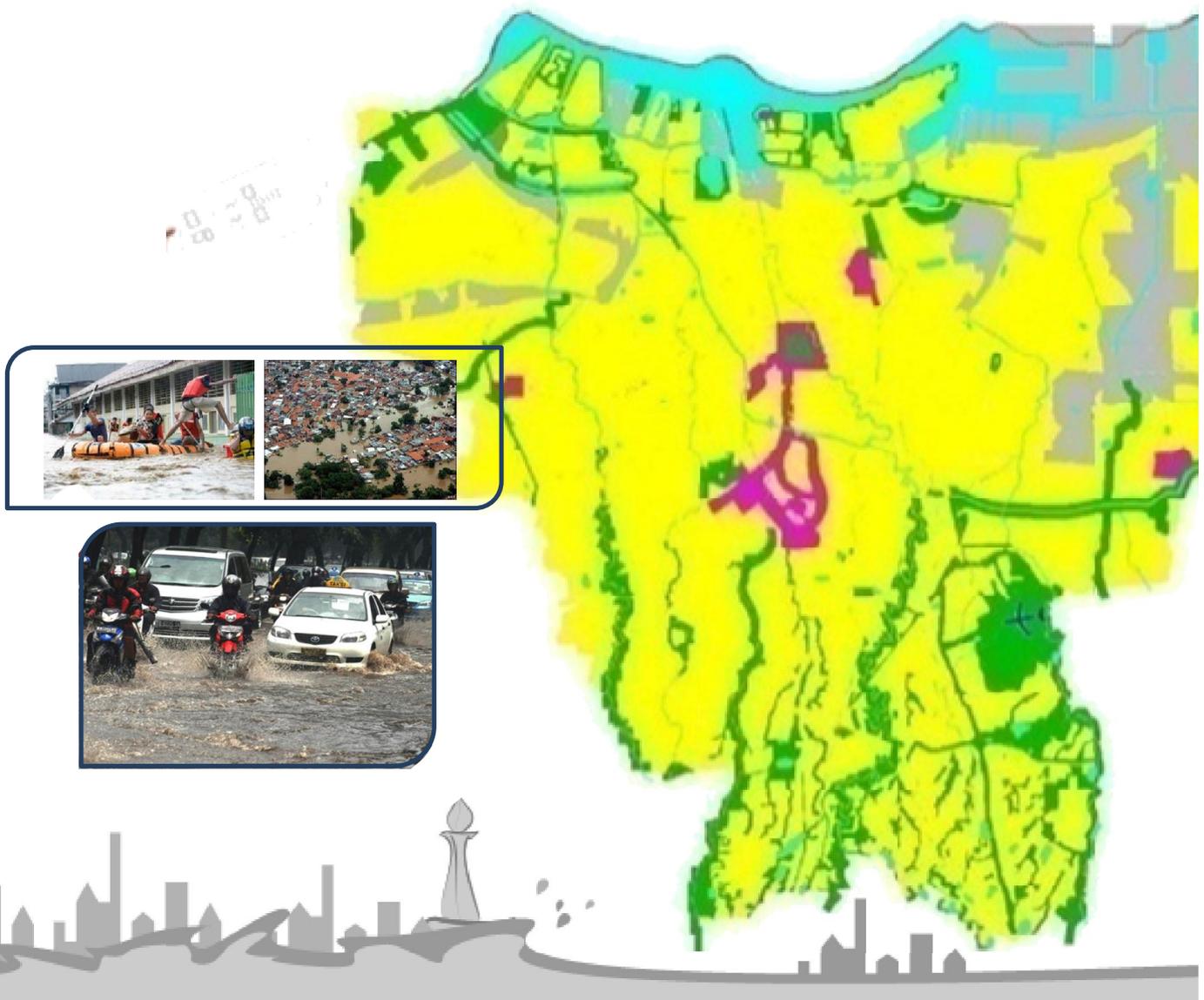


# Inter-Governmental Cooperation in Metropolitan Regions :

Mechanisms To Support The Integration of Spatial Planning in The Ciliwung Watershed,  
Jakarta Metropolitan Region



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Master Thesis  
Master of Environmental and Infrastructure Planning  
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## Summary

The concern for flooding issue in The Special Capital Territory or *Daerah Khusus Ibukota* (DKI) Jakarta has reached into regional level due to its tremendous impact. Flooding now cannot solely be seen as DKI Jakarta problem. Instead, it becomes the regional of Jakarta Metropolitan Region (JMR) problem that needs integrated flood management approaches by elaborating structural and non-structural measurement. As part of non-structural measurement, land use planning here plays significant role in flood protection due to its crucial relation with water system. Water and land use have a tight correlation since land based activities can directly influence the water system either in positive or negative way. The watershed perspective is applied in this research, putting emphasized on the relation of water and land use. This perspective may help to give a comprehensive and integrated perspective of management water and land use. Hence, integrating water and land use becomes crucial and also the focus of this research as part of providing a qualified non-structural flood protection in the region.

With the complexity characteristic of JMR as the case study, the objective of this research is how to manage coordination to support integration in spatial planning in relation to watershed of extended metropolis regions. There are two major theories that are applied in this research including integrated water management and metropolitan governance. Integrated water management provides a deep understanding of water management particularly for watershed concept and how land use planning contributes to the integration in watershed management. The current fragmentation in land use planning challenges the integration effort in watershed management. Fragmentation at this context does not only occur between watershed and land use planning but also within land use planning. Especially for vertical fragmentation in land use planning, the conflict appears as a result of various and multi-level institutions, including regional and local institutions, involved in land use planning. Therefore, the metropolitan governance theory is applied here to illuminate the complexity coordination between institutions in the multi-scale decision making of metropolitan region. It should be noted that coordination in institution are a principal element that can bring dualism whether it support or obstruct the integration. To conclude, linking integrated water management and metropolitan governance theories may provide a wide-ranging understanding of integration and collaboration in attempt to manage fragmentation in land use planning in the urban watershed.

To give a deep analysis for the case study, this research will focus on Ciliwung watershed, one of three watersheds in JMR. There are five administrative areas included in the watershed which are two Provincial regions of DKI Jakarta and Jawa Barat and three municipalities that belong to Province Jawa Barat which are District of Bogor (Kabupaten Bogor), City of Bogor (Kota Bogor), City of Depok (Kota Depok). Reflecting to the flooding issues in the region, Ciliwung watershed contributes significant influence to the flood due to its critical environmental condition. Therefore, managing Ciliwung watershed can reduce flood risk in JMR thus resulting urban environment improvement.

In attempts to manage the environmental condition of Ciliwung watershed, fragmentation becomes the main challenge that not only appears in land use management but also in the aspect of social, economy and politic. The different interest among governments is considered as the main causes of this fragmentation. To manage this fragmentation, a coordination body called Badan Kerja Sama Pembangunan (BKSP) has been established. This board aims to facilitate the coordination among

governments in JMR. However, the role and function of BKSP is determined ineffective due to its ad-hoc structure of organization. In addition, decentralization process also tends to make the board less power since the authorities to manage the region lays on local government. Hence, engagement among governments in JMR can still not be achieved.

At the context of water and spatial planning, the effort to develop integration between those two plans has been conducted at regional level. Within Ciliwung water plan, urban structure from the regional JMR spatial plan has been used to characterize the water system and future policies and strategies of water plan. It indicates that water and spatial has been integrated already in the regional level. Nevertheless, this integration between water and spatial plan in regional level is still threatened by the fragmentation of multi-level spatial planning in JMR. The integrated policies of water and spatial in regional level will not be implemented in case it is not adopted in the local spatial plans. With regards to this condition, it is important to ensure the policies in local spatial plan are harmonized with regional policies in spatial plan and water plan.

Looking in detail for the local spatial plans in JMR, analysis comparison of spatial plan shows that both regional and local spatial plans are interrelated already that can be seen through the integration of aim and objectives, policies and strategies, infrastructure and spatial pattern of the plans. To some extent, this integration of the spatial plan can be advantage in particular for building cooperation among governments in JMR since it represents the common vision among governments. However, it should be noted that the assessment of integration these spatial plans is still on the policy level. The direction of the spatial plan is therefore determined still general. While in fact, the conflict is usually taken place at the micro level, which is on the program indicative level.

Although spatial plans seem to be integrated in the policy documents, institution and coordination conflicts are found that frustrate the implementation. Five conflicts have been successfully identified and from those conflicts, it can be learned that many spatial conflicts in JMR are resulted from the failure of coordination and communication in institutions. Intergovernmental disputes are the reason for most conflicts that rise among governments in JMR. These disputes are horizontal conflicts between local governments in the metropolitan region. Factors that cause these disputes include the number and heterogeneous local government institutions, inconsistency information, formal model of government, limited resources and capability of governments, political pressure and power, limited awareness, and legal status of the institution. Those factors are very likely hindering the coordination among local governments in JMR.

Learning from these hindering factors, some strategies to improve coordination in JMR are made. Those strategies are strengthening the coordination board, establishing role sharing mechanism in coordination including incentive and disincentive of land use management, setting up the formal agreement for partnership among governments and capacity building to governments. The focus of these strategies should be mainly on managing institutions ranging from increasing their capacity until strengthening their role in the coordination scheme. In addition, formal setting of coordination also addressed in the strategies such as developing coordination mechanism and formal agreement to support the institutions work. Overall, it is suggested that improving institutions capacity and formal coordination schemes provide more robust collaboration between governments in JMR. As such, the fragmentation in land use planning can be reduced and integrated watershed management can be strengthened.

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# 1. Introduction

## 1.1 Background

Currently, half of world population lives in the cities (UN-Habitat, 2008) and it is predicted to increase within two decades that 60% of people will reside in cities especially in large and metropolitan cities. Cities then become even more a concentration of physical, economic, social, political and cultural capital. As the population and strategic role of cities rise, so has the need urban areas to continuously identify and adapt to potentially detrimental influences (White, 2010). The highest challenge in urban development is now how to provide livable place for its inhabitants on one side and also how to build resiliency in dealing externalities on the other side.

In a response for this challenge, the way of urban management then should be improved particularly on large and metropolitan cities where the center of production activities takes place. Without qualified urban management, cities will fail to provide qualified place for living. Cities not only have to deal with management infrastructure and space but also have to build its resiliency in order to face external risk such as disaster. Following this context, water has become the forefront risk in urban development. Flood, drought and sea level rise are some examples of water disasters that have to be faced by cities. As a vital human need, water has been absolutely critical for where cities originate, how much they grow and the standard of living of the inhabitants (White, 2010). Heathcote (1998) also emphasized that water has the most important value for humankind since it provides resources and a means of transportation. With regards to its strategic value water effective management is essential.

With the need to enhance water management, Heathcote (1998) argued that previous technocratic paradigm in water management is better to be replaced by more openness and integrated approach. She also addressed that water should be seen as integrated system, therefore, the management is conducted based on watershed perspective. To support the notion of watershed, the management strategies should incorporate a full range of value and perspectives present among water users or agencies with an interest in water management. It therefore needs involvement of regional, state, national or even international agencies (Heathcote, 1998). Involving those agencies will support the integration effort in water management. In particular in large and metropolitan cities, integration in water management becomes crucial since there are various agencies involved in the region.

The issue of water management also appears in DKI Jakarta Province, the most populous city in Southeast Asia. Water management in this mega city has been conducted partially and have a narrow focus. For example in flood protection, strategies applied by government to cope flood have been dominated by technocratic approaches that apply engineering measurements (Texier, 2008). Although non-technical measures have been applied still they only have been focused on public campaign and early warning system strategies of flood protection. Furthermore, spatial management as part of flood management approach in DKI Jakarta is not well integrated while in fact land use planning is the most fundamental tool for mainstreaming disaster risk reduction into urban development process (UN-Habitat, 2007).

Land use planning in case of DKI Jakarta can be essential element for flood protection as one significant causal factor of flooding is the extensive development in upstream areas. There have

been numerous villas built in the upstream, Kabupaten Bogor, as secondary residences for the upper classes of DKI Jakarta in the past 50 years (Texier, 2008). It has led a raise of the run-off of water to downstream and thus increasing flood risk. Considering this condition, it is important to view flood as regional issue for DKI Jakarta instead of local problem. Watershed perspective may help to develop an integrated management approach to water management in Jakarta Metropolitan Region (JMR).

The urgency of watershed management as part of region development has been addressed in several government documents. The government regulation No. P.42/2009 for example clearly emphasized the need of regional consideration in watershed management. Similarly, Jabodetabekpunjur spatial plan, stipulated in Presidential Decree No. 54/2008, highlighted some strategies in watershed planning, such as a regional drainage system, controlling volume of water, increasing river capacity, optimizing retention of water through polder, and managing land use and development in watershed from upstream area. Yet those strategies have not been implemented since they have not been linked and fully adopted by local government in their spatial plans. Lack of coordination becomes the main reason for this fragmentation problem in spatial management in JMR (Ministry of Public Work, 2010). Thus, the integrated watershed management still cannot be implemented.

To support the watershed management in JMR, strong coordination and communication among stakeholders is needed. Mc.Gee (1991) emphasized that coordination is the important element to support the effective management in metropolitan region. Similarly, Brenan (2005) also addressed the need for mega-urban region to have sufficient coordination among its local government. Especially for major infrastructure such as water, coordination becomes the key of success in management since the scope of its operation usually involves other municipalities and cities. In his research on metropolitan governance in JMR, Firman (2008) identified four aspects which need collaboration among local governments for the management and watershed planning is one of them.

Nevertheless, in the current era of regional autonomy and decentralization, coordination seems to be a much more complicated matter and difficult to do in JMR (Firman, 2008). Specifically in watershed planning, conflict of interest among governments in JMR becomes the main causal factor of disintegrated management (Arif, 2010). Government strategies in watershed management in JMR are influenced by their preferences in the development. Upstream governments in JMR for instance prefer to apply “economic investment” framework since the negative impact of the development will not occur to them. On the contrary, downstream governments which have less option are more likely to adopt “conservation” framework since they are vulnerable to the flood. This different framework of government can hinder the implementation of integrated watershed management of JMR. Inter-regional cooperation thereby becomes the most important element to improve integrated watershed management in JMR.

## **1.2 Objective and Research Question**

The objective of this research is to provide an enhanced understanding on how to manage integration in spatial planning in relation to watershed of extended metropolis regions. JMR will be

the case study of this research considering its strategic function at national level. It is seen as an area that has significant influence on Indonesia’s national sovereignty, national defense and security, economic, social, cultural, and/or the environment, including areas designated as world heritage. Having such strategic function, comprehensive and integrated watershed management is especially relevant for the JMR.

Following the objective, the research question leads this research are : “how to improve coordination in spatial planning of JMR to support integrated watershed management?”

In order to answer this main research question several sub-research questions are drawn as follow :

1. To what extend can integrated spatial planning and coordination support watershed management?
2. What are the water policies, strategies, detail infrastructure and spatial pattern in regional spatial plan of JMR and municipal spatial plans and how do they interrelate?
3. What significant factors do cause fragmentation of spatial planning strategies in JMR?
4. To what extend can inter-governmental cooperation within spatial planning contribute to develop integrated watershed management in JMR?

### 1.3 Methodology

The research will focus on analyzing the coordination in institution in spatial planning in relation to support integrated watershed management. A case study approach in qualitative research method will be applied as the approach of this research (Figure 1.1). This research does not aim to generalize the output as argued by Flyvbjerg (2006) that a single case study cannot represent the general condition of the issue discussed. Instead, it can be used as example to be underpinned in understanding the issue with regards to its context. It will provide an example of how coordination among governments in spatial planning dynamics in metropolitan regions can be developed in support of integrated watershed management.

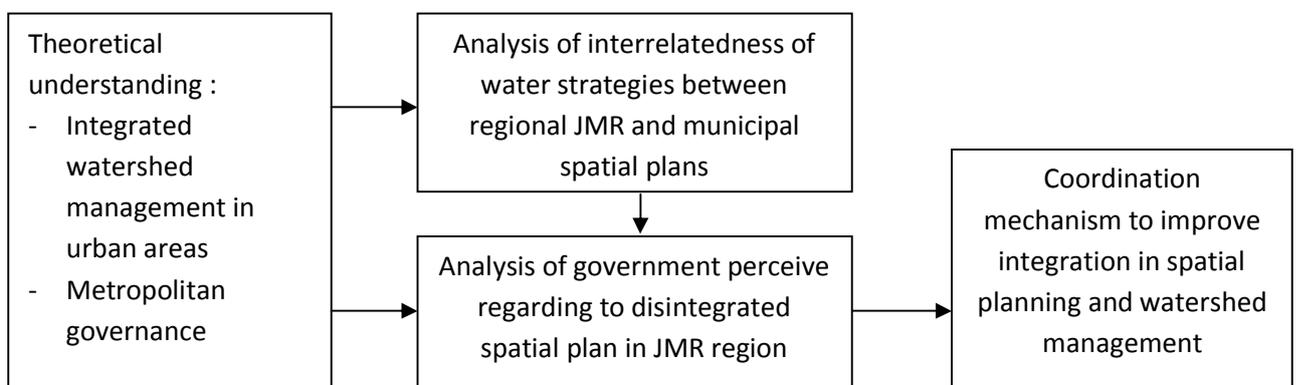


Figure 1.1 Case Study Research Framework

The case of Jakarta Metropolitan Region has been selected because of the complex governance and crucial environmental condition especially for watershed. With its dynamic characteristics, the metropolitan region needs adaptive and flexible governance in relation to deal with the future

challenge of the region including spatial planning and watershed issue. Coordination at this context can bridge the gap in governance thus resulting integration either multi-sector or multi-level of planning. Therefore, how coordination is provided in metropolitan region is relevant to study.

The research has been firstly started with theoretical understanding of water management and metropolitan governance. Literatures used in this research were obtained from journals and internet. Principles of integrated watershed management and how coordination contributes to the integration process have been explained to provide conceptual model of the research. This conceptual model has then been applied on the analysis of examining interrelatedness of watershed strategies in regional and municipal spatial plans of Jakarta Metropolitan Region. It did not only analyze how relevant the watershed strategies in spatial plans but also what factors caused the conflict of fragmentation plans in the region. As the land use planning plays essential role in disaster risk reduction, it was important to get an insight of spatial planning fragmentation. Coordination in governments in the region has been assessed through in depth interviewed of related stakeholders in the water and spatial planning. It aimed to confirm the content analysis that has been conducted before. Finally, conclusion and recommendation has been drawn based on the output of the analysis conducted.

#### Data Collection Methods

As the focus of this research was to analysis fragmentation in spatial planning that was caused by the failure of coordination among governments in JMR, interviewing the related actors was an appropriate method to provide an insight of the fragmentation and coordination circumstances. The conflict in fragmentation and coordination could not be obtained from the secondary data. Rather, it needed primary data through in-depth interview to get a complete challenge and experiences of managing spatial planning and coordination among governments in JMR. At this context, in-depth interview could contribute to illuminate the complexity condition of the spatial planning and coordination in JMR. Almost all expressions from the governments could be obtained in this kind of methods therefore it has brought advantages to enrich the information needed in this research. The questions from in-depth interview could explore the issues thoroughly that have indirectly pushed the interviewees to answer from their experiences in detail with their own words (Valantine, 2005). In addition, the interview method also could explore more issue that the researcher might not have previously anticipated thus it could provide more widening and deeper discussion on the issue that become another strength of this method (Valantine, 2005).

With regards to the advantages, the open question type was applied for the interview (Appendix 1). Within this kind of interview, interviewees had a high degree of freedom to answer the question or express their opinion in regards to the topic of research (Singleton et.al, 2005). The planning experts from each government in the Ciliwung watershed of JMR have become the respondents for the interview due to their knowledge and experiences in developing coordination among governments in spatial planning of JMR. Subsequently, other experts from university or consultants also became the respondents of this interview in regards to their contribution and expertise in spatial planning and water management in JMR. They could provide a different side of view of the coordination scheme and challenge that has to be faced in spatial planning in JMR in relation to the background of interviewees. An overview of the interviewees that participated in this study can be found in appendix 2.

Information from the interview was then summarized into table. This table helps to structure the information from each of interviewee and linked them to the theory used in this research. It provides insight on the conflict of fragmentation in spatial planning in JMR. Detail characteristic of the conflict of coordination in institutions in spatial planning is explained in this table including the subject and dimension of the conflict, institutions which had the conflict and factors that cause the conflict. Such characteristic of the conflict helps to structure the analysis the current coordination circumstance in institutions of spatial planning in JMR. Thus, a deep analysis of the coordination among institutions in spatial planning can be provided.

However, the in-depth interview also has limitations in particular for the validity of the information obtained (Creswell, 2003). The varied and rich information from the interviewees can bring dualism mainly when they are not correctly summarized and structured. It can create bias since the interpretation of the information much depends on the ability of researcher (Creswell, 2003; Singleton et.al, 2005). Therefore, to clarify the information, secondary data is still needed. The secondary data from policy documents, regulations, and some previous research works will be applied to complement the interview. It helps to prevent any bias in researcher of information from the interviewees.

Not only can help to prevent the bias from the interview, secondary data also provide more contextual material for this research (Flowerdew, 2005). As this study applies case study research method, contextual material is needed to give more deep information of the case study circumstances. Hence, the secondary data can be used to enhance the understanding of local context in spatial and water planning and governance in JMR. In addition, other advantages from the secondary data are qualified and reliable since it is published already, and cheaper and easier to get compared to primary data (Creswell, 2003). With regards to these advantages, it is hoped that utilizing secondary data can increase the quality of information and data used for this research.

The secondary data for this research are obtained from literature review such as spatial plan documents, regulations, studies from national government in monitoring or evaluation of the implementation of Presidential Decree No 54/2008, and other previous research studies in JMR. Spatial plan documents and regulations are used to illuminate the context of planning and the direction of spatial pattern and water management JMR. By reviewing the plans, the direction of each plans can be known thus can be assessed its interrelatedness. In assessing the interrelatedness of the spatial plans, a comparison table is used. This table provides the strategies from each of the spatial plans in JMR including regional spatial plan, provincial and local spatial plans. It explains in detail the content of each spatial plan and therefore it can be analyzed whether there is a linkage for each of plan content or not. Other studies in spatial planning in JMR will be used to provide local characteristic of JMR in order to support the finding of conflict in spatial planning in JMR. Those secondary data will be elaborated thus it can give a complete characteristic of the case study.

However, there is still also limitation in secondary data. Limitation such as various sources of the secondary data can cost time on the process of data compilation (Cresweel, 2003). In addition, the information from secondary data is also determined inflexibility by Flowerdew (2005), therefore, it cannot be easy to customize with the need of research. The ability of researcher at this context once again is needed to choice which information is needed from the secondary data provided.

### Internal and External Validity

A research can be said to be ideal if the research design can control the extraneous variables that threaten the internal validity of the study (Singleton et.al, 2005). The extraneous variables can some extent influence the outcome of the research. With regards to this circumstance, this research combines two data collection methods which are primary and secondary data. Primary data from interview is the most important data source used in this study since it provides insight on the conflict of fragmentation and coordination in spatial planning of JMR. However, this primary data can create bias since the interpretation of the information from interviewee can be various. Therefore, to maintain the objectivity of this research, secondary data is reviewed. This secondary data can at least minimize the failure of judgment in this research. Hence, it is hoped that by combination of those two data source, the result of the analysis will be more objective.

Aside from the internal validity, this research also has some degree of external. The external validity relies on the ability of the design of research to be tested in different circumstances with respect to the similarity output (Singleton et.al, 2005). Nonetheless, it should be noted that every metropolitan region has unique characteristic and issue that can be compared to each other. This is caused by the different contextual circumstance such as social economy condition, environment and even political scheme. Hence, each metropolitan has different characteristic and challenge that cannot be generalized. However, the conflict of fragmentation and coordination among governments in JMR still can be used to provide an example of governance figure in metropolitan region. The background of fragmentation and conflict of coordination, factors that cause the fragmentation and conflict of coordination, and governments' perception on the conflict can contribute to enhance the understanding on how to improve the coordination among governments notably for spatial planning in relation to integrated watershed management in metropolitan regions.

### **1.4 Case Study Description**

This research has involved Jakarta Metropolitan Region (JMR) as the case study. The region comprises three provincial governments which are DKI Jakarta, Jawa Barat and Banten; and nine municipalities governments which are Kota Bogor, Kabupaten Bogor, Kota Depok, Kota Tangerang, Kabupaten Tangerang, Kota Bekasi, Kabupaten Bekasi, Kabupaten Cianjur and Kota Tangerang Selatan. Kota Tangerang Selatan is the newest autonomous region of JMR that was formed in 2008 as an expansion from Kabupaten Tangerang. Although JMR comprises of only 0.33% of the national land area, it accommodates as much as 12% of Indonesia's total population, and produces nearly one-fourth of Indonesia's Gross Domestic Product (GDP) in 2007 (Rustiadi, 2007). Therefore, the region is designated as national strategic area in Government Regulation No.26/2008 on National Spatial Plan (RTRWN) as the result of its significant contribution on the development.

Within the region, there are several watersheds and rivers such as Cisadane, Citarum and Ciliwung Watershed. But in this research, the focus of the analysis will be limited only for Ciliwung Watershed. It covers 387 km<sup>2</sup> areas in size with the total length reaches about 117 km. The watershed flows along 6 municipalities which are District of Bogor, City of Bogor, City of Depok, City of South, Center and North of DKI Jakarta (see Figure 1.2). The upstream areas of watershed are

located in District of Bogor and small part of City of Depok while DKI Jakarta –South, Center and North- are the downstream areas of watershed. The significant influence of Ciliwung in term of the occurrence of flood in DKI Jakarta is the biggest among other rivers (Hendrayanto, 2008). Therefore, managing Ciliwung watershed can reduce flood risk in JMR thus resulting urban environment improvement.

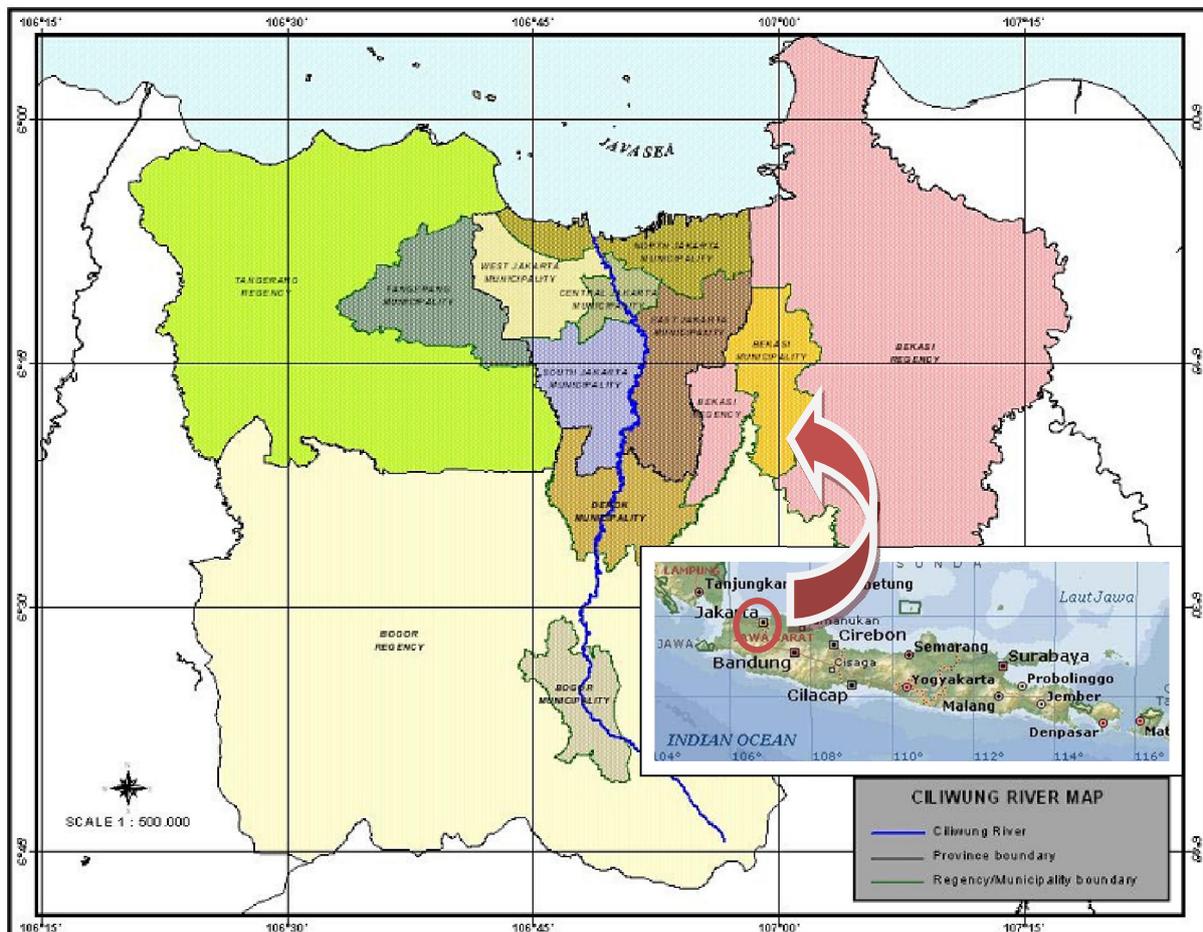


Figure 1.2 Ciliwung Watershed Area (Source : Arif, 2010)

### 1.5 Structure of The Thesis

There are five chapters provided in this thesis. Chapter 1 is introduction including background, objective, research questions, methodology of the research and a brief of case study. Following the chapter 1, theoretical framework of this research is explained in chapter 2. A Conceptual model for this research also is given in this chapter that is used for the analysis of this study. Then, chapter 3 discusses about the contextual planning in Indonesia. It presents the hierarchy of planning and the linkage of water and spatial planning in Indonesia. In chapter 4, the overview of JMRs' characteristic including analysis of fragmentation and coordination of institutions in spatial planning in JMR is provided. Finally, the conclusion from the analysis is given in chapter 5.

## **2. Collaborative Governance in The Urban Watershed**

### **2.1 Introduction**

A deep and comprehensive understanding of literatures on integrated watershed management and metropolitan governance is important to develop the framework of research for this study. Therefore, a literature review is conducted to improve an understanding of spatial integration in watershed management in metropolitan regions. Literatures on urban and water management are firstly discussed to bring attention to the essential need of managing water in urban areas. Then, it is followed by a discussion of watershed management as an integrated concept to manage water in urban areas. Finally, metropolitan governance theories are drawn to give an institutional context of the urban management.

### **2.2 Urban and Water Management**

Water is considered the most essential resources with regards to its contribution to support mankind (Heathcote, 1998). It does not only form nature, but water can also influence population growth, world health and living condition and determines biodiversity (Newson, 1992). Especially in urban areas where population is concentrated, water supports the sustainability of cities. In fact, Uito (2000) noted that major economic developments which are concentrated in cities are much depending on water availability such as industrial activities, electricity generation, and food production. Cities are thereby highly dependent on water.

On the other hand, cities also have a huge role in contributing the presence and absence of water to the development. As UNESCO mentioned in world water report (2003), the rapid growth of cities could bring tremendous stress to the environment including water. The need for more vacant land to accommodate the development increases in line with the population growth in cities. It then changes nature and landscape becomes more built-up thus bringing an impact on the water filtration. As water sources are tapped, river and streams are channelled, environment will then gradually change and degrade. Hence, the sustainability of water is threatened as the consequences of the development of cities.

There is a close and complex relationship between water and people (UNESCO, 2003). People with their activities can affect the availability and quality of water and vice versa (White, 2010). Water flows and quality for example can be influenced by what people do on the land. On the other hand, water can bring significant implications to people and terrestrial systems, through its capacity to cause flooding, and contribute to erosion and salinity (Mitchell, 2005). With regards to this condition, management of water cannot be separated from people and their activities. This strong relation between water and mankind also becomes one reason for the changing of water management practice from sectorised and localized problem to a wider and integrated approach (Heathcote, 1998). The need to balance the economy, social and environment aspects in a way to achieve sustainable development embedded the transformation of water management (Nesheim et.al, 2010). As a consequence, the term of Integrated Water Resource Management (IWRM), which

emphasizes a system approach with coordination as the vital component (Petit et.al, 2009), emerged.

The system approach in integrated water management only considers the key components of water. This selective variable becomes the strength of this approach, and it is different from the comprehensive water management approach. Since it is only concerned with some keys or selected variables which have crucial relationships within aquatic and terrestrial systems (Mitchell, 2005), the integrated water management determines more focus on the most causal variability in a system. Thus, the strategies and policies resulting from the management will be more precise and strategic compared to the comprehensive approach. Nevertheless, although it only considers few variables, the management is still integrally conducted since the interrelatedness of the dynamic system is examined within these selected variables (Mitchell, 2005).

IWRM is an approach to address sustainable development and management of land and water resources (Petit et.al, 2009). There are four principles of IWRM with regards to its contribution to sustainable development aspects which are environment, social, economy and institution (Nesheim et.al, 2010). The first principle is environment and retention area protection that pays much attention to the complex relationship of terrestrial and aquatic ecosystems in the basin. Understanding this relationship includes how the connection is built, what components are involved, and how those components affect water quality and quantity. As it emphasizes on the environment aspect particularly to preserve the quality and quantity of water, the first principle is determined crucial by Nesheim (2010) since water forms and influences the existence of all living things including human. Therefore, it is regarded as the most vital principle in IWRM.

Social and economy aspect is the tension of the second principle in IWRM. With the principle of managing the efficiency and equity use of water, it perceives water as the economic and social good (McNeill, 1998). It then leads to providing an equal and affordable supply of water to community in order to achieve social equity, ecological and financial sustainability and economic efficiency (Nesheim, 2010). Moreover, the third principle which more relates to institution is developing effective governance. Policy and sectoral integration and coordination are addressed within this principle (Nesheim et.al, 2010). Both integration and coordination are two crucial elements in IWRM since water issue is determined by cross-sector and institution. Further, Nesheim (2010) also includes participation from stakeholders to support the effective governance in water management. In this context, participation is put as part of the integration process since it can accelerate the process of integrating policies or strategies in water management. Concerning those elements, IWRM needs integration within the policy in other sectors including spatial, coordination and participation among various stakeholders to build effective institution.

Finally, the last principle of IWRM is capacity building. This principle may not directly relate to the practical implementation of IWRM; however, it can be a significant tool in a way that it supports participation, coordination and integration. Building stakeholders' capacities, for example, can increase their awareness in water issue as well as their ability and expertise in water management. Hence, capacity building is needed for all water stakeholders including public and private water organizations, governments, and communities.

With such invaluable principles, IWRM is regarded as the preferable water management approach. It has succeeded in bridging the gap in water management and putting sustainable development issue

as the main priority to be achieved in water resources. The attempts such as combining the qualitative and quantitative aspects, linking short and long term perspectives, and providing collaborative management (Petit et.al, 2009) are some examples on how IWRM contributes to sustainable water management. In addition, the integration with land use planning becomes another point of strength of IWRM and emphasizes the advantage of an integrated approach in water management. Thus, it is believed that IWRM can represent the qualified framework of water management in dealing with future challenge of water resources.

### **2.3 Integrated Watershed Management**

In contribution to sustainable water management, IWRM needs to be supported with adequate and sufficient information on water resources. This requires a complete and board understanding of water system. Argued by Crabbe (2008), environmental issues have their own spatial scales which are not bounded to administrative borders. Similarly, the management of water should not be bounded in a single administrative area since it has its own boundary which is influenced by hydrologic system. Instead, it is suggested that management strategies should be in line with water's own boundary (Heathcote, 1998). A term such as river basin or watershed is then applied in water management (Moerlins, et.al, 2008; Jewitt 2002; Wester, Merrey et al., 2003) as it has a boarder spatial scope and is believed to be more appropriate to represent the actual condition of water.

Watershed is defined as “an area of land in which all waters flow to a single river system” (Heathcote, 1998). It is the smallest hydrological and ecosystem unit of river basins that refers to a delineated unit of land within a stream and borders one river basin to others. Bounded by hydrologic system, watershed may vary in size and may cross country, state and national boundaries. It follows the hierarchy of basins which are sub-basin, tributary, regional or even trans-boundary level. Therefore, watershed is also called by a basic unit in a river basin and has to consider all basin elements which are biodiversity, ecosystem functions and human activities (Qi et. al, 2011).

Furthermore, like the links of a chain or the spokes of a wheel, watershed components are interconnected and mutually supporting. The high land-based activities in the upstream for example can degrade water quality and can increase water runoff and sedimentation. It thus leads to increasing the risk from water such as flooding and ecological change downstream. The health of the upstream components directly determines the health and function of the areas downstream. Therefore, it needs a comprehensive outlook from upstream to downstream because what happens in the upstream can affect water quality for all communities living downstream as the consequences of the hydrologic system.

Consistency and balance for all watershed elements in this context become the main focus of management especially between social and economic activities with hydrological and ecological needs of human well-being (Agarwal et al., 1999; Lundqvist and Falkenmark, 2000). It thus implies the way watershed is managed. The tension in watershed management then lies on the connection between those elements and manages the balance of them. Finding the linkage becomes the main focus since it can influence the next management phase including determining the strategies. With regard to these elements, watershed can be said as a framework that links social, economy and sciences into policy and decision making (Qi et.al, 2011).

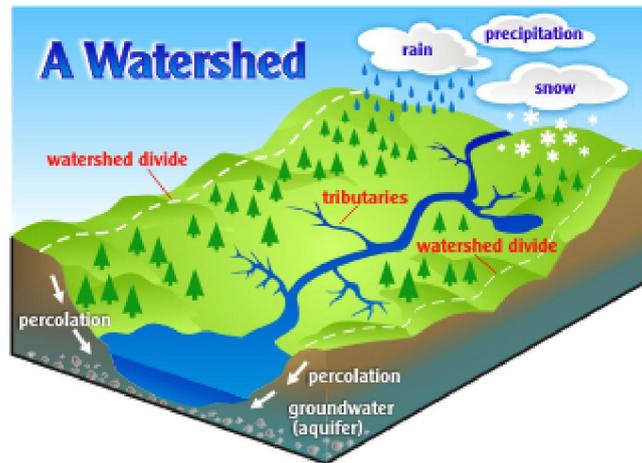


Figure 2.1 Watershed Area (source : <http://www.sanduskyriver.org/>)

According to Serveiss (2002), partnerships, spatial boundary of water focus and management based on watershed analysis are the principles that also become the strengths of watershed approach. It applies an integrated analysis which incorporates all the elements rather than assesses pollutant by pollutant (Serveiss, 2002). To be precise, watershed analysis is a scoping exercise to identify ecosystem processes and needs, including restoration, at the intermediate watershed scale, and to place these on the broader context of the larger river basin and regional settings (Ziemer, 1997). Similarly, Heathcote (1998) explained that watershed analysis is a tool to identify the conflicting values and expectations of social and biological processes in an appropriate physical context, that is, the watershed. It then can be an efficient and systematic tool in order to understand the ecosystem elements and their interaction in watershed scale.

However, it should be noted that watershed analysis is not a decision making process (Ziemer, 1997). Instead, it is a tool which provides such sufficient information to support the decision making process. The output of the watershed analysis then can be used to draw some response strategies which aim either to manage the environmental impact or to develop a desirable condition on spatial distribution in the watershed region (Montgomery, 1995). Thereby, in other words watershed analysis can be said as a strategic scientific tool to support land management in an attempt to balance environmental and economic purposes.

The watershed analysis should also be linked to and supported by stakeholder analysis which emphasizes more on the stakeholders or actors and participation. Figure 2.2 explains the design of river basin management as well as watershed management. River basin and watershed have similar characteristics and objectives. Both of them aim to develop sustainable water management by linking all elements of water with social-economic activities and addressing coordination and cooperation as its key success. Therefore, in some places such as in The United States, the term of river basin and watershed are not distinguished (Heathcote, 1998). On the other hand, there are some researchers who try to distinguish the definition of those perspectives by looking at the scope of area of analysis. River basin perspective considers much boarder and holistic system of river system. Rather, watershed approach only focuses on a single or sometimes the smallest unit of river

system that emphasizes on the geographical boundary from one basin to other basins (Heathcote, 1998; Qi et.al, 2011). Nevertheless, within this research, the term of river basin and watershed is not distinguished in regard to the scale analysis of the case study.

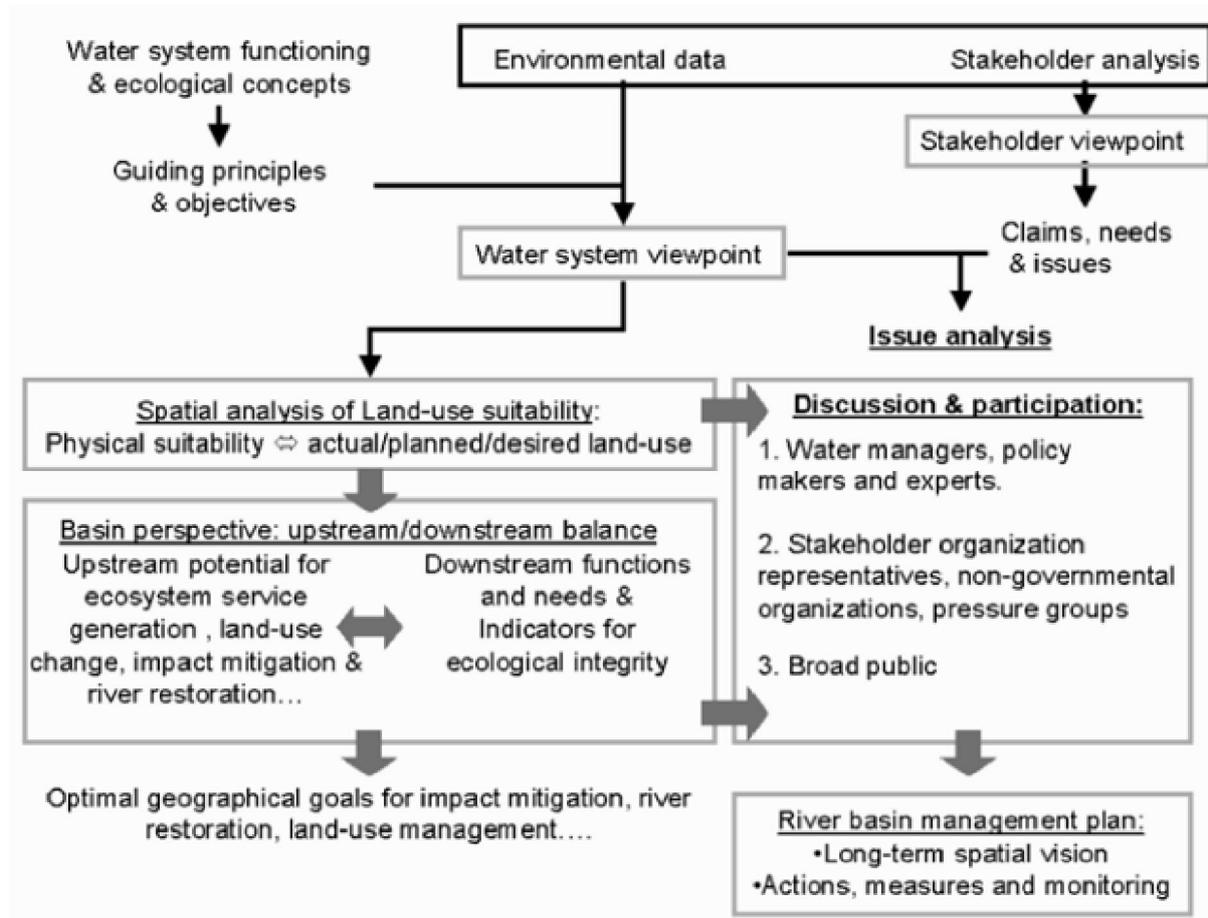


Figure 2.2. Methodological framework of river basin management (Staes, 2008)

Reflecting the similarity between watershed and river basin, the methodology of river basin management can also be applied in watershed management. From figure 2.2, it can be inferred that environmental information of water system combined with spatial analysis can provide suitable and balanced perspectives of upstream and downstream conditions. It aims to result in optimal land use management in the watershed area. Following the watershed science analysis, there is a stakeholder analysis which analyzes the stakeholders involved and participation. Integrating the scientific analysis with the stakeholder analysis can result in a holistic system approach of watershed management.

By linking all the elements in watershed, it is hoped that watershed management can be the first step to achieve sustainable water resource management. However, some challenges are still found in watershed management in particular with spatial planning on how to manage efficient land use in relation to deal with externalities and ecology variability (Staes et.al, 2008). Although watershed

analysis can be applied to manage this issue, still there is no clarity on how to design efficient land use in watershed. While in fact, land use plays a significant role in influencing the ecosystem change in watershed (Moerlins, et.al., 2008; Newton, 1992). As land use can influence the precipitation of water, it can be a strategic tool to manage water runoff either surface water or groundwater which brings benefits in balancing nature in the watershed area. As such it is a crucial element in determining the success of watershed management.

## **2.4 Land Use Planning**

Water management cannot be separated from land use planning (Mitchell, 2005; White, 2010). Land use can bring significant implications in natural process including water either in supporting or devastating the ecosystem (Heatchote, 1998). The failure in land use practices and planning can contribute to degraded environmental quality thus generating problems in water management (States, 2008). This dynamic relationship between water and land use leads to increasing importance of spatial planning in water management (Mitchell, 2005). Therefore, land use planning should be regarded as a critical element in water management.

Similarly, Qi (2011) highlights the importance of land use planning in supporting integrated watershed management approach. He argued that land use planning can influence both environmental and social economical quality in the region. Soil and stream bed erosion, sedimentation, nutrient concentration in streams, quality of surface and ground waters in a watershed are some examples of the environmental aspect that can be influenced by land use in watershed. In addition, community livelihood improvement as a result of utilization of watershed for agriculture activities also reflects another impact from land use practice in watershed. Having such strategic functions, land use should be carefully managed in the watershed.

The power of spatial planning therefore goes beyond from a rigid and narrow land-use interpretation to a dynamic management approach with a wider function and management of space and place that accommodates interrelatedness with other sectors (White, 2010). With regards to its huge contribution, land use planning currently cannot be separated from other sectors including water. However, recent practice shows that there is still a gap between spatial planning and watershed management (Wang, 2001). Many land use plans do not use water quality component as the basic consideration in developing the plan. On the other hand, water management also rarely uses land use plans to support its strategies or scenarios. Lack of coordination can be a causal factor of this gap. Also institutional fragmentation contributes to this problem. There are more than one government involved from local, to provincial, national or even international in the watershed management scheme since a watershed is bounded by hydrology instead of administrative boundary (Mitchell, 2005). Similarly, the conflict of coordination among governments also occurs in land use planning due to various governments involved in planning scheme (Mandanipour, 2010). In addition, institutions which manage water and spatial planning are differently determined and not linked well to each other (Wang, 2001). As the consequences of this multi-level and multi-sector governance, fragmentation of responsibilities either vertical (between multi-level governments) or horizontal (among different agencies in one government) can easily occur, thus hindering the coordination between governments (States, 2008; Eddision, 1985). This fragmentation issue in institutions is caused boundaries between agencies either in planning or watershed management which is

concluded as the main challenges particularly in watershed management (Eddison, 1985). Thus, among others the integration between watershed and spatial planning seems difficult to achieve as the consequence of this institutional fragmentation.

In addition, water management sometimes also has low legitimacy compared to spatial planning. In many countries, there is no legal basis that clearly regulates water planning and supports the scheme practice (Mitchell, 2005). It thus brings low priority for water planning that hinders the implementation of the planning strategies. Concerning this issue, some efforts to integrate water and spatial planning have been conducted by many countries. The Netherlands for example, has developed spatial and environmental policies that require for water planning to be connected and accommodated within spatial planning scheme (De Roo and Miller, 1997). The policy of “room for the river” for instance is the result of this integration effort between spatial and water planning in The Netherlands. Within this policy scheme, the Netherlands has succeeded in not only integrating those two aspects but also engaging water with regional planning (Elling, 2000; Prost et. al, 1998). Learning from The Netherlands, engaging water and planning do not only contribute to an improved legal basis of water management, but it can also increase the efficiency of management and the implementation of water plan (Mitchell, 2005).

Another advantage of integrating spatial and water management is the ability to overcome some land issues in watershed areas. The issue of land use change in a watershed for example is determined to be the major challenge in land management. Trends show that land use in a watershed particularly in an urban watershed has tremendously changed in line with the need of land for development (Liu et.al, 2010). This has brought significant implications to watershed ecosystem such as increasing erosion, sedimentation, water run-off and pollution into the river (Qi et.al, 2011). It can lead to increasing risks and decreasing water quality which is often a primary source for the community lived in surrounding the watershed. Spatial planning here can be a strategic tool to manage the land use change issue by implementing the zoning regulation. Concerning the essential role of land use planning in water management and the crucial challenges highlighted above, strengthening the integration of land use and water management can be supportive in order to achieve sustainable development.

Following the land conversion issue, there is also the disintegration or fragmentation issue in land use planning in watershed management. Conflicts within land use allocation should be considered within watershed management. In fact, land use is a sensitive issue as it has to deal with human activities which are motivated by multiple and different interests (Qi et.al, 2011). Land use for economic purposes such as agriculture can bring benefits to community through, for example, increasing livelihood and social status for farmers on one side. On the other hand, the crop production activities will lead to degrading water quality and ecological integrity in watershed (Qi et. al, 2011). Such a situation can trigger a conflict on whether the land is developed for economic purposes or environmental protection (Sadeghi et.al, 2009; Arabi, 2005).

Particularly in upstream and downstream areas, the conflict of land use appears as a result of imbalanced pressure of urban development. This imbalanced pressure is in fact triggered by less awareness in government to work in cooperation and the narrow perspective of development in the watershed area. Due to administrative fragmentation, most governments are only concerned with developing their own territory albeit their border areas when making policies (Watson, 2007). A

regional framework or consideration is often not applied during the policy making by the governments. Thus, the issue of disintegration either in the spatial planning with their border regions or between spatial planning and watershed management often appears (Mitchell, 2005). This narrow perspective leads to exclusiveness, thus triggering lack of coordination with other institutions.

## **2.5 Metropolitan Governance**

To support the integration effort in land use and water management, institutions and coordination become critical factors in this context. Nesheim (2010) addressed that successful management in integrated watershed and spatial planning do not solely lie on the qualified policies and strategies. Effective and efficient institutions indeed have significant roles in supporting the policy and strategy implementation. Without good functioning and robust institutions, the management will become less effective and disintegrated.

Institutions at this context represent as formal government agencies. Although emphasized by Healey (2005) that institution has a boarder definition than organization, in this research the term of institution is applied for government agencies due to their action and authorities in shaping planning system. Government agencies provide framework of norms, rules and practices in planning that in some extent can influence and structure social system (Gonze'les et.al, 2005). Therefore, the term of institutions is still relevant to be used in this research.

To overcome the difficulties due to boundaries between institutions, restructuring and redesigning institutions is suggested by Eddison (1985). Restructuring and redesigning institutions can decrease the boundaries in institutions since the authorities and tasks of each institution will be clearer as well as the flow of communication among them. However, restructuring and redesigning do not necessarily mean removing the boundaries. Some boundaries will remain since they are used to distinguish the role and function of institutions (Mitchell, 2005). Nonetheless, restructuring and redesigning can decrease the gap and illuminate the way of institutions working together.

Institutional design is defined by "the process of crafting a configuration of rules" (Oakerson, 2004). To some degree, institutional design also means forming governance since both of them includes a process of creating a set of rules that stimulate behaviour change. The term of "governance" has a different meaning with "government". Firman (2008) indicates that governance is more complex than government since it refers to interaction of power in stakeholders including government, society and private sector. The complexity relation stakeholders are accommodated in the decision making process, therefore, resulting in a political mediation in regards to the different interest and priorities among them (UNDP, 2002; Cheema, 1983). Similarly, Oakerson (2004) also defines governance as a process of prescribing, invoking, applying and enforcing rules while government is defined as the formal institutions or agencies excluding the political and interactions among them (Oakerson, 2004; Cheema, 1983) With regards to the development of integrated watershed and spatial planning, the concept of governance will be relevant to apply since it requires regulation and norm changes in either spatial or watershed sector and involves many stakeholders including community, government, and private sectors on the process to achieve integration.

Since the issue of institution fragmentation in watershed and spatial planning lies on multi-level decision making, the concept of metropolitan governance is discussed to achieve an understanding of the complexity of these multi-level institutions. The concept of metropolitan governance is unique and different compared to other governance concepts caused by the dynamic characteristics of a metropolitan area. The wide territory covered, the number and variety of governments involved either local or national in scale, the complexity of function, and the outmoded legal and institutional structures used in urban governance are some examples of unique characteristics of a metropolitan region (Laquian, 1995). These varying numbers of institutions leads to diverse behaviours and perspectives among them in perceiving issues in the process of metropolitan governance. Therefore, a different framework of analysis is needed to build engagement among them. The framework of analysis should consider formal structures and rules of those local governments as well as their diverse political behaviours. The result of this framework analysis is used to develop the regional concept of governance in order to cope urban service problem, achieve social economic equity, and preserve natural environment (Laquian, 1995; Miller and Lee, 2009).

It is believed that regional governance can structure the interaction among actors in a metropolitan region as well as handle the fragmentation issue of housing, environmental and transportation in the region. Olberding (2002) argued that regional cooperation can better handle regional externalities and spillover in a metropolitan region compared with decentralization units of governance. Urban sprawl for instance appears as a result of the failure in decentralization governance in a metropolitan region. Learning from the failures, integration in metropolitan policies becomes a crucial factor that can be achieved through building a regional cooperation.

The recognition of regional governance indicates the raising of “new regionalism” in concern to the organization of a metropolitan region (Feiock, 2004). Within this new regionalism, the concept of governance structure in metropolitan changes is becoming more flexible, not tied to a single unit of metropolitan government, and tailored to specific need of metropolitan region (Oakerson, 2004; Innes and Rongerude, 2006). Innes and Booher (2003) highlighted that metropolitan governance should have several abilities in bridging the fragmentation issue, linking multi-scale decision system and building institution capacity in order to provide more innovations to deal with complexity and uncertainty of metropolitan region. With regards to all these challenges, regional governance should be more adaptive and well networked (Innes et. al, 2011).

Relying on the regionalism, the polycentrism model of governance suits best in a metropolitan since it offers a more open governance structure related to the fragmented area of the metropolitan. Explained by Oakerson (2004), the governance pattern in polycentrism is formed by a dynamic interaction of various independent actors aiming for commonly valued outcomes. Subsequently, a system governance approach is also needed to support the notion of regional governance in the metropolitan region. This system approach has similar characteristics to the polycentrism governance pattern. Both of them emphasize on the flexibility and openness of the governance model. Further, a system of governance, defined by Innes (2011), is “a new form of governance that engages a much larger range of group and public agencies, with differing though interdependent interest, in working through and acting on public problems”. It aims to bridge the fragmentation and accommodate the dynamic of interactions of metropolitan institutions by involving and engaging formal and non-formal government institutions. With this polycentrism and system of governance, it

is hoped that fragmentation in metropolitan governance can be managed, thus resulting in more robust institutions in a metropolitan region.

Reflecting the dynamic interaction of institutions in a metropolitan region, Miller and Lee (2009) try to distinguish the characteristics of the interactions between those institutions. They distinguish four dimensions of interaction which are vertical, intergovernmental, inter-sectored and intra-regional. The first dimension, vertical dimension, represents the relationship between national and local governments in the metropolitan. Secondly, intergovernmental dimension is the relationship among local governments within the metropolitan region. Then, inter-sectored dimension is a pattern of relationship between the local government and non-governmental institutions including the private sector and non-profit (civil) sector. The intra-regional dimension is the fourth dimension that is regarded to a pattern of relationship between the local government and regional institution of a metropolitan. All those dimensions can then be used to form the pattern and model of regional governance in the metropolitan region.

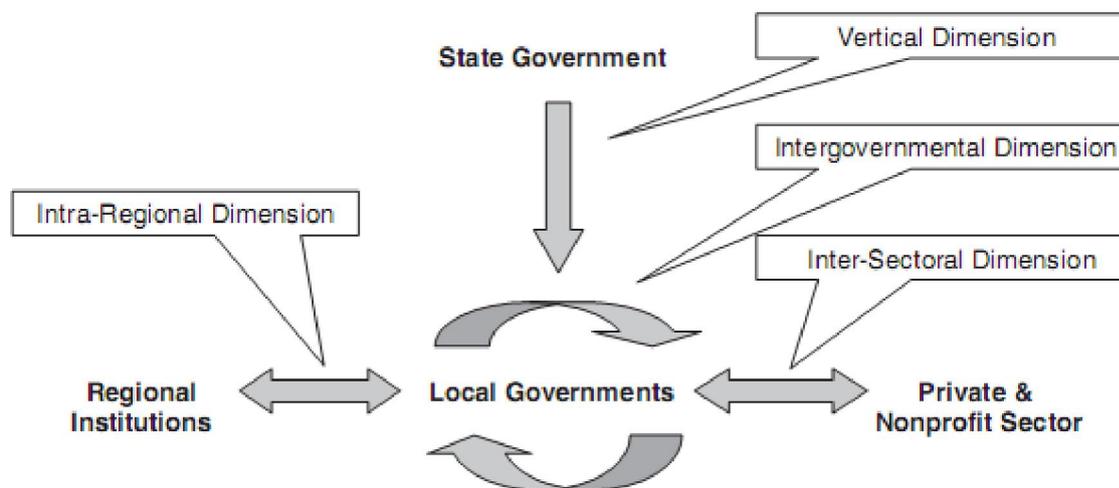


Figure 2.3 The four dimensions of dynamic interaction in metropolitan institutions (Miller and Lee, 2009)

## 2.6 Urban Growth and Metropolitan Governance Typologies

In review of the regional governance model, there are four typologies of governance forms regarded to deal with rapid metropolitan growth. Each of those typologies has a different scheme of governance that is concluded and based on the political unit of territory, allocation of functions among various government units, distribution of inherent and derived authority and power among governments, and community participation (Laquian, 1995). These governance typologies are important and relevant with this study since they can represent the form of governance system and the way governments manage their metropolitan region. To achieve effectiveness and efficiency of metropolitan management, the governance scheme should fit with the current need and circumstance of the metropolitan region. Therefore, the characteristic of governance typologies in metropolitan region is essential to be discussed.

In applying those typologies, detailed characteristics of the metropolitan such as historical, cultural and political backgrounds should be considered first to ensure that the form of governance fits with

the region's need. However, these typologies of governance in the metropolitan only consist of formal government, yet the other institutions such as private sectors and nongovernmental sectors are not considered. These typologies of the metropolitan governance can be explained as follows:

- A. The first typology of governance is autonomous local governments. In this form of governance, the power to manage a metropolitan region lies on the local governments. They have strong and full authority to plan, develop policies and execute the development programs of the metropolitan region. Laquian (1995), however, addressed that this governance tends to be very vulnerable in particular with conflict of interest, thus resulting in fragmentation and uncoordinated circumstances.
- B. Confederated regional government is the second typology of regional governance. Within this type of governance, the management of the metropolitan region is divided into two levels which are regional and local levels in consideration with the need of integration in the metropolitan. The regional management is conducted based on a cooperative agreement among local governments. The power of management in this term of governance is still on the local government although there is a regional coordination board. This board is developed with limited power only for facilitating the management process for regional manner.
- C. A mixed system of regional governance is concluded as the third typology of regional governance. Sharing responsibilities in managing the metropolitan region is the main characteristic of this type of governance. All governments including national, provincial and municipal governments are working together in order to provide a qualified living condition in the metropolitan. To support the implementation of the management scheme, some agreements are developed with regards to the authorities of each government. This agreement is served as the basis of the management scheme in this governance.
- D. The last regional governance typology is unified regional governance. Centralization of management is the characteristic of this governance. The power of management goes to the national government as the main actor in this context of governance. Neglecting local governments' authorities and justifications, all the decisions including planning, implementing, monitoring and evaluation are set up by the national government. The local government at this kind of governance has no bargaining position since the system of governance is conducted top-down.

Learning from the typologies of metropolitan governance, it can be inferred that coordination and collaboration have become the key words to support the effectiveness of governance process in the metropolitan region. Collaboration in the metropolitan region occurs in three dimensions which are spatial, functional and sectored (Salet, et.al, 2003). Reflecting these dimensions, spatial collaboration will be the focus of cooperation in this research as it supports watershed integration. Spatial collaboration itself aims to ensure the integration of spatial policies from metropolitan to local and vice versa (Salet, et. al, 2003).

## 2.7 Conditions for Institutional Collaboration

To support the collaboration among institutions, qualified and conducive circumstances of working environment in the institution are needed. Lacks of these are in many situations the main obstacle in developing collaborative network governance of metropolitan region (Inness, 2011). With the current setting of institutional structures in government, boundaries and gaps among them will be very likely to occur, hindering the collaborative network being developed. Policy entrepreneurs at this context are needed to break the gaps, across the boundaries and overcome any collective action cost (Feiock, 2004). Individual leaders, in particular from the government, can be an example of appropriate policy entrepreneurs (Feiock, 2004). These leaders can motivate governments to develop a collective action in terms of collaboration. It should be noted that partnerships or collaboration can be built as long as potential benefit of cooperation is outweighed the transaction cost (Lubel et.al, 2002). In addition, contextual factors such as economic conditions, local political culture and state-level rules are, to some extent, influencing the motivation in building partnerships.

To work on the collaboration in institutions in metropolitan governance, there are five conditions mentioned by Post (2004) that can positively influence the likelihood of government to collaborate geographic proximity, group size, common policy objectives, coercion or incentives and leadership or entrepreneurship. These positive factors will accelerate the collaboration process, thus bringing a robust institutional collective action. However, there are also some negative factors that can hinder the cooperation establishment as explained by Post (2004) which are group size, heterogeneity of policy objectives and regulations. All of these factors are useful to acknowledge and support the successfulness of the collaboration.

Geographic proximity represents the distance and the density of governments in a metropolitan region. There is a positive relation between the geographic proximity and probability of collaboration. Indicated by Morgan and Hirlinger (1991), governments which have closer geographic locations, such as the ones in the same metropolitan region or those direct-bordered, are more willing to collaborate than governments which are located far or not direct- bordered. The similar problems in those governments such as traffic, housing, environment, etc are the main reasons for the collaboration in order to increase the efficiency of management of a metropolitan region. Further, the density also contributes to accelerate the collaboration among governments in the metropolitan region. Geographic density represents the number of governments per square mile in the region. The increasing number of governments in the metropolitan statistical region can influence the likelihood of them to collaborate (Post, 2004). Hence, similar conditions and efficiency advantages are two main reasons for establishing collaboration.

The second factor, group size, can either positively or negatively influence collaboration. In other words, it can support or hinder collaboration. It reflects the number of governments which collaborate in the metropolitan region and the heterogeneity. The numerous governments involved in a collaboration group can, to some extent, hinder the collaboration since it will increase the transaction cost (Post, 2004). In addition, a larger collaboration group also means the more heterogeneous governments in the group. This can trigger a problem since heterogeneity leads to disagreement and different policy objectives thus increasing the probability of free ride. In contrast, a smaller group tends to be more efficient and effective to form the collaboration (Post, 2004). Within a smaller group, the transaction cost will not be as much as it will be in a large group. Further,

a small group can also ensure that the distribution of benefit is equal and adequate. Therefore, to be able to manage the collaboration, both group size and homogeneity in governments should be taken into account in advance to form the collaboration.

Common policy objectives are another factor that influences the likelihood of governments in metropolitan region to conduct collaboration. Post (2004) addressed that governments with the same preferences will be easier to engage in regards to the same visions of theirs. They will have the same interest, thus it can motivate them to work together. In addition, common policy objective in advance can bring some benefits such as potential cost saving, continuity and capital intensive of goods and services. Potential cost saving for example is generated by sharing activities in the cooperation such as on the development of regional infrastructure as the result of common policy objective among governments in a metropolitan region. Then, continuity of the cooperation can also be ensured since the motivation of the cooperation comes from governments' own interests and similarity among them. To conclude, it is important to identify and find the potential policy or interest that can link the preferences of governments in the metropolitan region.

Another positive factor that contributes to support for the cooperation in a metropolitan region are coercion or incentives. Coercion and incentives at this context can be grant programs from the national government or regulations that encourage or even force the local government to work together. Grant programs from the national government for instance are most likely successful in encouraging the local government to build cooperation. However, not all the coercions and incentives can contribute to support for cooperation in the metropolitan region. Some of them can hinder the cooperation as well. Regulations from the central government in the metropolitan cooperation for example can decrease the local government likelihood to cooperate. Local governments are usually not preferred if their behaviours intervene and the regulations from central government in some extent can intervene local governments. Therefore, the degree of coercion and incentives applied should be carefully thought and implement.

Finally, leadership or policy entrepreneurship can much influence, either supporting or hindering the cooperation. Leaders have the power to intervene the governments' behaviour and decisions. Therefore, their preferences or visions become important in the metropolitan region since they can have substantial influence on creating opportunities for collaboration. Nevertheless, they can also reduce the opportunities in a case they do not agree or support with the proposed cooperation. The leaders' preferences themselves come from a personal gain which is pretty much influenced by power, prestige and policy pressure (Post, 2004). Therefore, the challenge in policy entrepreneurship lies on how to develop support from leaders or policy entrepreneurship in relation to build cooperation in the region.

In sum, it can be inferred that collaboration among institutions plays a significant role in supporting the integration of watershed management. Within metropolitan regions, where various governments with different interest involved, conflicts often happen and they can hinder the cooperation within the region. Therefore, identifying both positive and negative factors which can influence the cooperation is essential since it can help understand the difficulties of the metropolitan governance and may result in possible lessons to improve integrated watershed management in metropolitan areas.

## **2.8 Conclusion : The Conceptual Model**

This section has provided a concept and perspective on the key aspects of integrated watershed management including mechanism of coordination to support the management process. In this section a conceptual model is constructed from this review, seen on figure 2.4 bellow.

Water and urban development has a complex relationship such a cycle system which changes on one side but can interplay the other side. With regards to this relation, an integrated management of water in urban areas is needed. The notion of watershed is introduced to provide an integrated management approach from upstream to downstream. The key difference of watershed concept with the other integrated water management is on the scale and scope of unit analysis. It is a single unit of river whose width is determined by the hydrologic system. Hence, watershed has a smaller scope of analysis compared to the river basin approach.

Integrated watershed management provides an enhanced approach for water management. Integration and balance in social, economy, hydrology and ecology are the key concepts of watershed management and define the strength of the management approach. Applying the notion of watershed can provide integrated policy in water since it considers other elements including physical or spatial aspects.

Relying on the spatial hydrologic boundary, land use becomes one crucial element in watershed planning. Integration between land use and watershed is then crucial in order to support the management approach. In attempts to manage the integration, there are some challenges in land use planning that should be considered such as fragmentation and land use change. Fragmentation at this context does not only occur between watershed and land use planning but also within land use planning. Especially for vertical fragmentation in land use planning, the conflict appears as a result of various and multi-level institutions including regional and local institutions involved in land use planning. Those various and multi-level institutions then hinder coordination among them.

Within this complex condition, the metropolitan governance concept is suggested to help illuminate and understand or even provide suitable conditions in the multi-level decision making. As it is discussed already, a metropolitan region has unique characteristics concerning its wide territory covered, the number and variety of governments involved either local or national in scale, the complexity of function, and the outmoded legal and institutional structures currently in use in urban governance. With regards to these different characteristics, the metropolitan region needs an adaptive and well-networked governance. This type of governance can then strengthen the coordination or even bridge the boundaries within institutions, thus contributing to developing an integrated policy of land use planning and watershed management.

In strengthening the collaboration in a metropolitan region, there are some factors that are very likely to be influential in that they may be either hindering or supporting the collaboration of governments in the metropolitan region. Hindering factors of collaboration in the metropolitan region are the number of involved actors and heterogeneity of institutions, boundaries and gaps in institutions, high transaction costs, political pressure and power, and less awareness of governments. Whilst, the contributing factors of collaboration in the metropolitan region are common policy goals and preferences, amount of benefit, geographic proximity, political incentives, and leadership or political entrepreneurship. Those factors should be specifically considered in land

use planning in order to identify the major failures in the current spatial planning scheme that contributes to fragmentation. In addition to understanding these failures, strategies to improve coordination and collaboration among institutions can be provided as the main objective of this research.

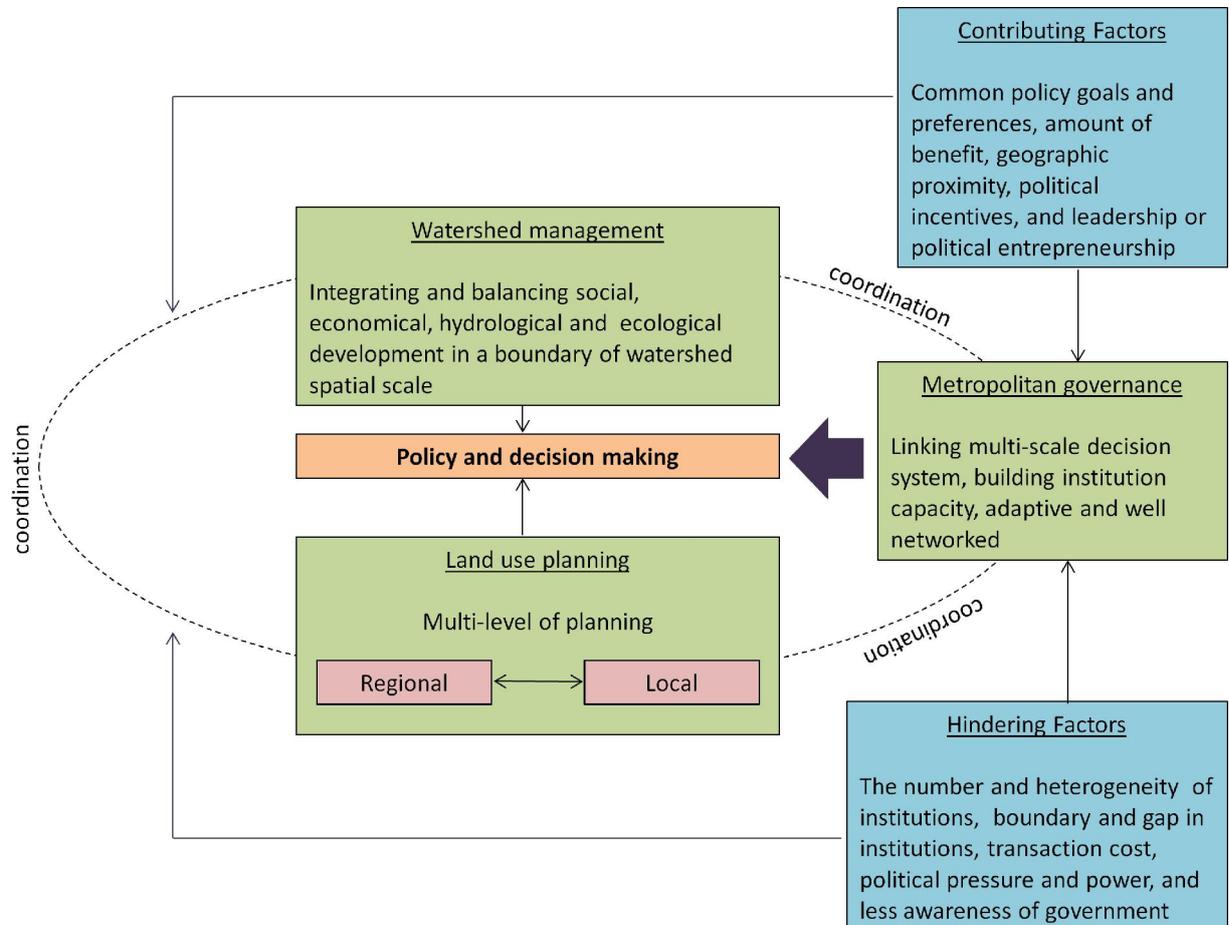


Figure 2.4 Conceptual Model of Research

Further, from the theoretical review a full concept and perspective of integrated watershed management including mechanism of coordination to support the management process can be obtained. This concept and perspective will then be applied as the basis of framework in the analysis of the case study that will be conducted and explained on the next chapter of this research.

### **3. Planning in Indonesia**

#### **3.1 Introduction**

The framework of planning in Indonesia will be discussed in this chapter to gain insight into the specific characteristic and the process of planning in urban and regional development in Indonesia. Understanding Indonesia planning mechanisms is particularly needed to give a contextual analysis of the case study. It will be focusing on water and spatial planning and how they correlation within the current governance system in Indonesia. Decentralization will be firstly discussed since the implementation of this governance system influences the current urban and regional planning practice in Indonesia. Subsequently, spatial and water planning are described addressing the essential and major characteristic of them. Then, the linkage of spatial and water planning is explained that highlights the way to integrated them. Finally, coordination is discussed as an effort to support the linkage of spatial and water planning.

#### **3.2 Decentralized Governance in Indonesia**

A shift from a centralist to decentralist governance in Indonesia has brought some consequences particularly in decision making system (Firman, 2002). Through the enactment of the Decentralization Law No. 22/1999 and 25/1999 which is later replaced by Law No. 32/2004, the governance system in Indonesia became more localized and less hierarchical (Miharja, 2009). Accordingly, it gives greater power to local government to manage their administrative in various internal affairs. Aside, the responsibilities of central government are then limited only in foreign affairs, defense, security, judicial, monetary and fiscal and religious affairs (The division of obligated functions between central, provincial and local governments under the Decentralization law is provided in the table 3.1). The decentralization has significantly changed power of allocation and removing the hierarchy between center, provincial and district/municipal governments.

The type of decentralization that is implemented in Indonesia is known as devolution which focuses to strengthen local unit of governments by decentralizing some authorities for them (Miharja, 2010). The ambition is that by allocating more authorities to local government, the dependency of local government to central government will significantly decrease (Grindle, 2007). However, the role of central government in this context will not tend to be abated although some degree of their responsibilities and authorities are transferred. Instead, the decentralization can bridge the gap between central government and people in the development including provincial and municipal governments, local councils and local community (Firman, 2010). In addition, the decentralization can increase the effectiveness of the development since local governments and communities are involved in the decision making process thus the policy resulted will be more accordance with local issues and needs.

In applying the decentralization, the previous centralistic planning in Indonesia that was dominated by central government is not considered in line with the shifting authorities in the governance system. Thereby, the responsibility of managing and planning of urban and regional development

shifts to local government. With this change, the activities of planning are then conducted at local level that aims to provide a suitable plan to deal with local needs and challenges (Firman, 2002). This can bring advantages for community since they can participate during the process of planning as the result of the implementation of planning in local level.

*Tabel 3.1 Division of Obligated Functions of Central, Province and Local Governments under Law No.32/2004 (Article 10, 13 and 14)*

Central	Province (de-concentration)**	Local (devolution)
1. Foreign affairs 2. Defense 3. Security 4. Judicial 5. Monetary and fiscal 6. Religious affairs	1. Planning and development control 2. Planning, implementation and monitoring of spatial plan 3. Maintaining public order 4. Public service provision 5. Health care 6. Education and human resource allocation 7. Alleviation of regional* social issues 8. Regional manpower service 9. Facilitating cooperatives, small and medium businesses development, including regional 10. Environmental management 11. Land administration, including regional 12. Civil services (registration) 13. Administration of public affairs 14. Administration of investment, including regional 15. Basic services that local government unable to carry out 16. Other affairs as stipulated by this Law	1. Planning and development control 2. Planning, implementation and monitoring spatial plan 3. Maintaining public order 4. Public service provision 5. Health care 6. Education 7. Alleviation of social issues 8. Manpower service 9. Facilitating cooperatives, small and medium businesses development 10. Environmental management 11. Land administration 12. Civil services (registration) 13. Administration of public affairs 14. Administration of investment 15. Other basic services and other affairs as stipulated by this Law

*\*'regional' is cross-districts/municipalities*

*\*\*except for Jakarta, as Special Capital Region it is governed by special Law*

*Source : Salim, 2010*

Meanwhile, there are also disadvantages effects from the decentralization in terms of urban and regional development. The autonomy of local government to manage their administrative also can threaten the effectiveness and efficiency management of local resources. As addressed by Firman (2002), many local governments are in euphoria in claiming their resources with less consideration of public good. Therefore, the development and management of local resources has unclear purpose and very often not conducted for improving public services. The case of infrastructure development can be an example to explain this unclear vision of local governments in managing their local resources. Recently, many local governments have tried to build major infrastructure such as

international airport and seaport as part of competition with other administratives. As a result, many international airports and seaports are nearby developed. In spite of this, the investments became inefficient since their operations are less optimal due to the imminence within each others. In short, such unclear vision from local governments can decrease the effectiveness and efficiency management of local resources that can influence the implementation of decentralization.

Furthermore, the implementation of decentralization in Indonesia is considered not as ideal as it was planned. Some difficulties are found particularly on the coordination among local governments in dealing with cross boundary issues (Miharja, 2010). As local governments have greater authorities to manage their administrative, they can freely decide what programs or policy will they applied. It then triggers policy fragmentation mainly for areas which is neighbored. In metropolitan regions for example, the issue of coordination among governments is very often occurred as the consequences of the autonomy of local governments. The lack of regional vision and individual interest from governments are primary causes that worsen this fragmentation (Firman, 2002). It then decreases the effectiveness and efficiency of planning in urban development.

Following the influence of decentralization, the challenge in urban development now dependson the development of institutions or systems in such will overcome the disadvantages of autonomy in the development. Especially in planning system, some adjustments have been made regarding to the implementation of the decentralization process.

### **3.3 Spatial Planning in Decentralized Governance**

After the decentralization is officially implemented in 1999, some adjustments are made including in spatial planning. The most explicit example is the enactment of new spatial Law No. 26 Year 2007 on spatial management. This new spatial Law replaced the previous Law No. 29/1992 which was considered no longer appropriate with the new policies on decentralization and regional athonomy. In this new spatial Law, some new regulations and norms are added such as coordination in trans-boundary spatial planning, incentive and disincentive. Both coordination and incentive and disincentive aim to manage the integration of spatial planning. Particularly for incentives and disincentives, these new mechanisms can encourage local governments to collaborate and integrate their spatial plan in order to obtain any incentives from their planning activites.

According to the spatial Law (Law No. 26/2007), the spatial planning is conducted to develop a safe, pleasant, productive, and sustainable space. In other words, the objective of spatial planning is to develop a harmonize environment between the nature and the artificial, an integrated management of natural and non-natural resources, a protection of space, and a prevention to the negative consequences from spatial utilization. Concerning this objective, there are some principles that should be accomplished in doing the spatial planning which are integrity, harmony, sustainability, effectiveness, efficiency, compatibility, openness, equality, justice, and legal protection.

Looking in detail to the spatial planning, the substance of spatial plan regulated by the Law consists of spatial structure and spatial pattern plan (Salim, 2010). The spatial structure plan focuses on the system of settlement and system of infrastructure while the spatial pattern plan manages spatial

function between conservation and cultivation. Managing the spatial pattern aims to balance the conservation and cultivation in regards to achieve liveable space (URDI, 2010).

From the classification of spatial planning, the land use plan then can be grouped into two major categories i.e : general plan and detail plan. General plan is formulated with administration approach that contains the spatial structure and pattern plan. This general plan is then operationalized into the detail plan which is formulated based on strategic value and activities in the area. The substance of the detail plan is more specific and the level of planning tends to be more precise compared to the general plan. Hence, the detail spatial plan can be used as a basis for the determination of zoning regulation.

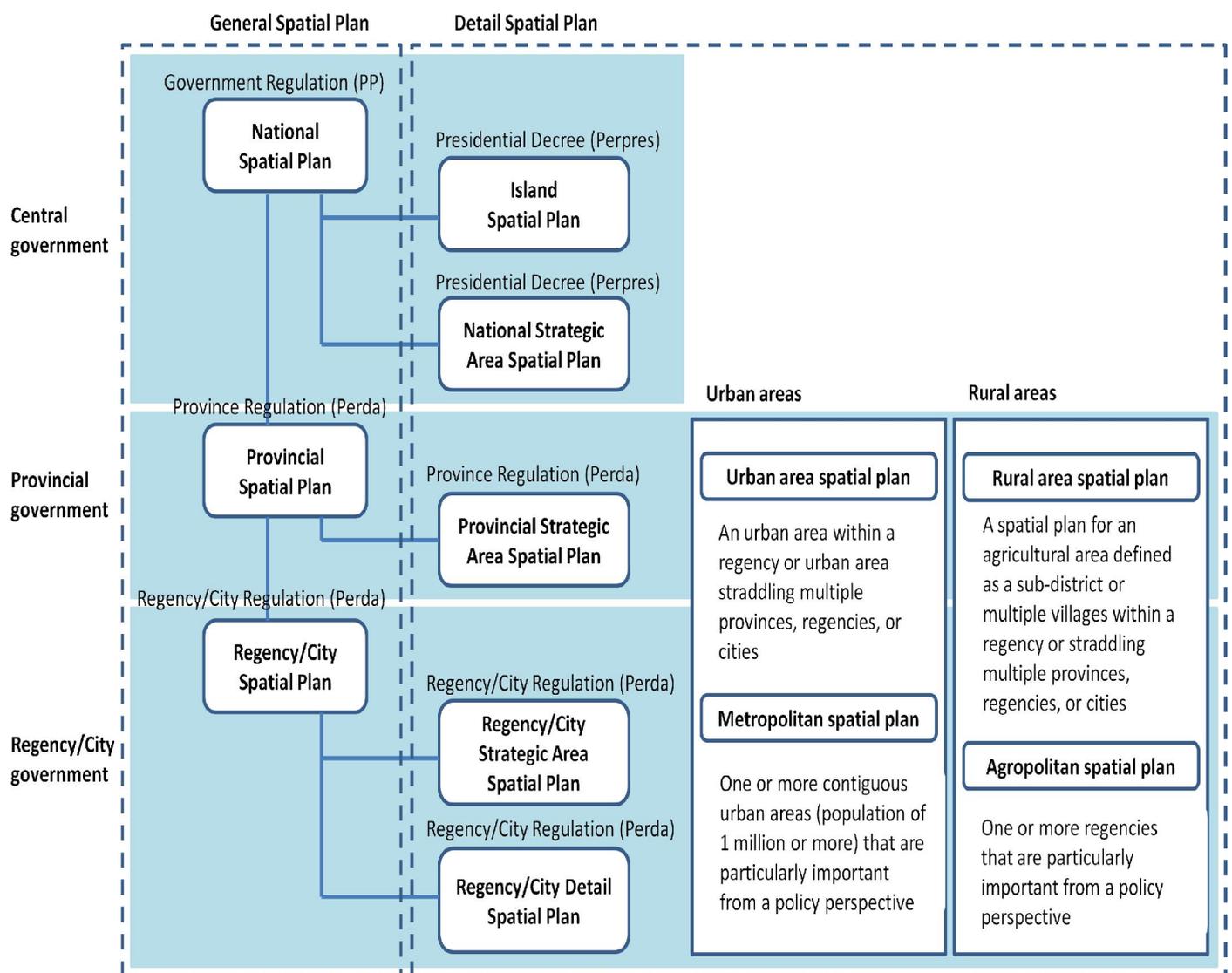


Figure 3.1 The Classification of Spatial Plan (Source : Law No. 26/2007)

According to the spatial planning law, there is a hierarchy in spatial plan. This hierarchy is in line with the autonomy of local government as the result of the decentralization. In particular for local governments, which are Provincial and Municipal government, the spatial planning Law stipulates

explicitly the authorities of them in spatial planning. This aspect is important to consider in this research since it can explain the scope of responsibilities each level of governments. In accordance with the allocation of authorities and responsibilities in governments, the hierarchy in spatial planning according to the spatial Law are classified as follow:

- National level: National Spatial Plan (RTRW Nasional); Island Spatial Plan (RTRW Pulau); and National Strategic Area Spatial Plan (RTRWN Kawasan Strategis Nasional).
- Provincial level: Province Spatial Plan (RTRW Provinsi); and Provincial Strategic Zone Spatial Plan (RTRW Kawasan Strategis Provinsi).
- Regency/city level: Regency/City Spatial Plan (RTRW Kabupaten/Kota); Regency/City Detail Spatial Plan (RDTR Kabupaten/Kota); and Local Strategic Zone Spatial Plan (RTRW Kawasan Strategis Daerah).

Although there are many kinds of spatial plans, the integration among those plans is highlighted and becomes the main concern in the spatial Law. In particular for achieving the objective of spatial planning, harmonization and integration within the spatial plans is the critical point in the implementation of spatial planning scheme. Due to this concern, coordination and communication within all government levels is emphasized in the Law that is operationalized by the enactment of Government Regulation (PP) No. 50 of 2007 on inter-regional cooperation and Minister of Home Affairs Regulation (Permendagri) No. 69 of 2007 on Urban Development Cooperation.

In relation to coordination, metropolitan and megapolitan spatial plans are developed as part of a coordination tool for regional development in terms of spatial management. Concerning this inter-regional concept, the authority to manage the urban spatial management in cross-municipality is transferred to provincial government while the urban spatial management in cross-province is conducted by an appointed Minister (Salim, 2010). In regards to those circumstances, the development of metropolitan spatial plan can support the effort of integration in spatial management.

To be able to implement local spatial plans, the local spatial plans are enacted into local regulation. This legalization process involves many governments including central, provincial, local government and legislative. During the legalization phase, there are several discussions including discussion of inter-department in national level and discussion between executive and legislative (DPRD) in local level. However, the aspect that should be concerned in this legalization process scheme is the tight supervision from central government during the local spatial plan formulation. There are several phases that have to be accomplished by local spatial government in order to obtain a recommendation letter (see appendix 3). In the context of this study, this is an essential aspect since integration among spatial planning documents and integration of spatial plan with other sectoral plans also will be assessed in this phase.

- a. First, discussion at local level. Discussion at local with their neighbour governments and Local Spatial Planning Coordination Board (BKPRD) is the first phase of the supervision process. The output of this discussion is a recommendation letter from their neighbour governments and BKPRD. These recommendations aim to ensure that the spatial plan is integrated already with

its neighbour plan and other local sectoral plans. Public hearing is also conducted in this phase of supervision.

- b. Second, supervision in province. Specifically for municipal spatial plans, after obtaining recommendation letter from BKPRD and neighbours, they required to get a recommendation letter from governor to explain that the municipal plan is not conflicted with provincial spatial plan. Several discussion activities are then conducted by local government to obtain these letters.
- c. Third, supervision at national level. This substantial approval is assisted by Ministry of Public Work and National Spatial Planning Coordination Board (BKPRN). This national integration assessment is the last process of substantial approval of local spatial plan. Concerning this substantial approval scheme, it is expected that every spatial planning which already gets approval is already integrated not only with other spatial plans but also with other sectoral plans.

Although the approval scheme sounds as such an ideal process, there are still some problems found in regards to the hierarchical process. This substantial approval process can take time and is therefore inhibiting the process of legalizing the draft of spatial plan (URDI, 2010). As the consequence, many local spatial plans cannot meet the deadline of the arrangement of spatial plan in two years as it is mandated by the new spatial law. The effectiveness of this planning scheme can therefore be questioned in terms of the duration of the spatial planning formulation and the result of the spatial plan. Hence, further research and study is needed to examine the effectiveness of this current planning scheme.

### **3.3 Planning and Managing Water**

Decentralization not only brings implication in changing the spatial planning scheme, but also in the management of water in Indonesia. The previous water Law No. 11 of 1974 on irrigation has been replaced by the new Law No. 7 of 2004 on water resource as the result of the implementation of decentralization. It has changed the water management scheme which was seen as too structural or engineering based and centralistic, to more participative and integrated currently. From the Law, it can be learned that integration in water management has become a concern in this new management scheme of water. The terms of integration in water management indeed also becomes the tension in this study. Thus, the principal of integration in water management from the regulation will be applied and elaborated with the theoretical framework in chapter 2.

As a common and essential resource, water is managed and handled by government so that the benefit of water is equally received by people. Regulated in Law No.7 of 2004 on water resources, the management of water is conducted in coherent, integrated, sustainable and more open approach. Primarily for surface water, the river basin approach is applied highlighting the integration of upstream and downstream areas. As it is already explained, there is a close correlation between upstream and downstream; activities on the upstream can bring consequence either positive or negative in the downstream areas. It is therefore important to apply an integrated management approach of water that considers the linkage between upstream and downstream areas.

Although the management of surface water in Indonesia applies river basin approach, the term of watershed is still considered relevant here since watershed is the smallest unit of river basin. The difference between river basin and watershed approach is only found minor which lies on the unit scale of approach. River basin has much boarder scale compared to watershed thereby usually within a single river basin can consist more than one watershed. Meanwhile, the characteristic of those two approaches are pretty much the same that applies regional framework from upstream to downstream in a way to achieve integration in water management. In addition, the purpose of river basin and watershed approach in water management is also similar which is to achieve sustainable water resources by conducting qualified management approach. In short, it can be said that river basin approach of water management can represent watershed management as well.

The general rule of water management in Law No. 7 of 2004 is more detail explained in Government Regulation No. 42 of 2008 about water resource management. The government regulation not only addresses the river basin approach as the water management scheme but also the integration with current water policies either at national level or local (provincial and municipal) level. This integration with current policies is needed since the strategies and operational policies in water management have to be elaborated in the development plan and land use plan to become productive. In addition, the scope of river basin which follows hydrologic system instead of administrative will bring consequences to the management since it crosses administrative boundaries. Therefore, reviewing and adopting the current policies including spatial planning policies at all level can help to prevent fragmentation in water management.

Furthermore, to develop qualified and integrated water management scheme, the five missions should be concerned and elaborated in water management plan. This water plan is in fact served as a guideline in doing the conservation, utilization and control from the destructive force of water. It contains the objective and basic consideration of water management, future scenario of basin management, strategies and operational policies of water management. It is a strategic plan in water management that the policies in this plan can be an essential element to support the development, or even as an input to reassess the spatial planning.

The development of water plan should follow the technical guideline which is issued by Ministry of Public Work on a Regulation No. 22 of 2009. According to the regulation, the arrangement and development of water plan is conducted by coordination teams or bodies for water management (TKPSDA) that is assisted by government institutions or technical implementation units in each river basin areas. There are several consultations either with public and government institutions during the process of arrangement of the plan that aim to ensure the transparency of the planning process and participation of public (Figure 3.2).

From the figure 3.2, it can be learned that there are three phases in developing a water plan: preparation, formulation and legalization. Legalization of the plan is important in particular to support the implementation of the plan. With strong legal support, the water plan can be implemented or vice versa. In addition, the water plan's legal status also reflects the position of the plan within the other planning documents and general planning scheme. The legalization process of water plan will not take long times as long as the substance of the plan is agreed by all stakeholders during the public consultation (Appendix 3). Therefore, the crucial phase of the plan formulation is on the public consultation. After the plan is agreed and approved by the related stakeholders,

TKPSDA will then bring the result to the head of administrative either municipal or province to be legalized.

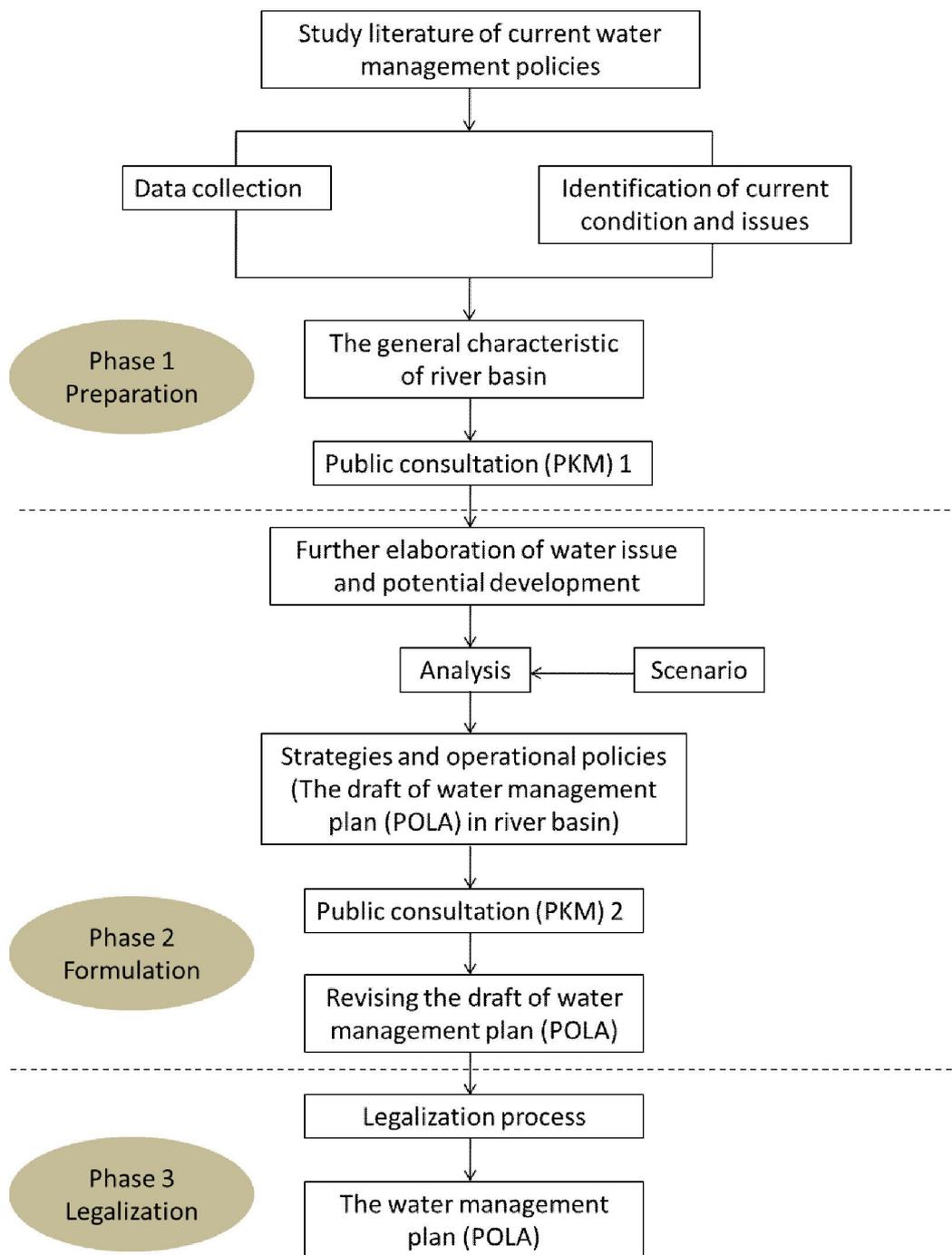


Figure 3.2 The Planning Process of Water Management Plan (Source : Ministry of Public Work Regulation No. 22 of 2009)

### 3.4 Linking Spatial and Water

Land use and water are two elements that closely correlate to each other. Therefore any change from one of them can bring consequences to the other. In regards to this circumstance, integrating those two elements becomes essential especially in the macro level of planning. Since the water management is conducted across administrative, the integration with spatial plan is then conducted at regional level which is with regional spatial plans as well. It will result robust policies as well as the implementation of the plan. Nevertheless, the current planning system distinguishes spatial and water planning in different schemes as illustrated by different regulations and stakeholders involved. Land use planning for example has different planning scheme with its own timeframe and actors compared to the water planning scheme. This can trigger a fragmentation between those two aspects.

To get insight in the risk of fragmentation, an understanding of the relation between water plans and spatial plans is essential. This relation explains the power of both plans and their position in general planning scheme. According to the national development planning system (Law No. 25/2004), water plan is concluded as a sectoral masterplan and therefore the development of the plan should be accordance with the spatial plan. Additionally, the substance of water plan has to include the policies in spatial plan especially for water related issues. Those policies then will be described and planned in more detail within the water plan to provide more technical water planning. In regard to the regulation, water plan can be positioned as a detail explanation of water management from spatial plan. The position and relation of water plan and spatial plan is visualized in figure 3.3.

Further, as it is addressed in the water law policies in water plan can be used to complement and support the quality of spatial plan. As such the water plan provides input mainly when the spatial plan is formulated. Therefore, water plan becomes one of sectoral plan that should be reviewed and coordinated during the formulation process of spatial planning. These two ways of review either adoption of spatial plan policies into water plan or coordination of water plan policies into the spatial plan can some extend provide more integration of those plans.

To support the integration of those planning schemes, institutions play significant role. To some extent they are supportive in some conditions, but on the other hand, they also can hinder the integration of those two plans. Thereby, during the planning process either in spatial or water planning, a coordination board is established to accommodate the stakeholders from the other aspect. In developing spatial plan, this coordination board is called National spatial planning coordination board or '*badan koordinasi perencanaan ruang nasional*' (BKPRN) at national level and Local spatial planning coordination board or '*badan koordinasi perencanaan ruang daerah*' (BKPRD) at local level. Meanwhile, water planning also has a coordination board at the national level called as National water council board (Dewan SDA Nasional), at each river basin called River basin water council or '*Tim Koordinasi Pengelolaan Sumber Daya Air*' (TKPSDA) and in each administrative called local water council board (Dewan SDA Provinsi/Kab/Kota). The member of these coordination board are all stakeholders who has interrelatedness either with spatial or water plan. They are encouraged to participate on the planning process by giving inputs from their policy perspective in regards to the

substance of the plan. Hence, it helps to overcome fragmentation and can result in more integrated planning.

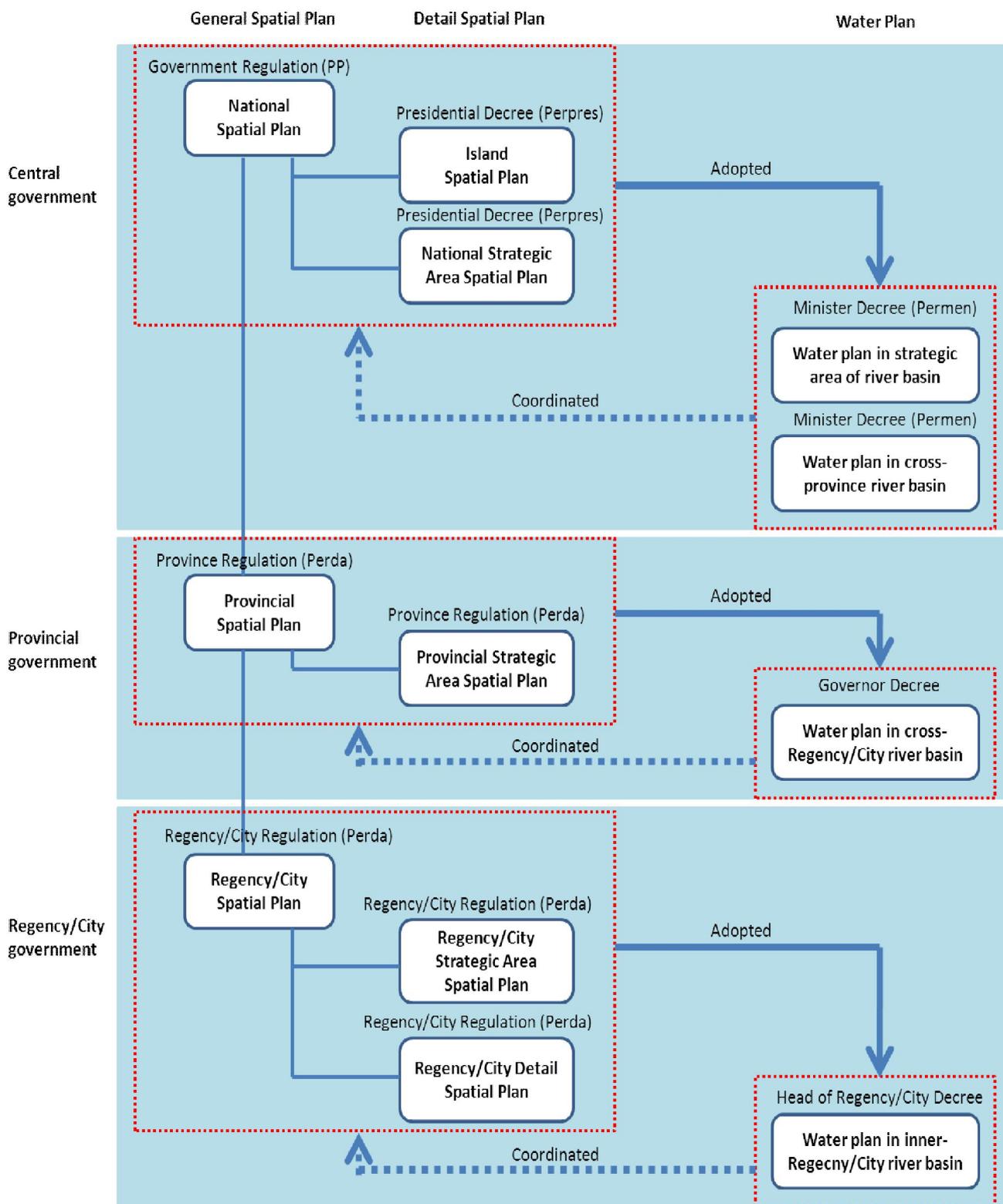


Figure 3.3 Position Water Plan in Spatial Planning Scheme (Source : Law No. 26/2007 and Ministry of Public Work Regulation No. 22 of 2009)

### Spatial planning coordination board

As already explained, at the national level, a coordination board for spatial planning is established that is called BKPRN. This coordination board is enacted in Presidential Decree No. 4/2009 on National Spatial Planning Coordination Board that aims to manage the issue of integration in spatial planning. As spatial planning and management is considered as a sensitive issue with regards to its interrelatedness with other aspects and sectors, the need for an intensive coordination raises thus serves as the basis consideration for establishing this board. Due to this coordination need, the main task of BKPRN will be then as followed :

- a. To coordinate the preparation of national spatial management policy;
- b. To manage the implementation of an integrated National Spatial Plan for the basis of national and regional spatial management policy that is implemented through sectoral and regional development program;
- c. To provide solutions for strategic issues and conflicts that are resulted from national and local spatial planning activities;
- d. To prepare laws and regulations pertinent to spatial management including the standards and criteria;
- e. To synchronize the regulations which relevant to spatial management;
- f. To synchronize the land uses and natural resource management in spatial plans;
- g. To facilitate inter-provincial spatial management cooperation;
- h. To facilitate International cooperation in spatial management;
- i. To synchronize the substance of spatial plans concerning to the existing laws and regulations;
- j. To develop a capacity building for national and local institutions in spatial management administration.

The members of BKPRN are cross sector in order to provide integration of spatial planning with other sectors (Appendix 4). To support the technical activities of this board, implementation unit of spatial management is then established that is chaired by Minister of Public Work. This implementation unit is responsible to support more technical manner of spatial management and planning including assisting local government on the formulation of spatial plan. At the local level, a coordination board for spatial planning and management also available which is called BKPRD. This local coordination board is formed within the Minister of Home Affairs Decree No. 147/ 2004 on Local Spatial Planning Coordination Board. The main task of this local coordination board is similar like BKPRN which conducts coordination for spatial management and planning in the local scale.

### Water planning coordination board

For water planning, a coordination board at national level is called "Dewan SDA Nasional" that is responsible to manage coordination with other sectors. The task and responsibility of the board are explained and regulated in Presidential Regulation No. 12/2008 of water council and the membership of the board is regulated on Presidential Decree No. 6/2009. The members of Dewan SDA Nasional are cross sector in relation to the characteristic of water (Appendix 4). To support the task of Dewan SDA Nasional in local level, there is a coordination board called Dewan SDA Provinsi for provincial level and Dewan SDA Kab/Kota for municipal level. There is also coordination board in each river basin that is called TKPSDA. The relationships for all those boards are consultative and coordinative.

From the organization of those coordination boards, it can be viewed that the planning process in both of spatial and water involves multi-stakeholders in addition to the characteristic of those aspects. Through this coordination scheme, the policies in water and spatial plan should be more integrated thus can support the effectiveness of the planning scheme.

However, although the coordination boards for water and spatial planning are established already, some fragmentations are still found in the current practices (URDI, 2010). Fragmentation in spatial planning for example appears as the result of different policy objective from the governments (Firman, 2008). Moreover, Firman *et.al* argues that decentralization plays significant role in triggering this fragmentation. With the full authorities to manage their resources, local governments often neglect their neighbours when developing policies. The coordination board at this context has no power to intervene local governments since the structure of this board only serves as ad-hoc (URDI, 2011). Since the decision maker still relies on local governments, and with the absence of regional consideration in them, the fragmentation in spatial planning are remain occurred.

### **3.5 Conclusion**

The implementation of decentralization has changed governance system in Indonesia from centralistic to be more decentralist thus implies on the planning scheme. The need to change the planning scheme rises both in spatial planning or water planning. Some adjustments have been made with respect to those two aspects through the enactment of the new spatial Law and water Law which are strongly believed in accordance already with the concept of decentralization. Within these new Laws, integration has been highlighted as a crucial point to support the effectiveness of planning implementation. In addition, to manage the integration a coordination board has been established as mandated by the new law in both of the planning schemes. However, the coordination board still has difficulties to handle the integration since the structure of the organization is only ad-hoc. In addition, the current governance system also contributes to hinder the integration both in spatial and water planning with regards to the many institutions involved in the scheme. Hence, some fragmentations in both spatial and water planning are still found.

The euphoria of decentralization has brought the authority in managing resources to local government. This new full authority can trigger fragmentation since most local governments have no regional consideration when they develop their policies. The lack of institution capacity and future vision are two main reasons to explain why local governments only focus to develop their own areas neglecting neighbour areas. Consequently, the implementation of the ideal planning schemes becomes less effective and efficient and the fragmentation remains still occurred.

The more detailed analysis and explanation of the conflict in governance system will be further discussed in the next chapter of this research. Through the application of the case study of Jakarta Metropolitan Region, analysis of the governance conflict will be drawn to give insight of the conflict in metropolitan region.

## **4. Jakarta Metropolitan Region : A Case Study**

### **4.1 Introduction**

In this chapter, the detail analysis of case study, Jakarta Metropolitan Region (JMR), will be discussed. The analysis will be conducted by combining the statistic and other previous researches data about JMR with the information from theoretical framework provided in chapter 2 and the contextual of planning in Indonesia provided in chapter 3. A brief characteristic of JMR will be given to explain its current condition, including land conversion issues and recent flooding management in JMR. The need of managing space as part of flood protection is highlighted in this section. Then, we focus on the Ciliwung watershed area, since it much contributes to flooding issue of JMR. The analysis of Ciliwung watershed will be focussed on how the management is conducted, what are the policies of the management and how do these policies link to JMR spatial plan's policies. Hence, this chapter provides insight in the correlation between water polices and spatial plan policies in JMR.

Aside from the integration between water and spatial plan policies, coordination among government in JMR will be discussed. This coordination in fact can contribute to support the integration process of both those plans. It will focus on coordination board in JMR since the organization plays significant role in facilitating the coordination among governments in the region. Further, as the focus of this research is how to improve spatial plan by building effective coordination among governments in JMR in order to support integrated watershed management, the detail analysis of spatial planning in JMR will be drawn. Through a comparison of regional and local spatial plan documents, the analysis of integration in spatial policies will be conducted. It illuminates whether spatial plans in all level of governments in JMR are linked to support the notion of integrated watershed management. Finally, the perceptions and interpretations of various governmental actors of the various spatial plans and analysis of identification of the significant factors that hinder or support the coordination among government is drawn. Then, the conclusion from analysis will be provided as the final remark of this chapter.

### **4.2 Jakarta Metropolitan Region (JMR) : A Brief of Characteristic**

Located on the North Coast of Java Island, Jakarta Metropolitan Region (JMR) covers an approximate area of 7500 km<sup>2</sup> (Firman, 2004). It consists of three provincial governments which are West Java Province (Provinsi Jawa Barat), Banten Province (Provinsi Banten), and DKI Jakarta Province (Provinsi DKI Jakarta), and nine municipal governments including City of Bogor (Kota Bogor), City of Depok (Kota Depok), City of Bekasi (Kota Bekasi), City of Tangerang (Kota Tangerang), City of Tangerang Selatan (Kota Tangerang Selatan), Regency of Bekasi (Kabupaten Bekasi), Regency of Tangerang (Kabupaten Tangerang), Regency of Bogor (Kabupaten Bogor), and Regency of Cianjur (Kabupaten Cianjur). With DKI Jakarta Province as the core city of the metropolitan, JMR grows rapidly and successfully triggers economic activities to its neighbour. It can be seen through the contribution of JMR to national Gross Domestic Product (GDP) that reached 25% at present (Firman, 2009). This in turn attracts migration that leads to tremendous population growth in the region. During the period of 1990-2000 the population growth of JMR was 2.21% and increased to 2.92% in the period of

2000-2008 (see appendix 5). Apparently, JMR's population growth is determined higher than the national population growth that was only 1.41% in 2000-2008 and 1.77% in 2000-2008. Thereby, it has brought JMR as the largest concentration of economic activities and population in Indonesia (Firman, 2004).

The rapid growth of JMR brings consequence mainly in physical and environmental condition of the region. The high concentration of economic activities and population implies on the increasing demand of space. Additionally, it triggers conversion of land use from open space to build-up areas (Dharmapatni et.al, 1995). Land conversion for urban activities as the result of the rapid development is considered as a common practice in metropolitan region that not only happens in Indonesia but also in other places (Douglas, 1995; Mcgee, 1995; Firman, 2009). Specifically in Indonesia, the land conversion is very often conducted by private developers aiming to generate as much as possible rent (Firman, 2009). Additionally, the weakness system of land permit becomes another factor accelerating this land conversion. Due to these factors, the practice of land conversion in Indonesian cities can hardly be managed, resulting in a lost of agricultural area, investment in irrigation infrastructure and the influx of population into fringe areas from urban areas (Firman, 2009).

In case of JMR, the development of new towns, business and condominium, entertainments, toll road and industrial estates are five major reasons that trigger land conversion (Dharmapatni, 1995; Firman, 2009). For those purposes, the average growth of built-up areas from 1992 to 2005 in JMR reaches 7.76% per year (see appendix 5). On the contrary, open space in JMR reduces significantly from 492,832.33 ha in 1992 to 412,368.19 ha in 2005 as the consequence of increasing urban activities in the region.

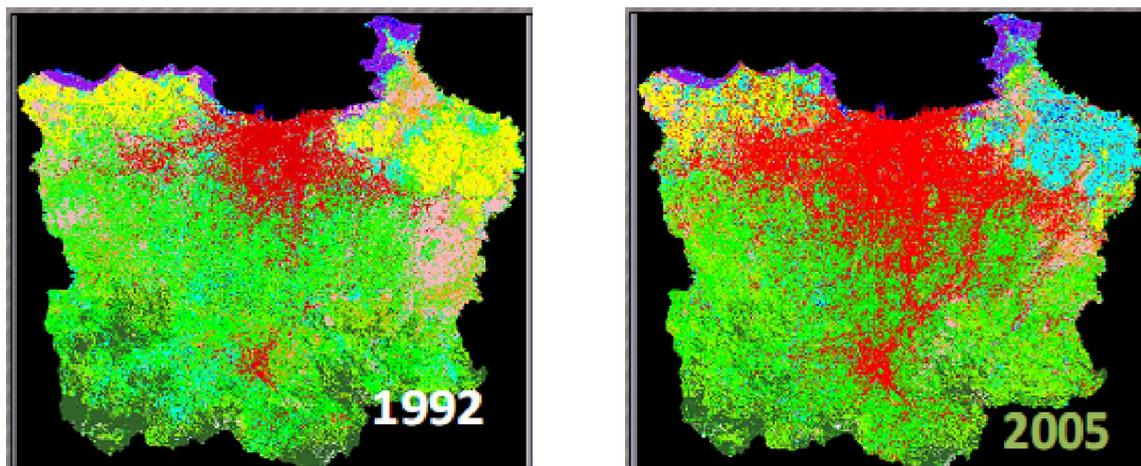


Figure 4.1 Urban Growth in JMR (Source : RTRW DKI Jakarta, 2030)

Notably in the periphery area, where the retention area takes place, the conversion of land use occurs faster than in the core area of JMR. Kabupaten Bogor for instance has 15.04% of land conversion rate of growth per year. This percentage is even much higher compared to the growth rate of land conversion in DKI Jakarta that is only 2.37% per year. As a result, problems such as traffic

congestion, air pollution, inadequate water resource and flooding are then found in this metropolitan (Dharmapatni, 1995; Firman, 2009).



Figure 4.2 Flooding in DKI Jakarta (a) in 2002; (b) in 2007 (source : <http://news.bbc.co.uk>)

No	YEAR	FLOODED AREA (Ha)
1	1978	5,723.39
2	2002	5,870.83
3	2005	2,854.42
4	2007	23,428.22

Source : Sriharto, et.al, 2010

Effective flood protection at this context does not only solely lay on the structural measurement that has been applied recently (Texier, 1998). Instead, it needs more integrated and comprehensive approach by linking the structural with non-structural measurement<sup>1</sup> (Pudyastuti, 2008). The need for implementing and integrating structural and non-structural measure in flood management tends

<sup>1</sup> Structural measurement in flood protection is strategies in construction project such as seawalls, levees, channels, and revetments that aims to secure human settlement from flooding issue (Thampapillai and Musgrave, 1985; Brody et.al, 2009). This measurement usually has a typical characteristic of large financial investment, long time-frames, and significant impacts to the environment. On the contrary, non-structural measurement is non-engineering strategies for flood protection such as, land-use planning tools, education and training, environmentally sensitive area protection, forecasting, and other emergency and recovery policies for mitigating and adapting flood loss (Thampapillai and Musgrave, 1985; Brody et.al, 2009). These measurements have contrast characteristic with structural measurement such as low cost of financial investment, ranging timeframe from short to long time, and no significant impact to environment.

to increase due to the rapid environmental degradation that is caused by economic activities in JMR. In fact, deforestation in the retention areas is a factor that causes flooding in the region (Steinberg, 2007). Therefore, managing spatial planning as part of non-structural measure can contribute to provide effective flood management in the region (Salim, 2011; Iglesias, 2009).

In apply spatial planning in flood management, the strategies and polices of spatial plan have to be linked with water plan. The need of integration between spatial planning and water planning here increases in a way to improve the flood protection effort. To strengthen the integration, both regulations have addressed the important of integration and even have been started by national government by providing coordination mechanism in each of the planning process. Both spatial planning and water management have a coordination body that consists of various institutions from different sectors. As explained in chapter 3, these coordination bodies aim to bridge the gap of communication among institutions thus can strengthen the coordination among them. However, the problem of coordination does not occur on the different planning process of spatial and water management. Instead, the conflict among government actors in JMR is considered as the prime issue thus hinders the integration effort (Arief, 2010).

As explained by Arief (2010), different interest among JMR's governments, in particular for vision and mission in watershed development is the main factor that causes land conflict in upstream and downstream. Government of Kabupaten Bogor for example has more economic preference in developing their area rather than awareness of conservation (Arief, 2010). This in turn gives significant impact to the region since Kabupaten Bogor is located in the upstream. According to Agarwal (1999) and Lundqvist (2000), upstream areas should be developed and managed as retention in order to maintain the ecological function of the watershed. In contrast, the upstream areas of JMR in fact have the more significant land conversion due to the influence of urban activities in the downstream. This rapid land conversion thus has brought negative consequence to downstream that can be seen from the massive flooding in DKI Jakarta.

The preference of economy motivation in government of JMR appears as the result of decentralization process in Indonesia. After the decentralization has officially implemented, local governments in general are encouraged to optimizing their resource development in relation to increase their own income (pendapatan asli daerah) (Firman, 2010). Exploitation of local resources and physical assets often happens without any consideration of integration with other areas or regional development. Instead of preserving their areas for environmental purposed, local governments prefer to develop their areas for commercial or residential as it contributes to generate a potential income. This perspective of development in short explains why the phenomenon of mushrooming of land conversion in JMR occurred. With regards to this condition, managing coordination among governments in JMR is essential in order to support the integration of land use as part of flood protection measurement. Further discussion of coordination among governments in JMR will be provided in next section.

#### **4.3 Water Plan in Ciliwung Watershed : a strategic basin in the national strategic area**

As rapid conversion of land use occurs, the physical condition of the JMR has dramatically changed and so has the water system. With 537 km<sup>2</sup> wide of catchment area, environmental degradation is

also found in the Ciliwung watershed which is one of three basins in the metropolitan of Jakarta. The critical condition of the environment in the watershed has served as the basis decision of Ministry of Environment to prioritize the management of Ciliwung at national policy. As addressed in State of Environmental Report of Indonesia (Status Lingkungan Hidup Indonesia) 2009, Ciliwung watershed is one of 13 river basins in total in Indonesia that are degraded already as the result of the extensive conversion of land use, population growth and less awareness of community. In concern to this degradation, the rehabilitation of watershed becomes the priority of the regional development in JMR. This is accordance with the status of JMR as national strategic area and emphasizes that the development of the region can influence either positively or negatively in national level.

In restoring the Ciliwung watershed, integrated watershed management is applied. Integration at this context not only covers balance between upstream and downstream but also with other sectors including spatial planning (Heathcote, 1998; Qi, et.al, 2011). Land use planning can be used to accommodating as well as balancing the watershed elements such as social, economy, ecology (Qi et.al, 2011). In spatial planning, identification of characteristic of the planning area especially on social, economy and ecology is conducted to get insight of the current condition and problem of the region. This basis information in spatial planning can be used to enrich the information in water plan so that it will not limited to the hydrology characteristic in watershed. In accordance with this concept, the planning area of JMR in water plan is distinguished into three zones (Figure 4.2). Each of zones represents the different characteristic of the areas based on the hydrologic system as well as the social and economy condition. This boundary of zones is applied in advance on the formulation of policies and strategies in water plan. Those planning zones of Ciliwung watershed is divided as follows:

- Upstream

The area which is located in the upstream of the basin functions for water infiltration. The development for this area is strictly controlled and limited for environmental preservation. Kabupaten Bogor and Kota Bogor are two municipals that include in this zone of basin. However, the area of Kota Bogor that is classified into this zone considers only a few while for Kabupaten Bogor almost most its area is categorized in this zone.

- Middle stream

Located in between the upstream and downstream, it functions as buffer for the high density in the downstream so that it will not influence the ecological characteristic of the upstream. The characteristic area of this middle stream is a potential growing to urban activities, therefore, the management is strictly conducted to protect the agriculture or ecological characteristic. The municipals that include in this zone are Half of Kabupaten Bogor, Most area of Kota Bogor, Kota Depok and the border area of DKI Jakarta.

- Downstream

The high density of urban activities is the characteristic of this watershed zone. With almost 100% of built up areas, this zone is very vulnerable to any damaging forces of water. Therefore, the management of this area is to reduce the impact in this zone. DKI Jakarta locates in this zone of development.

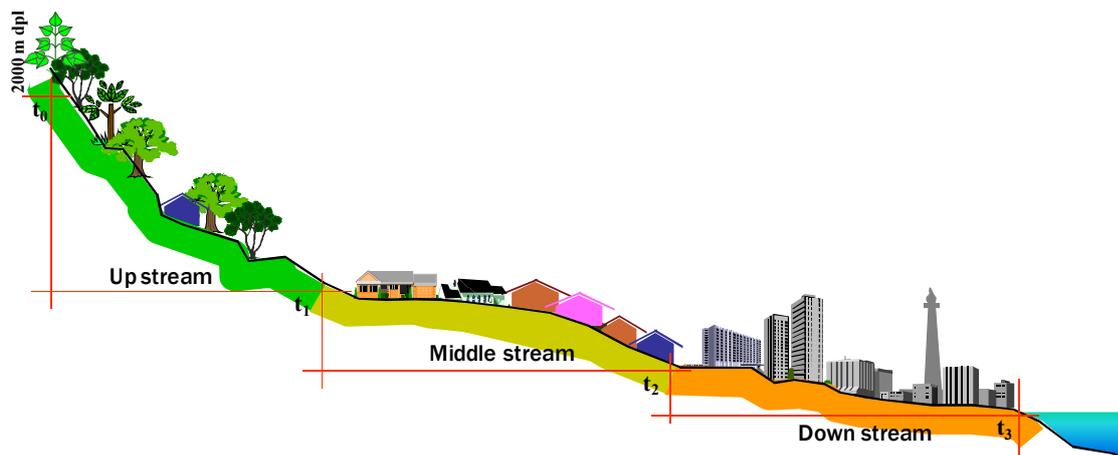


Figure 4.3 The Classification of Ciliwung Watershed Zone (Source : Ministry of Public Work, 2011)

Applying the segmentation of Ciliwung watershed, the identification of urban activities and structure and also its linkage to watershed system is conducted to get insight to the characteristic of this urban watershed. This identification serves as the basis information for the development of future policies and strategies in Ciliwung watershed. The policies of urban activities and structures in JMR here are based on the current regional spatial plan of JMR (Perpres No. 54 of 2008) that later will be elaborated with water plan of Ciliwung watershed. The identification of linkage between watershed system and urban activities in Ciliwung in fact can be seen as an effort to integrate the spatial and water characteristic in the planning process. As a result, the policies and strategies in the plan will be intertwined and are aimed to result in more effective and efficient planning.

The integration effort of water and spatial plan still takes place at regional level. Further elaboration on local level is needed to support the implementation of integrated watershed management. It can be conducted through adopting the regional policies and strategies in local spatial plan. Local spatial plans play significant role since the direction of future development in municipalities is accommodated in these plans. Therefore, integration with local spatial plan is also important without neglecting the general concept of regional development.

Another thing that should be concerned in integrating the spatial and water plan is coordination among institutions. Although the policies and strategies of water plan are interrelated with spatial plans already, coordination in institutions can threaten the implementation of integration. It can either hinder on one side or support the integration effort on other side. As highlighted by Arief (2010), coordination among local governments in JMR is difficult to be provided since there are many conflicts of interest among them. This in fact becomes the most difficult and main issue notably for JMR. In regards to this issue, the more detail overview of coordination between local governments in JMR will be discussed in the next section.

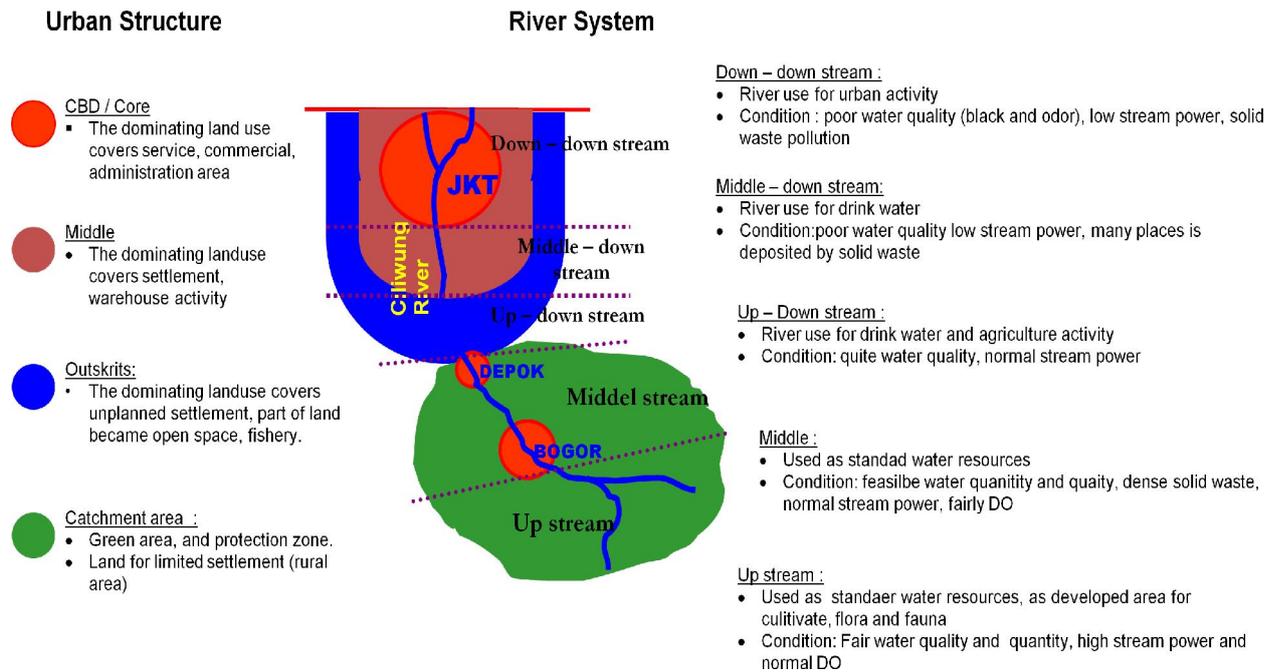


Figure 4.4 The Linkage of Urban Structure and River System in Ciliwung Watershed (Source : Ministry of Public Work, 2011)

#### 4.4 Institutions and Coordination in JMR

The issue of fragmentation has been a major issue in JMR as well as in other large cities in Indonesia as the consequence of decentralization process (Firman, 2008). This fragmentation happened in the aspects of social, economy, politic that implies on the formulation of suitable governance model in JMR (Firman, 2008). Currently, the governance model in JMR is characterized by confederated model of governance with regards to the availability of regional coordination board. According to Laquian (1995), confederated model of governance includes a two-level-type management : regional and local. The authority of management in regional level lays on the coordination board while at the local level is conducted by local government. However, it should be noted that the coordination board has limited power and is only to facilitating coordination in JMR governments in the region. The power of management is still on the local governments.

At the context of JMR, coordination board in regional level is called BKSP. Formally established in May 1976 by a joint decree of Governors of West Java and DKI Jakarta, this coordination board aims to support the coordination scheme in the region. However, the role and function of BKSP is determined ineffective since the structure of the organization is considered as ad-hoc instead of structural (URDI, 2010). The executor of development still lays on local government with regards to the implementation of decentralization. Thus, the organization has less power to intervene the implementation of the development in JMR (Firman, 2008).

In concern to this issue, Minister of Home Affairs Regulation (Permendagri) No. 6 of 2006 on BKSP Jabodetabekjur has been issued to strengthen the function, responsibility and position BKSP in JMR. Through the enactment of this regulation, it is hoped that BKSP can provide more contribution to

coordinate local governments in JMR. Nonetheless, the limited awareness of local governments in supporting the role and function of the organization is in fact considered as the main constraint of BKSP (Salim, 2010). For instance, the general meetings of BKSP have often not been attended by the governors of all member provinces which are DKI Jakarta, Banten and Jawa Barat. There have been no strategic decisions made as the result of this absence of political leaders (Salim, 2010). Hence, the BKSP could only give suggestion to local governments.

Subsequently, the dependency of BKSP to all province members in terms of financial resources and staffs is another factor that hinders the board to provide the coordination (Firman, 2008). Chaired by a governor in rotation of each province in JMR, the source of financial and staffs BKSP comes from contribution of all provincial members. The consequence of this mechanism is the limited power and resource to develop and implement its program. Hence, BKSP becomes more difficult to intervene the coordination since it is highly dependent to the provinces.

Further for the problem of coordination in relation with this board will be discussed in the analysis of government perception in the next section. The problem and issue of this coordination board will be analyzed, in particular for coordination in spatial planning with regard to water management in Ciliwung.

#### **4.5 Comparing Spatial Policies in The Dynamic JMR**

According to spatial planning law, a metropolitan region needs a regional spatial plan in attempt to manage the coordination in spatial planning of the region. For the case of JMR, the metropolitan spatial plan has been issued in the Presidential Decree No. 54/2008 on spatial plan of Jabodetabekpunjur. The establishment of the plan aims to provide a guideline for an integrated development in JMR. Through the vision of integrated sustainable development in JMR, the plan consists of several policies and strategies at regional level that are in line with the national spatial plan. The regional plan will further be operationalized into local spatial plan since the implementation of the plan is conducted at the local level. Every policies and strategies of regional plan therefore need to be adopted in local plan to ensure the implementation of the plan. Integration between regional and local plan at this context becomes essential since it can influence whether the plan is implemented or not.

Insight from the regional plan, the effort to develop integration in JMR is clearly emphasized starting from the aim and objectives, policies and strategies, until the detail plan of infrastructure plan and spatial pattern. Integration in this plan is seen as a tool to harmonize and balance the development in JMR. In order to achieve the integration, strategies are provided including applying a single unit of planning, enhancing the sustainable initiatives in particular for economic sector by stressing more on the productive, effective and efficient activities. To implement those strategies, specific plans of infrastructure and spatial pattern in relation to water issues are drawn. Hence, it can be said that the regional spatial plan of JMR concerns to develop integration in the development particularly in the spatial planning of JMR.

To enhance the understanding of integration in spatial planning in JMR, this regional plan of JMR is compared with local spatial plans (Table 4.4). The comparison of the spatial plans aims to illuminate

the focus of the regional and local spatial plans in JMR and to analyze the linkage of those plans. It is focussed on comparing the aim and objectives, policies, strategies, infrastructure plan, and spatial pattern plans. The aim and objectives represent the future condition that is desired to be achieved by implementing the spatial plan. The policies are the way to achieve the aim and objectives of the plan. The strategies is more operational or also can be said the operationalization of the policies. These strategies are further implemented through the detail of spatial structure and spatial pattern plan. The spatial structure arranges urban system and infrastructure system that will shape the structure of the region. However, the discussion is limited to infrastructure plan since the focus of this research is water management in relation to flooding issue. Meanwhile, the spatial pattern plan arranges the general land use utilization that divides land use into protected (non-cultivation) zones and developed (cultivation) zones. In regard to this definition, the spatial pattern plan will be discussed and analyzed as well since the management of land use can contribute to the hydrology system. The analysis result of comparison of spatial planning will be discussed as followed:

### **Comparison of spatial plans**

#### Aims and Objectives

In general, the aim and objectives of regional and local spatial plans are similar, which is to provide integrated and competitive spatial plan in a way to achieve sustainable development. It indicates that the all plans aim to contribute to develop sustainable JMR by providing a qualified, integrated and competitive spatial plan.

#### Policies

For policies in spatial plans, both regional and spatial plans focus on the policies of integrated infrastructures development. These infrastructures are considered important in advance to handle the flooding issue. The policies of integration in providing infrastructure are in line with the direction of regional plan that is to build integrated and sustainable region. Hence, policies in both regional and local spatial plans are integrated and have the same focus which is providing integrated infrastructure development.

In some municipals such as Kota Depok and DKI Jakarta the policies to support the vision of regional plan are more specifically explained. The policies of developing coordination and dividing role sharing mechanism for example are two of specific policies and strategies from Kota Depok spatial plan. In DKI Jakarta, the policies to link infrastructure with other region is also considered as more detail effort to achieve the integration with its neighbour. This policy of DKI Jakarta is in fact in line with the position and function of DKI Jakarta as the core city in the metropolitan region, therefore, it is important to maintain the linkage of any development activities with its secondary.

Table 4.4 The Comparison Matrix of Spatial Plans in JMR

	Regional metropolitan Plan	Local Plan				
	Perpres No 54/2008	Provincial Plan		Municipal Plan		
		RTRW Provinsi DKI Jakarta	RTRW Provinsi Jawa Barat	RTRW Kota Depok	RTRW Kota Bogor	RTRW Kabupaten Bogor
Aims and objectives	Integration, harmonization, collaboration and sustainable spatial planning	Integrated, livable and sustainable space	Harmonize, sustainable competitive, and safety spatial planning	Integrated, competitive and sustainable spatial planning	Sustainable and productive spatial planning	Integrated spatial planning to support regional economic growth as well as ecological sustainability
Policies	Integration as a tool to maintain the balance of economy and environment	<ul style="list-style-type: none"> <li>Adequate and integrated infrastructure</li> <li>Linking the infrastructure management with other neighbour areas</li> <li>Managing the retention areas to balance the utilization of space</li> </ul>	Managing and developing regional infrastructure to form, unify, control and support the regional development	<ul style="list-style-type: none"> <li>Prioritizing regional infrastructure development</li> <li>Increasing coordination and cooperation to support the integration</li> <li>Developing role sharing mechanism</li> </ul>	Increasing the quality and scope of public infrastructure	<ul style="list-style-type: none"> <li>Increasing the quality and scope management of infrastructure</li> <li>Managing cultivation areas as well as protecting ecological function in the areas</li> </ul>
Strategies	<ul style="list-style-type: none"> <li>Applying a single unit planning of metropolitan to integrate the local planning of municipalities</li> <li>Promoting sustainable regional development initiatives</li> <li>Promoting productive, effective and efficient economic development</li> </ul>	<ul style="list-style-type: none"> <li>Managing and controlling the retention areas of south of DKI Jakarta from urban activities</li> <li>Developing and integrating water conservation infrastructure to ensure the sustaining availability of water</li> <li>Elaborating structural and non structural measure of flood protection with the concept of integrated river basin</li> </ul>	<ul style="list-style-type: none"> <li>Developing a role sharing scheme to support the implementation of regional development</li> <li>Applying river basin approach to provide more sustaining water resources</li> </ul>	<ul style="list-style-type: none"> <li>Prioritizing regional infrastructure development</li> <li>Increasing coordination and cooperation to support the integration</li> <li>Developing role sharing mechanism</li> </ul>	Developing integrated drainage infrastructure system	<ul style="list-style-type: none"> <li>Increasing the quality and integration of water infrastructure system</li> <li>Rehabilitating irrigation network in 7 river basins to maintain the availability and to increase the distribution of water</li> </ul>
Regional infrastructure plan in terms of flooding management	<ul style="list-style-type: none"> <li>Developing an integrated flood management from upstream areas to downstream areas</li> <li>Combining technical and non technical measure in flood protection</li> </ul>	<ul style="list-style-type: none"> <li>Developing and improving technical measure of flood protection</li> <li>Managing and implementing non-technical measure of flood protection including the land use planning and community empowerment in flood protection scheme</li> </ul>	<ul style="list-style-type: none"> <li>Developing and improving the capacity water infrastructure</li> <li>Rehabilitation of forest and critical and extremely critical land use in upstream areas of river basin</li> </ul>	<ul style="list-style-type: none"> <li>Developing integrated drainage, irrigations, reservoirs, infiltration wells, and any other water infrastructures</li> <li>Rehabilitating demarcation, forest and critical and extremely critical areas in upstream areas of basins</li> <li>Increasing the capacity of basins</li> </ul>	<ul style="list-style-type: none"> <li>Developing an integrated macro and micro drainage system</li> <li>Protecting and preserving the demarcation of basins</li> <li>Increasing community participation</li> <li>Controlling land utilization in flood or inundation prone especially in the north of Kota Bogor</li> </ul>	<ul style="list-style-type: none"> <li>Developing integrated water infrastructure including irrigation, water pipe system, dam, reservoir, lake, and basins</li> <li>Managing and developing basin based on zoning of land use typology</li> <li>Protecting the conservation zone of basin from any utilization activities</li> </ul>

	Regional metropolitan Plan	Local Plan				
	Perpres No 54/2008	Provincial Plan		RTRW Kota Depok	Municipal Plan	
		RTRW Provinsi DKI Jakarta	RTRW Provinsi Jawa Barat		RTRW Kota Bogor	RTRW Kabupaten Bogor
Spatial Pattern Plan	<ul style="list-style-type: none"> <li>• DKI Jakarta is mostly directed for B1* zone. However, there are B3* and B2* zone in the east and south of the region, and also zone of B7*, N1*, P2*, P5* and P3* in north of DKI Jakarta</li> <li>• The north of Depok is directed for B1* and B4* while for the rest of city (south, east and west) is directed in the mixed of B1*, B2*, B3* and B4* zone</li> <li>• Kota Bogor is directed in the mixed of B1* and B3* zone</li> <li>• Zone of B1*, B2*, B3* and B4* is directed in the north of Kabupaten Bogor. Similarly, the east, west and center of Kabupaten Bogor are still directed for B1*, B2*, B3*, B4* and B4*/HP*. While the south of Bogor is mainly for protection that is N1*, N2* zone, however, there is B3*, B1*, B4*, B4*/HP* zone also in the south but not in significant wide.</li> </ul>	<ul style="list-style-type: none"> <li>• The business and services districts are directed to develop in the center, east and west of DKI Jakarta</li> <li>• The western part of DKI Jakarta is directed to protection and retention</li> <li>• Industrial districts are directed to north, east and west of DKI Jakarta</li> <li>• The local protection areas is directed along the demarcation areas</li> <li>• The non-protected green open space is directed to develop in north and east side DKI Jakarta</li> </ul>	<ul style="list-style-type: none"> <li>• Retention areas, technical irrigation agricultures, production forests, and plantations are directed in Kabupaten Bogor</li> <li>• Tourism activities especially agro tourism are directed to develop in Kota Bogor and Kabupaten Bogor</li> <li>• Kota Depok and Kota Bogor are directed for urban settlement areas to support JMR function</li> <li>• Kabupaten Bogor is directed to develop as a buffer zone to balance the development activities in JMR. Further, non-pollutant industries, and mining are also developed aiming to support the development of Bodebekpunjur</li> <li>• Puncak area in Kabupaten Bogor and Kabupaten Cianjur is directed to be restored and revitalized in addition to support environmental protection function in JMR</li> </ul>	<ul style="list-style-type: none"> <li>• Most of Kota Depok is directed for settlement specifically middle density in concern to its position bordering with DKI Jakarta</li> <li>• Industrial activities are developed in the east side along the main road from DKI Jakarta and few side of west city</li> <li>• Conservation zone including natural forest, production forest and demarcation of basin is protected in south of the city</li> </ul>	<ul style="list-style-type: none"> <li>• The business and services utilization of land use is directed spreading in all city areas especially along main road</li> <li>• Industrial activities are directed in the south and north of city</li> <li>• Low density of settlement is developed in the south of city, middle density of settlement is in the north and east of city while the high density of settlement is directed in the center and west of city</li> <li>• The conservation zone including city forest, basin demarcation and infrastructure demarcation is strictly protected in the center of city and along demarcation of basin and other infrastructures.</li> <li>• The south and east of city is tightly managed and controlled since it is directed for retention areas of water</li> </ul>	<ul style="list-style-type: none"> <li>• The high density of settlement in Kabupaten Bogor is developed in east, center and some of west side of the city</li> <li>• Business and industrial activities including zone of industry is directed in the east and center of Kabupaten Bogor</li> <li>• Mining and agriculture are developed in the east of Kabupaten Bogor</li> <li>• Conservation purposed is developed in the south of Kabupaten Bogor</li> </ul>

Note : (\*) = classification of land use function (see appendix 6)

Source : Perpres No. 54/2008; RTRW DKI Jakarta 2030; RTRW Provinsi Jawa Barat 2009-2029; RTRW Kota Depok 2010-2030; RTRW Kota Bogor 2011-2031; RTRW Kabupaten Bogor 2005-2025

## Strategies

The operationalization of policies in spatial plan relies on the strategies of spatial planning. Like the policies of regional and local spatial plans in JMR, these strategies also address the integration of infrastructure development. Integrated infrastructure at the regional level of JMR is prioritized and highlighted either in regional or local spatial plans. These integrated infrastructure strategies are specifically for flood protection such as drainage, water conservation, and any other water infrastructures. It can be learned that flooding issue has been a concern in the JMR with regards to the tension of integrated infrastructure for flood protection.

## Infrastructure plan

In brief, the purpose of infrastructure plan in particular for water infrastructure is mostly to decrease the vulnerability of the region from flooding issue. At JMR level, flood is considered as one of critical issue due to the magnificent impact it can cause. The focus of infrastructure plan is therefore to develop and improve flood protection infrastructure. For instance, the plan to develop and improve structural measure of flood protection such as drainage, irrigation, reservoir and any other water infrastructures is highlighted in both regional and local spatial plans. These structural measures are also complemented with non-structural measure of flood protection that can be seen from such plans as managing and protecting retention areas and community empowerment. Both structural and non-structural measures are in line with the integrated flood management approach that is applied in the regional spatial plan.

However, not all local spatial plans develop non-structural measures of flood protection in their infrastructure plan. Kota Depok and Kabupaten Bogor for instance focus more on structural measurement rather than non-structural measurement. The infrastructure plans in both municipals are mostly dominated with structural measurement of flood protection such as building drainage, rehabilitating demarcation, improving irrigations, etc. On the other hand, non-structural measurements such as community participation and rehabilitating forest are found in DKI Jakarta and Kota Bogor spatial plans, Nevertheless, it should be noted that although there are some differences of the infrastructure plan focus in local spatial plans, the plans are still considered relevant and not conflicted with regional JMR plan since both of structural and non-structural measurements are included in the regional infrastructure plan.

## Spatial pattern plan

To assess the integration in spatial pattern plans, the pattern of land utilization in local spatial plans will be compared with the regional spatial. According to the regional plan, the pattern of spatial JMR is distinguished on three zones which are preservation, development (cultivation), and buffer zone. The preservation zone is designed for ecological function thus any activities in the zone are strictly controlled. Secondly, the development zone is a zone where all development activities take place. Finally, the buffer zone is designed as a barrier for development activities so that any development activities will not cause negative consequences to the environment protection area. This zone is usually located in between the preservation and development zone. With these three principal zones of development, each local spatial plan then describes more detail of spatial pattern in each of their municipal plan.

Looking in specific in each local spatial plan, the spatial pattern for all local plans are in line already with the regional plan. All the land utilization patterns in both local and plans success to follow the regional plan patterns of land use. The spatial pattern in Kota Depok and Kota Bogor for instance is designated for urban activities including settlement and tourism to support the function of both cities in the context of JMR. This plan is indeed in line with the spatial pattern plan of regional JMR. In addition, the spatial allocation for Kabupaten Bogor is developed for agriculture, plantation, forest, and retention of water that fits with the direction of spatial pattern in regional plan. Therefore, there is no conflicting spatial pattern allocation between local and regional plans.

Further, as the terms of local spatial plans in this research represent the municipal and provincial plans, there is also analysis of integration of spatial plan between municipal and provincial plans. Three municipals in Ciliwung watershed of JMR which are Kota Bogor, Kota Depok and Kabupaten Bogor are belong to Provinsi Jawa Barat administration, therefore, the integration of municipal plan with provincial plan is conducted to support the integration with regional spatial plan of JMR. Kota Depok and Kota Bogor for example have a mixed zone of spatial allocation according to regional spatial plan and Provinsi Jawa Barat spatial plan. In those two cities, the spatial pattern is designated various from the high density of urban settlement until the lowest density of settlement and production forest. This in fact is influenced by the geographical location of the regions that are located in the middle stream of Ciliwung watershed. With regards to this spatial allocation, it can be said that the spatial patterns in municipal spatial plans are in line with the provincial spatial plan as well as regional spatial plan.

In sum, the spatial plans in JMR are integrated already as the aim and objectives, policies, strategies, infrastructure and spatial pattern of the plans are linked and not conflicted with each other. This integration of the spatial plan can be advantage in particular for building cooperation among governments in JMR. Obviously, when there is a common vision among governments, they will be encouraged to cooperate with each other in achieving this common vision (see also Post, 2004). In the case of JMR, the integration policies of spatial planning can be said as cooperation already among governments in a way to achieve the common goal. This common goal of JMR is the aim and objectives in the regional spatial plan. Hence, it can be said that by implementing those integrated policies, strategies and plans, the governments of JMR are cooperating indirectly in addition to achieve the common goal in regional spatial plan of JMR.

However, it should be noted that the assessment of integration of these spatial plans is still on the policy or macro level. The direction of the spatial plan is therefore determined still general and hard to not agree with, e.g. the aim of sustainable development. The conflict is usually taken place at the micro level which is on the program indicative level. These general policies and plans of spatial plan will be operationalized and implemented through five years program indicative. At this level program, the different perceptions of government for the spatial development policies can be clearly seen, revealing how various governments interpret and realize the general direction of spatial plan differently. However, an assessment in the program level of spatial plan cannot be conducted since the regional spatial plan of JMR is not equipped with program indicative. In fact, this also becomes the weakness of the regional plan explained by URDI (2010). Hence, the analysis of comparison of spatial plans is only conducted at the macro level yet the conflict at micro level still cannot be obtained.

#### 4.6 Governmental Conflicts in The Integration of Planning in JMR

To enrich the analysis of spatial dynamic in JMR, perception and interpretation from governments involved in the development of JMR specifically which is located in Ciliwung watershed will be elaborated and compared with the content analysis of spatial plans in section 4.5. It aims to identify conflicts of coordination among governments or institutions during the planning process. To structure the complexity of the conflict, the metropolitan governance theory will be applied. With the help of the conceptual model in chapter 2, the factors that caused the conflict are identified to get insight into the failure of coordination in JMR. Beside governments, other institutions including BKSP that contributes to manage coordination in JMR will be assessed. Analysing institutions is essential since the way they perceive and manage the spatial plan can either hinder or support the further operationalization of the spatial plan. Therefore, institutions perception and interpretation of spatial plans in JMR can also contribute in building the coordination of spatial plan in JMR.

Table 4.5 The Characteristic of Spatial Planning Conflict in JMR

No	Conflicts		Dimension	Finding of Factors
	Institution	Subject		
1	Provinsi Jawa Barat – Ministry of Forestry	The status of Forest	Vertical	Inconsistency data and information, heterogeneous institution, formal model (bureaucratic) thus triggering boundary and gap in institutions
2	Kota Depok – DKI Jakarta	Land use allocation	Intergovernmental	Limited resources and capability of government, weakness of regulation, number of institutions involved, political pressure and power, and limited awareness of government
3	Kabupaten Bogor – DKI Jakarta	Land use conversion and allocation	Intergovernmental	Limited resources and capability of government, weakness of regulation, number of institutions involved, political pressure and power, and limited awareness of government
4	Kota Bogor – Kabupaten Bogor	Land use allocation	Intergovernmental	Number of institutions involved, political pressure and power, and limited awareness of government
5	BKSP	Coordination	Intra-regional	Number and heterogeneity of institutions involved, political pressure and power, Limited resources and capability of institution, and legal status of institution

In general, local governments find some obstacles in how to understand the direction of spatial pattern of regional plan when they were adopting the plan. They argue that the spatial pattern of this plan is considered vague thus resulting multi interpretation from them (Interviewee : Reny,

Ministry of Public Work, 2011). Such unclearness on the domination of land use in the spatial pattern for example makes many local spatial plans failed on the substantial approval at the national level. Those local spatial plans are conflicted with regional plan, therefore, they cannot pass the substantial approval from BKPRN at national level.

Five conflicts in the planning process of JMR are identified (Table 4.5). These conflicts reflect to the obstacles of local governments on determining and understanding regional spatial plan of JMR. These conflicts are derived from interviewing the governmental actors in spatial planning of JMR during the fieldwork in Indonesia. These conflicts are further analyzed and discussed below.

#### Conflict between Provinsi Jawa Barat and Ministry of Forestry

Provinsi Jawa Barat has a problem on determining the status of forest in their area. According to Perpres No. 54/2008 large parts of the forest areas in Kabupaten Bogor are allocated as protected forest while the forest condition on the field represents the contrary condition. It can no longer be regarded as protection forest since it has been changed into settlement, agriculture or production forest (Interviewee : Rudy, planning agency of Provinsi Jawa Barat, 2011). He also explained that the consequence of this conflict is the delayed on the substantial approval of Provinsi Jawa Barat spatial plan. The government of Provinsi Jawa Barat had to wait longer to get recommendation letter from Ministry of forestry before they obtained substantial approval from Ministry of Public Work.

Further for Provinsi Jawa Barat issue, the reason for this inconsistency is the different data and information used for the spatial plan. The data and information used by Ministry of Forestry are not updated (Interviewee : Rudy, planning agency of Provinsi Jawa Barat, 2011). They still use the old map while the existing condition has changed. Due to this old data, many deviations for forestry land use have been found thus resulted a dispute in the planning process. To overcome this conflict, Ministry of Forestry conducted a field survey to obtain the current information of forestry condition in Provinsi Jawa Barat.

This conflict between Ministry of Forestry and Provinsi Jawa Barat has consequences for Kabupaten Bogor at municipal level. The spatial plan of Kabupaten Bogor had been finished and enacted to local regulation earlier before spatial plan of Provinsi Jawa Barat finished. Therefore, when the issue of deviation in forestry appeared, the content of the spatial plan in Kabupaten Bogor was doubted. Some questions for Kabupaten Bogor spatial plan rise such as how could Kabupaten Bogor get substantial approval? How was the process of substantial approval conducted? Logically, to be enacted in local regulation, a municipal spatial plan should obtain recommendation letters from governor (provincial level) and minister of public work (national level). These recommendation letters will be drawn if the content of the municipal spatial plan is determined linked and not conflicting with provincial and national plan. Thereby, it is questioned that how can the municipal spatial plan be approved while there is a conflict of the land use allocation between provincial and national level. With regards to this circumstance, Kabupaten Bogor was asked to reassess and revise their spatial plan.

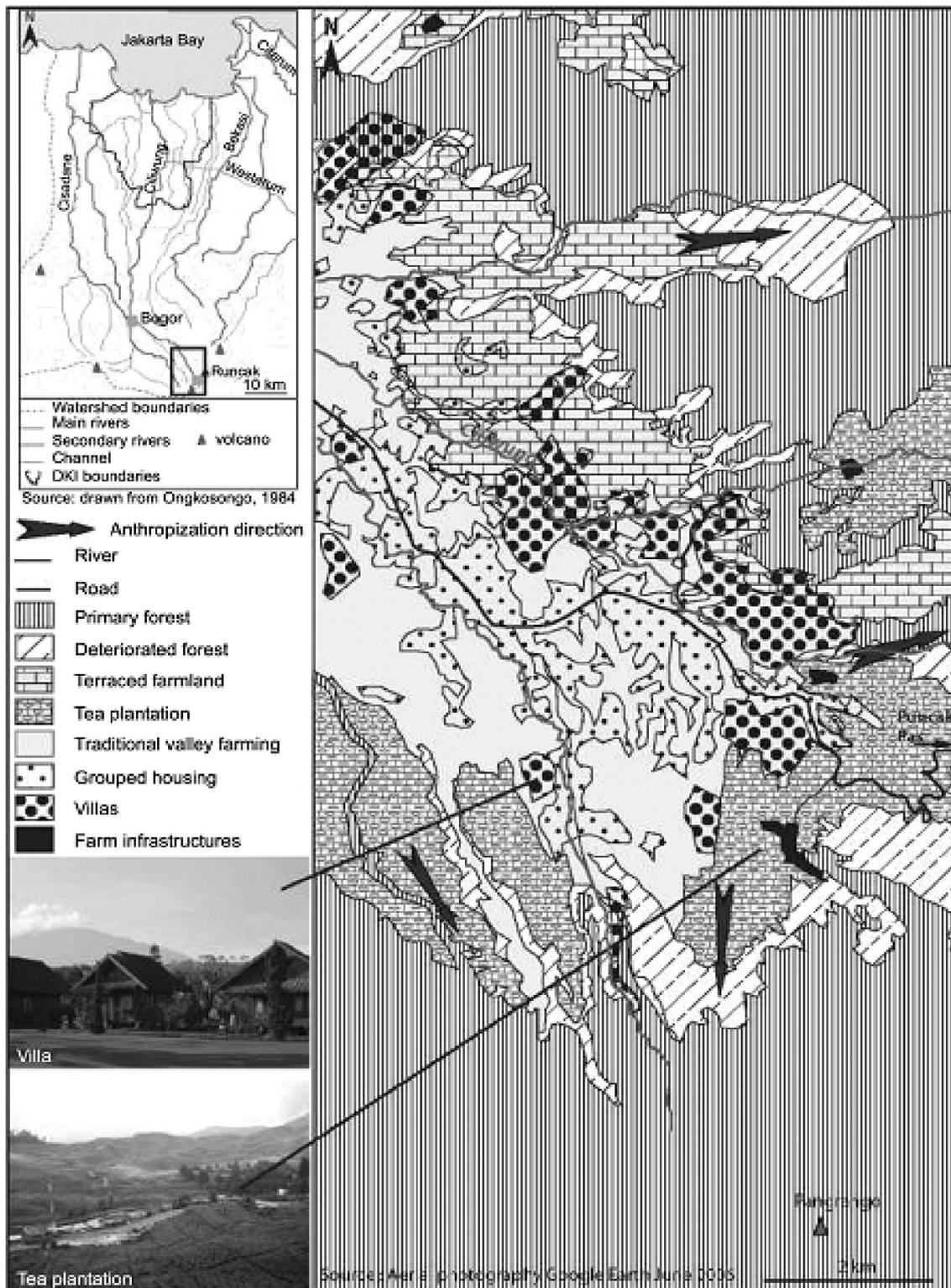


Figure 4.5 The recent land use in forest areas or retention areas of Kabupaten Bogor, Provinsi Jawa Barat (Source : Texier, 2008)

On the other hand, despite the problem of data and information, this conflict of land uses also represents the uncoordinated institutional cooperation at different level of governments. This conflict occurs vertically between Ministry of forestry, Provinsi Jawa Barat and Kabupaten Bogor. The vertical conflict of government in a metropolitan region appears as the result of a bureaucratic of

formal government model (Innes et.al, 2011; Miller and Lee, 2009). They very often work only limited to their own sector, neglect other institutions and follow their own standard procedures (Innes et.al, 2011). In addition, the different authorities and responsibilities between Provinsi Jawa barat and Ministry of Forestry can contribute to widen the boundaries and gaps between them. Post (2004) addressed that heterogeneous institutions very often hinders coordination since they have different scope of work.

At this context, there is a gap of coordination between the policy maker which is Ministry of Forestry and the executor of the development which is Provinsi Jawa Barat and Kabupaten Bogor. These institutions have different scope of work that very likely hinders the coordination among them. In addition, the different level of management which are national for Ministry of Forestry, province for Provinsi Jawa Barat, and local for Kabupaten Bogor also can be another hindering factor that causes failure in coordination. As the consequence, the policies at national level are conflicting with the policies and existing condition at local level.

#### Conflict between Kota Depok and DKI Jakarta

Another fragmentation issue in JMR is a dispute of land use utilization at the border area of DKI Jakarta and Kota Depok. According to DKI Jakarta spatial plan, the south of DKI Jakarta is designated as retention area that aims to protect water and balance the ecological function in the region. In contrast, the north area of Kota Depok which is directly bordered with the south area of DKI Jakarta is designated as high density of settlement that aims to accommodate the sprawl from DKI Jakarta. The allocation of land use of high density settlement in north Kota Depok can decrease the capability of retention area in south of DKI Jakarta. It thus reduces the efficiency of spatial allocation that brings fragmentation of spatial planning in the region of JMR.

The interesting point from this dispute is that both Kota Depok and DKI Jakarta follow the spatial pattern from Perpres No. 54/2008. They adopt the spatial pattern as it is described in regional JMR plan. Although governments of Kota Depok and DKI Jakarta feel that the land allocation is conflicted, they cannot do anything (Interviewee : Sudjatmiko, planning agency of Kota Depok, 2011). The current spatial planning mechanism such as substantial approval does not give any opportunity to local governments to adjust the national spatial pattern although it is considered conflicting with existing land use condition. This reflects the political pressure and power in spatial planning from central government to local governments. In regard to this mechanism, . Kota Depok and DKI Jakarta keep following the land use allocation otherwise they will not get approval of substantial from Ministry of Public Work as it is considered conflicting with the regional plan (Interviewee : Sudjatmiko, planning agency of Kota Depok, 2011).

This conflict allocation of land use is resulted from the uncontrolled development of JMR. The national government, Ministry of Public Work, argues that the high density of settlement in Kota Depok is designed to accommodate the spill over from DKI Jakarta (Interviewee : Yessi, Ministry of public work, 2011). With the rapid urbanization, the need of housing and settlement in DKI Jakarta increases thus triggering sprawl in its periphery (Goldblum and Wong, 2000). Weak land permit and limited resources of government aggravate the development of housing and settlement in the fringe area of DKI Jakarta (Firman, 2000; Interviewee : Sudjatmiko, planning agency of Kota Depok, 2011). Therefore, the development of new housing and settlement in Kota Depok tremendously rises notably at the north area as the consequence of this extended phenomenon.

Apart from the limited government resource and regulation, the absence of regional perspective in development can be another reason to explain why this fragmentation occurred. When the sprawl began to appear, governments and institutions either in each municipal or national level had not had any regional concept for JMR. At that time, the pressure from private developers to provide housing and settlement rose rapidly mainly in the periphery due to the limited space of DKI Jakarta (Firman 2004). The problem therefore relied on the determination of location for housing development since many developers ignored the land use plans. In addition, local governments also did not have a spatial regional development concept and poor uncoordinated with its neighbour. Thus, the massive development of housing tended to be developed in an uncontrolled and fragmented way in periphery JMR.

Limited awareness of governments to work together in attempt to integrate their area within a single metropolitan region is the major cause of the absence of regional perspective (Watson, 2007). Many of local governments do not consider the advantage of collaboration in the metropolitan region. This is caused by a narrow perspective of development from governments as the consequences of decentralization (Firman, 2002). The way of governments manages their territory focuses mainly to generate as much as benefit in particular local income. Thus, they very often neglect their neighbour when formulate policies including spatial planning. Hence, this factor of limited awareness in government may also play a role in triggering the Kota Depok and DKI Jakarta case of conflict.

#### Conflict between Kabupaten Bogor and DKI Jakarta

Similar problem of uncontrolled development of housing also appears in Kabupaten Bogor. The land use in upstream area of Ciliwung watershed, Puncak-Kabupaten Bogor, has been tremendously converted into villas and plantation in the past 50 years (Texier, 2008). While in fact, land use in upstream should be managed for ecological purpose as it functions for retention of water (Texier, 2008). The land conversion to built up in upstream area can change the characteristic of watershed thus leads to pressure the downstream area.

This conversion of land use is caused by weak regulation in land permit and limited resource and ability of Kabupaten Bogor to monitor and control the development in Puncak (Firman, 2009). The development of tourism in Puncak has succeeded to attract people to come and build a secondary house in this area (Interviewee : Rudy, Planning agency of Provinsi Jawa Barat, 2011). Additionally, limited awareness and narrow perspective in development of government of Kabupaten Bogor also has a role in worsening the conversion of land use in the upstream (Arief, 2010; Interviewee : Vera, planning agency of DKI Jakarta, 2011). Government of Kabupaten Bogor indeed supports the



Figure 4.6 The New Settlement in North Kota Depok (Source : <http://www.urdi.org> )

conversion of land use to economy activities since it can bring much income for them. The fact that preserving ecology cannot bring direct benefit to governments, they prefer to develop economy activities rather than ecology restoration. This economic preference is even usually served as the basis consideration of the development in JMR. Spatial fragmentation between upstream and downstream is also occurred as the consequence of this enormous conversion.



*Figure 4.7 The high density of Puncak Area, Kabupaten Bogor (Source : [www.uchiemot.blogspot.com](http://www.uchiemot.blogspot.com))*

In concern with the land conversion in upstream area, some attempts to restore the ecological function have been done by government of DKI Jakarta. They provide amount of incentives for upstream area which is Kabupaten Bogor for any conservation activities that bring benefit to downstream (Interviewee : Vera, Planning agency of DKI Jakarta, 2011). This incentive in fact is accordance with the spatial planning law instruction. In the spatial planning law, it is clear highlighted that governments have to provide incentive for any activities in other area that bring advantage to their area. However, the mechanism and detail calculation for the amount of money are not detail regulated in the law therefore the term of incentive in spatial planning is still vague.

#### Conflict between Kota Bogor and Kabupaten Bogor

Another conflict in land utilization occurs between Kota Bogor and Kabupaten Bogor. The West area of Kota Bogor is designed for conservation area while the border area in Kabupaten Bogor is designed for urban settlement activities. The government of Kabupaten Bogor argues that this conflict is caused by the failure of assessment during the process of planning (Interviewee : Ajat, planning agencies of Kabupaten Bogor, 2011). In addition, the other local spatial plans in JMR at the time when the planning process of Kabupaten Bogor conducted have not been established yet. Thus, integration assessment with neighbour plan is difficult to conduct as the consequence of this circumstance.

This conflict represents the lack of coordination between government of Kota Bogor and Kabupaten Bogor. It also illustrates that the substantial approval mechanism is not effective enough to manage the integration issue. However, both governments do not put this conflict as a major obstacle since they believes that it can be solved through informal mechanism (Interviewee : Latief, Planning agency of Kota Bogor, 2011). Informal mechanism is believed more effective by them since the head of planning agency in both areas are brothers. Further to overcome this issue, Kabupaten Bogor is currently conducting re-assessment of their spatial plan to find the deviations either with existing or other spatial plans in preparing for the revision in next 2012 (Interviewee : Ajat, Planning agency of Kabupaten Bogor, 2011).

#### Conflict of BKSP

As a coordinating body, BKSP has to facilitate coordination among local governments in JMR. Principally, this board can have a strategic position in JMR in case it is effectively functioned with regards to the need of building collaboration in governments of metropolitan region. Nevertheless,

with the legal status only a joint decree of Governors of West Java and DKI Jakarta, BKSP hardly intervene the local governments to improve the integration of their policies in JMR's development. Hence, BKSP can only set a forum to gathering local governments in JMR without any authority to involve in the decision making process or even the further implementation of the decision made from the forum.

The authority of executing and implementing the development is still laid on the local government as a consequence of the decentralization. Therefore, some governments argue that BKSP is not effective to manage the coordination issue due to its lack of power in the development JMR (Vera, Planning Agency of DKI Jakarta, 2011). In relation to this issue, a new regulation has been issued in order to strengthen the role and function of BKSP in the region. This regulation, Minister of Home Affairs Regulation (Permendagri) No. 6 of 2006 on BKSP Jabodetabekjur, clearly explains the enhancement of role BKSP in JMR. Currently, the role of BKSP is no longer limited to providing a coordination forum but also conducting planning analysis, evaluating, programming and reporting the regional development to the head of BKSP. With regards to this regulation, the BKSP should be able to acting more strategic in managing coordination between governments and their policies in JMR.

Nevertheless, there is a conflict in regulation between Perpres No. 54/2008 and Law No. 29 of 2007 in regards to the coordination in JMR. Perpres No. 54/2008 mentions that coordination in JMR is conducted by minister while in contrast Law No. 29/2007 explains that an interregional cooperating body has the responsibilities to manage coordination in JMR. In addition, local governments in JMR prefer to follow Perpres No. 54/2008 since it has implication to their spatial plan. As the result, the role and function of BKSP is still neglected by local governments in JMR although it has been clearly emphasized on the Law No. 29/2007. This unclear regulation then reduces the strategic function of BKSP and conflict of interests between governments remains unsolved.

In sum, to support integration in spatial planning policies, coordination among governments tends to be essential specifically for JMR. In fact, many spatial conflicts in JMR are resulted from the failure of coordination and communication between institutions. Intergovernmental disputes are the most potential conflicts that rise among governments in JMR. These disputes are horizontal conflicts between local governments in the metropolitan region. There are factors that cause these disputes such as the number and heterogeneous local government institutions, inconsistency information, formal model of government, limited resources and capability of governments, political pressure and power, limited awareness, and legal status of the institution. Those factors are very likely hindering the coordination among local governments in JMR. Meanwhile, there are also factors that support coordination among local government that can be seen in table 4.6.

Leadership or political entrepreneurship is the most likely factor that either supports or hinders the coordination among government in metropolitan region (Post, 2004). In JMR case, this factor contributes to support the coordination among local governments. For the conflict of land utilization between Kabupaten Bogor and Kota Bogor, the leaders for planning agency in each municipal are willing to cooperate with respect to the family relationship among them. Thus, the fragmentation in land use utilization is no longer seen the main obstacle in both municipals.

Table 4.6 Factors that Support or Hinder Coordination in JMR

Factors	Supporting	Hindering
Number and heterogeneity of institutions (group size)	-	+++++
Political pressure and power (coercion or incentives)	+	++++
Policy objectives and regulations	+	+++
Geographic proximity	-	-
Leadership or political entrepreneurship	++	-
Others (data and information, awareness, etc)	-	++++

Note : '+/-' = the frequency of the factor appears in the conflict analyzed in JMR

Other supporting factors in building coordination among local governments in JMR are political pressure and power, and policy objectives and regulations. Political pressure and power in JMR comes from central government that can be seen from the substantial approval mechanism. With respect to this mechanism, every local government in JMR should adopt regional spatial plan of JMR in relation to obtain substantial approval from central government. This substantial approval mechanism can bring advantages as the integration among spatial plans is manageable thus local governments will be encouraged to build coordination among them. On the other hand, this political pressure and power at some degree can threaten the coordination among local governments. Mostly, local governments prefer if the motivation to provide coordination comes from their interest instead of external enforcement (Post, 2004) while the substantial approval mechanism is considered as external pressure from central government that force them to follow the policies or plans from central government. Therefore, it should be noted to what extent does the substantial approval process can contribute to provide coordination in local governments in JMR. However, in the case of JMR, the substantial approval process contributes to support the integration and coordination among local governments in JMR.

Policy objectives factor reflect to the similarity of aims and objectives between regional and local spatial plans (see the section 4.5). This common policy objectives can support the coordination among local governments in JMR since regulation of spatial planning law also mandates integration in every spatial plan either horizontally or vertically. To overcome the integration, local governments in JMR need to coordinate with other governments. Thus, local governments in JMR will be encouraged to build coordination among them as the result of this mechanism.

In short, all these factors then should be acknowledged in attempt to build coordination among local governments in JMR. The supporting factors for example need to be endorsed to accelerate the coordination among local government. On the other hand, the hindering factors need to be managed so that it will not obstruct the coordination development. It is hoped that by managing the hindering factors and endorsing the supporting factors, the coordination in local governments will be easier to be achieved.

#### 4.7 Conclusion

In attempts to tackle the issue of flooding in JMR, the integrated flood management is considered more effective to be applied in JMR. It combines and balances the non-structural measure with the structural measure that mostly dominates the current flood protection policy. In regards to this condition, integrated watershed management is applied as part of non-structural measure of flood protection in JMR. The tension of integrated watershed management lays on the balance and integration of watershed elements including spatial planning. In the case of JMR, water and spatial planning have a strong interrelationship as have been shown through the planning documents of water and spatial at the regional level. However, this integration between water and spatial plan is still threatened by the fragmentation of multi-level spatial planning in JMR. The integrated policies of water and spatial in regional level will not be implemented in case it is not adopted in the local spatial plans. Thereby, local spatial plans should also in line following the regional policies in spatial plan and water plan. In particular in the metropolitan region where there are many different interests and governments involved in the planning process, the fragmentation of spatial planning often happens as the result of the failure coordination among them. Therefore, it is also important to analyze the integration in multi-level spatial planning of JMR as part of integration effort of watershed management.

In general, all spatial plan documents of JMR are linked already either at the level of aim and objective, policies, strategies, and detail infrastructure and spatial pattern plan. This is caused by the general and board of the aim and objectives of the plans such as 'sustainability' thus indirectly results to agreement since it is hard not to agree with. However, some conflicts are still found in particular during the spatial planning process. The conflict of coordination between central-local government, among local governments, and even with coordination body of JMR can threaten the integration of spatial planning and further implementation of plans and policies. Therefore, it is essential to manage the coordination among governments as well in relation to provide supportive condition of planning.

Inter-governmental conflicts are the most potential conflict among local governments in JMR. There are several factors that cause these conflicts including numerous and heterogonous of institutions involved, limited awareness, inconsistency information, formal model of government, limited resources and capability of governments, political pressure and power, and the legal status of the coordination board. Those factors then should be addressed and concerned in relation to develop coordination among governments in JMR. In the next chapter, we will discuss and suggest how metropolitan governance in JMR could be improved to overcome these factors.

## **5. Conclusion : Collaboration In Spatial Planning Of Urban Watershed**

### **5.1 Introduction**

Having discussed the fragmentation in spatial planning and coordination conflicts in JMR, the final conclusion from the analysis result will be drawn in this final chapter. Firstly, the theoretical reflection will be discussed to what extent the concept of metropolitan governance is useful to understanding fragmentation in spatial planning for the case study of JMR. It will highlight the implication of the analysis outputs and reflecting back those outputs to the theoretical framework of coordination in spatial planning in contributing to integrated watershed management provided in chapter two. Secondly, practical recommendation on how to improve coordination in metropolitan governance in relation to the conflicts from the findings of case study analysis also will be provided as part of the conclusion. Finally, reflection on the research process will be explained as final remark of this research.

### **5.2 Embedding The Theoretical Framework Into Case Study Result: Multi-layered governance in Dealing With Fragmentation**

In principal, there are two main theories used in this research which are integrated water management and metropolitan governance. The theory of integrated water management explains and addresses the need of integration in urban watershed management. It provides an integration framework of watershed management by linking land use planning with water planning. Integration at this context not only considers harmonization between upstream and downstream but also balancing in all watershed elements. Land use here is concluded as one of watershed element that needs to be integrated due to its significant role in influencing other elements in watershed. Therefore, managing spatial as well as water through integrated planning in watershed can contribute to improving the watershed condition.

Secondly, the metropolitan governance theory provides an insight of complex governance system in metropolitan regions. Linked with the integrated watershed management, the metropolitan governance can be useful tool to explain the complexity of building integration of watershed in metropolitan region. Characterized by multi-layers of governments, governance in metropolitan region tends to be vulnerable for fragmentation in spatial planning of watershed area. Thus, coordination is needed in particular to bridge the gap that causes fragmentation. However, it should be noted that developing coordination among governments in metropolitan region cannot be said as an easy thing to do. Conflict of interest among them is considered as the main barrier of developing coordination in metropolitan governments. As the consequences, the integration seems becoming more difficult to be achieved. With regards to these conflicts, the metropolitan governance theory can help to provide an insight notably for the factors that cause the coordination conflicts in institutions in metropolitan region.

Applying those two theories, a better understanding of the case study of JMR in terms of watershed management and governance system can be obtained. The environmental problem of Ciliwung

watershed, one of critical watershed in the region, appears as the consequences of unsustainable development activities in the watershed. The rapid land conversion both in upstream and downstream is considered as the major cause of the environmental degradation in the watershed. In regards to this environmental degradation, integrated management of watershed especially on land use is needed. Thus, the concept of integrated watershed management is applied. To support the implementation of integrated watershed management, coordination among institutions is essential. It will bridge the gap in institutions and therefore can contribute in building integration management in watershed. However, coordination is often difficult to provide in particular in metropolitan region including JMR. The complexity governance system in JMR is the main reason thus in some extent can barrier the implementation of integrated watershed management.

It cannot be denial that decentralization contributes to this complexity of governance in JMR. The shift authority from centralistic to decentralist has brought euphoria in local governments in managing their resources. Local policies are often developed without regional consideration. This in turn generates fragmentation of spatial plan policies in the region thus hinders the implementation of integrated watershed management in Ciliwung watershed of JMR. Although in both spatial planning and water planning regulation the terms of integration and coordination is clearly addressed and facilitated, the fragmentation is still found. In particular for land use planning, fragmentation conflict appears both vertically and horizontally in JMR. Vertical fragmentation of land use occurs between central government and local governments in JMR while horizontal conflict happens between local governments in the region. It can hinder the integration effort of Ciliwung watershed management since land use is considered as one important element in watershed management. Thereby, it should be noted that although there is already integration between spatial plan of JMR and the watershed plan of Ciliwung at regional level, the fragmentation of land use planning in local level is frustrating the successful integrated management of the watershed.

With regards to the fragmentation in spatial planning in JMR, the theory provides a framework to understanding the characteristic of fragmentation issue. Such characteristics as dimension of the conflict and factors that cause the fragmentation are determined essential in developing the further strategies to manage the issue. Mostly, the fragmentation of land use in JMR is caused by the failure of coordination among governments in the region. For example, the conflict of land use utilization between Kota Depok and DKI Jakarta appears as the result of the absence of regional development concept in the development. Both governments only consider their own areas when developing spatial policies without coordinating to each other. Thus, overlapping and conflicting policies in land use occurs in the border area of those regions.

Beside fragmentation in spatial plan, conflict of institution also happens in JMR. A conflict in coordination board of JMR, BKSP, once again appears as the result of complex governance of the metropolitan region. This coordination board is determined less effective in managing and facilitating coordination in JMR due to the limited power and status of the board. Whilst in fact, the function of this board should be strategic enough as it can contribute in bridging the gap of coordination among governments in JMR. In concern to those limitations, more elaboration on the board is needed in particular on the regulation to strengthen its position and function in the JMR.

Reflecting to both fragmentations in spatial plan and institutions in JMR, it can be learned that the complexity of governance system in JMR likely contributes to generate these conflicts. This can be

seen from the characteristic of factors that cause the fragmentation. Factor of the number and heterogeneity of institutions for instance is caused by multi-layered government system in JMR. With three layers of government including central, provincials and municipals governments, there are plenty of institutions involved in the planning process. These institutions have different interests, tasks and authorities that bring boundary among them. As the result, fragmentation in spatial planning becomes easily to occur in regards to these various and complex institutions system in JMR.

In addition, limited capacity and resources of government, and decentralization process in Indonesia are other local governance context that contributes to the fragmentation of spatial planning in JMR. All these contextual circumstances can bring complexity in governance system in JMR and lead to trigger issues such as the absence of regional perspective, limited awareness, weak of regulation in land permit, legal status of BKSP and general objective of policies in spatial planning. Hence, it can be learned that these contextual circumstances characterize the conflict of coordination among governments and factors of fragmentation in spatial planning in JMR.

In regards to this local context, not all factors that cause fragmentation in spatial plan from theory of metropolitan governance is found in JMR. Geographical proximity for instance has no influence to the fragmentation of spatial plan in JMR. This indicates that factors of this fragmentation are unique and can be different with other areas. Therefore, reviewing and analysing in detail of the characteristic of the case study is essential in term of understanding the contextual circumstance of the study area. This can provide a comprehensive overview of conflict in institutions as the result.

Furthermore, the theory of metropolitan governance also provides understanding on the motivation of local governments in building collaboration or collective action among them. Understanding these two motivations of institutional collective action are needed in particular for developing strategies to improve coordination in local governments in JMR that will be discussed in the next section of this chapter. Two major motivations from institutions in providing collaboration, highlighted by Post (2004), are the amount of benefit and the common policy objectives. In the case of JMR, one of those two motivations is found that is the common policy objectives. Both regional and local spatial plans in JMR are in fact interrelated already yet the conflict of fragmentation in spatial planning is still found. This indicates that although the objectives of policies in governments are the same already, the conflict of fragmentation is still possible to appear. The common policies objectives here are only written in a paper without any further following up from institutions. Therefore, in a sense it cannot be said that coordination in the region has been effectively established only by looking at the availability of common policies objectives in the region. Further observation is needed in particular on the implementation of the policies to understanding how institutions interacted in order to find whether coordination in the region has been effectively established or not.

Meanwhile, the reason why fragmentation is still found although the policies objectives are similar already in JMR is the limited support from the institutions. The similarity policies in spatial plans are obtained through the formal process of spatial planning. Local governments are forced to adopt regional spatial plan in order to get substantial approval for their local spatial plans. At this context, they even did not have much choice to develop policies in spatial plans but to follow the regulation. Therefore, the common policies objectives resulted in the spatial plans are not from mutual agreement among governments. Instead, it comes from central government concept in regional spatial plan that is further translated by local governments in their own spatial plans. Since the

policies are not from their initiatives, local governments are not encouraged to support the policies. Whilst it cannot be doubted that without support from local governments, the policies in spatial plans cannot be well implemented. Hence, from the case study of JMR, it can be learned that common policies from local initiatives or agreement with local governments in terms of the policies can be more effective in building the collaboration as local interests are incorporated in the policies.

The second motivation, the amount of benefit, has not been encouraged in building coordination in JMR. The benefit for providing coordination in JMR has not been assessed as many institutions in JMR do not have the same perception about the advantage of coordination in the region. This benefit of coordination does not always appear as a shared tax but also can be improving environmental quality in the region. The decreasing flood risk in downstream for example can be one advantage from coordination in spatial planning in Ciliwung watershed of JMR. Nevertheless, since not all governments in JMR have the same perception for this benefit of coordination, only a few of them, who already have a collaborative vision, intend to provide coordination in the region. Within this small group of government, coordination has successfully been conducted thus the issue of fragmentation in their spatial plan can be solved. According to Post (2004), political leaderships or political entrepreneurs can be an effective factor to support collaboration. These few leaders in JMR can be said as political entrepreneurs that can support the development of coordination in regional of JMR. The interesting thing from these collaborative leaders is the way they approach each other or the way the coordination is build. Through informal mechanism such as informal meeting, these leaders try to provide coordination with other leaders. This informal meeting in advance can be example for more effective way in building coordination among local government in metropolitan region.

In short, it can be learned that local initiatives are determined more effective to encourage the development of coordination. Enforcement from higher level government will only result ineffective policies since the implementation of those policies is not well conducted. In contrast, the notion of coordination from local governments is proved more effective to implement. In regards to this circumstance, the challenge is now how to promote local initiative on coordination in spatial planning? Informal meeting, incentive and coercion can be such strategies to manage this issue but further assessment is needed in particular to answer how effective do the informal meeting, incentive and coercion mechanism provide coordination among institutions in metropolitan region.

### **5.3 Practical Recommendation for Strengthening/Supporting Integrated Spatial Planning in Ciliwung Watershed**

Drawing back to the case study of JMR, it can be learned that institutions play significant role in supporting integration in spatial planning. Unfortunately, institutions in the case of JMR are determined not supportive with the notion of integration and coordination in the region due to the boundary and gaps among them. Therefore, some conflicts in institutions in relation to spatial planning are found as the result of this unsupportive circumstance.

In regard to these conflicts, five factors that cause fragmentations in spatial plan including the key characteristic of them are identified which are the number and heterogeneity of institutions, political pressure and power, policy objectives and regulations, leadership or political

entrepreneurship and others. As explained in chapter 4, the factors that cause fragmentation in spatial plan are likely related to institutions and their behaviour. Therefore, the practical recommendation for improving coordination among them also focuses on managing and increasing institutions capacity and other supporting mechanism such as establishing formal coordination scheme and agreement (Table 5.1). These practical recommendations are explained as followed.

*Table 5.1 Strategies To Manage Spatial Fragmentation in JMR*

<b>Factors</b>	<b>Key Issues</b>	<b>Strategies</b>
Number and heterogeneity of institutions (group size)	Boundary and gap among institutions as the result of different task, formal model of government, and amount of institution involved	Strengthening BKSP
Political pressure and power (coercion or incentives)	Pressure from central government and decentralized governance	Developing role sharing mechanism including incentive and disincentive
Policy objectives and regulations	<ul style="list-style-type: none"> <li>• Policies objectives of regional and local spatial plan are determined too board and general thus make them hard to define</li> <li>• The absence of regional perspective in giving development permit</li> <li>• Weak of regulation in land permit</li> <li>• Legal status of BKSP</li> </ul>	Developing role sharing mechanism including incentive and disincentive and establishing new regulation to strengthen BKSP position
Leadership or political entrepreneurship	Willingness to cooperate from the leader due to their personal relationship	Formal agreement of partnership
Others (data and information, awareness, etc)	Limited resources, capability and awareness from local government	Capacity building

### Strengthening the BKSP

To bridge the gap among institutions, an effectiveness coordination board is needed in JMR. As already explained, the number and heterogeneity of institutions in JMR lead to widen the boundary and gap among them thus hinders them to coordinate. With regards to this circumstance, improving the performance of BKSP, the official coordination board in JMR, is crucial in relation to provide more provision of coordination among government. Basically, the function of BKSP in JMR is considered strategic enough. It helps to facilitate and manage the coordination among government in JMR. However, due to the unclear and weak of legal basis of this board, the position of BKSP in JMR's governance scheme is regarded as vague. To improve the performance of this organization, new regulation that is not conflicting with previous or current regulation is needed. This new regulation should address and explain the governance scheme of JMR including where the position of BKSP and how this board can contribute in the scheme. With the clear and strong legal status, BKSP can facilitate the coordination more effectively thus the issue of fragmentation in spatial planning in JMR can be managed.

Beside unclear and weak legal status, BKSP also has problem in its internal structure. Currently, the head of this board is governor of each provinces member in rotation of 5 years. This has brought

some problems particularly on the further implementation of policies or decision made by the board. As JMR consists of three provinces and the head of BKSP is at the same level, they cannot force each other to follow the decision made by the board. They only can force municipalities under their own provincial administrative while other provinces and municipalities under other provinces are difficult to intervene. Therefore, BKSP often only can provide a recommendation. In addition, the awareness of the governors is determined limited that can be seen through the absence almost in every meeting. In regards to this circumstance, the internal structure of BKSP is advised to be reorganized in order to support its tasks. Reorganizing this coordination board can be conducted by encouraging central government to participate in the board. Central government is suggested to chair the board in order to bring a hierarchical level of governments in the internal structure of the board. With central government as the leader of BKSP, the funding of BKSP will be supported by central government thus all local governments in JMR can be intervened. Hence, regional development concept can be prioritized and policies will be easier to be integrated.

Through providing strong regulation and support from central government, it is hoped that BKSP can be more effective to implement its task in managing the coordination in JMR. Thus, fragmentation of spatial plan can be prevented and handled since the coordination among government in JMR runs effective.

#### Establishing role sharing mechanism

Various institutions, authorities, interest and perspective have influenced and formed the current governance system of JMR. This triggers conflicts in particular on the coordination of spatial planning and fragmentation appears as the result of this conflict. To minimize the conflicts among governments, role sharing mechanism of coordination can be an alternative tool. The role sharing mechanism consists of calculation of incentives and disincentives in managing integration of land use from upstream to downstream in Ciliwung watershed. This mechanism will indirectly ask local governments to prioritize regional development instead of local interest. Thus, coordination and cooperation will be likely to occur with regards to the implementation of regional development in spatial planning. The strategy of incentives and disincentives is in accordance with the direction of spatial planning law. Within the law, the term of incentive and disincentive is explained but with no clear calculation on how much the amount of incentive and disincentive will be provided. Therefore, this strategy focuses on the detail mechanism of incentives and disincentives including the calculation and any other rules to support the implementation of incentives and disincentives.

#### Setting the formal agreement up

As some local leaders in JMR have shown the interest to develop coordination and partnership among local governments in JMR, this positive factor should be strengthened by establishing a formal agreement. Particularly for the management of Ciliwung watershed, the formal agreement can explicitly mention what kind of partnership will be provided and who are involved in the partnership. To some extent, this agreement can bring advantage in particular for the sustainability of the coordination and partnership between local governments. It can provide a robust scheme of coordination since it means acknowledgement or formal legal status for the coordination. In addition, by the establishment of this formal agreement, it can encourage other local governments in JMR to develop coordination among them. Thus, it also can be used as a starting point to develop further regional initiatives in JMR.

## Capacity building

The limited capacity of local governments in managing spatial issue in JMR can some extent hinder the coordination thus threatens the integration effort in spatial planning. Limited awareness in providing regional development for example can decrease the likelihood of local governments to work together since coordination is not important for them. Thereby, capacity building of governments in JMR is suggested, in particular to explain to local government the advantages of coordination and encourage them to cooperate for watershed issue. Especially for spatial planning, capacity building to adopt the regional spatial plan, develop a clear, comprehensive and integrated spatial plan, and also monitoring the implementation of the spatial plan will also be advised to enrich local governments understanding of spatial planning in JMR. It is hoped that by providing capacity building to local governments, their awareness in providing regional cooperation in JMR increases thus fragmentation in spatial planning can be minimized.

Overall, the strategies provided above focus on managing institution in relation to building regional cooperation in JMR starting from increasing their capacity and illuminating their role in the coordination scheme. Institutions here are considered crucial since this research has shown that the success of coordination is much influence by them. At the context of JMR, there are various institutions involved in the coordination scheme including local government (municipals and province), central government and BKSP. Through managing those institutions, it is hoped that a supportive and conducive coordination will be obtained. Apart from managing institutions, other strategies such as establishing role sharing mechanism and formal agreement are also advised to provide a clear legal basis for the coordination. It will support the implementation of the coordination thus brings a robust scheme of coordination in JMR.

## **5.4 Reflection on Research**

The aim of this research is to provide an enhance understanding on how to manage integration in spatial planning in urban watershed. With regards to this aim, the research tries to give an insight of fragmentation issue in spatial planning including the characteristic of the conflict and factors that cause fragmentation. This comprehensive overview of fragmentation conflicts in spatial planning is drawn through combination of three different kinds of analysis which are formal planning scheme from regulations, comparison of spatial plan content, and governments' perceptions and interpretations from interview. However, some limitations are still found particularly on the quality of data and information for this research. As the planning process of local spatial plans is still going on currently, some local land use plan documents have not finished yet. Therefore, there is still a possibility of change on the content of the land use plan. However, this research tries to manage the issue by updating the information not only limited on the land use plan documents but also from other sources such as from substantial approval minutes of meeting. It is hoped that by enriching the source of information can minimize the deviation of the content of land use plan thus the information used in this research will be more adequate and qualified.

Moreover, the fragmentation issues discussed in this research are still on the macro level which is policies level. Further discussion and research on the micro level is suggested to be conducted to give more insight on the implication of fragmentation at the implementation policies.

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## **APPENDIX 1: Questioner Fieldwork**

**University of Groningen**

**Inter-Regional Cooperation in Metropolitan : A Mechanism To Support Spatial Integration in Ciliwung Watershed in Jakarta Metropolitan Area.**

**Researcher : Atik Kumala Dewi**

**Interviewee : Provincial and National Governments**

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### **A. Regulation**

1. How was the process of spatial planning documents developed according to (UU 26/2007, PP 26/2008 and PP 15/2010), Who were in charge during the process?
2. Are there any inconsistencies within policies within the regulations in spatial planning? If yes, what are they? And why?
3. To what extent do water regulations link to spatial planning regulations?
4. Is there any mechanism to ensure that the spatial plans in various levels are integrated according to the Law and Regulation? If yes, what is it?
5. Is there any incentive for governments in a case their spatial plan are well integrated with regional Jabodetabekpunjur plan according to the Law and Regulations? If yes, what is it?

### **B. Policies**

6. What do you think of Jabodetabekpunjur spatial plan (Perpres No.54/2008)? Is it clear enough and does it accommodate all municipal plans in Jabodetabekpunjur?
7. Do current municipal spatial plans in Jabodetabekpunjur in line with regional plan? If no, why?
8. What are the factors that contribute to the disintegration policies?
9. On which elements do you think Jabodetabekpunjur spatial plan already interrelate with Ciliwung watershed management plan? If some are not, why?
10. Is there any mechanism to ensure that all spatial plans in Jabodetabekpunjur are integrated? If yes, what is it?
11. What strategies can be done to manage the disintegration conflict?

### **C. Coordination and Stakeholders**

12. Were all governments in JMR involved in the formulation process of Jabodetabekpunjur spatial plan? And What were their contribution?
13. What do you think about the coordination efforts among governments in Jabodetabekpunjur? Are factors, such as the number of institutions, distance of metropolitan region, different policy objective, less incentive, leadership that hinder the coordination in Jabodetabekpunjur?
14. Do think the inter-governmental cooperation can bring advantages especially in spatial planning Jabodetabekpunjur? If yes, could you give some examples?

15. According to the Law, there is BKPRN and BKPRD (Province and Municipal) that aims to manage the coordination in spatial planning. What are they responsibilities? And To what extend can BKPRN and BKPRD contribute in spatial planning coordination in Jabodetabekpunjur?
16. What are BKSP role in Jabodetabekpunjur? And Where is the position of BKSP in Jabodetabekpunjur planning?
17. How does BKPRN, BKPRD and BKSP coordinate?
18. In case there is a conflict in spatial planning in Jabodetabekpunjur, who has the responsibility to manage the dispute?

**University of Groningen**

**Inter-Regional Cooperation in Metropolitan : A Mechanism To Support Spatial Integration in Ciliwung Watershed in Jakarta Metropolitan Area.**

**Researcher : Atik Kumala Dewi**

**Interviewee : Local Governments**

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**A. Regulation**

1. How was the process of spatial planning documents developed according to (UU 26/2007, PP 26/2008 and PP 15/2010), Who were in charge during the process?
2. Are there any inconsistencies policies within the regulations in spatial planning? If yes, what are them? And why?
3. To what extent do water regulations link to spatial planning regulations?
4. Is there any mechanism to ensure that the spatial plans in various levels are integrated according to the Law and Regulation? If yes, what is it?
5. What kind of formal and informal incentives do local governments have to integrate their spatial plan with regional Jabodetabekpunjur plan according to the Law and Regulations?

**B. Policies**

6. What do you think of Jabodetabekpunjur spatial plan (Perpres No.54/2008)? Is it clear enough and does it accommodate your municipal plan?
7. On which elements do you think Jabodetabekpunjur spatial plan already interrelate with Ciliwung watershed management plan? If some are not, why?
8. Specifically for flooding protection, did you adopt the strategies in Jabodetabekpunjur spatial plan and translating them into your spatial plan? If yes, could you briefly explain what kind of strategies did you adopt and translate? And if no, why?
9. Did you adopt Ciliwung watershed management plan when formulating your spatial plan? If yes, in which policies? And if no, why?
10. What is your main policy goal in water management in relation to flooding protection in your spatial plan?
11. To what extent do your policies in flood protection conflict or overlap with other municipal policies in Jabodetabekpunjur?
12. What are the factors that contribute to the disintegration policies?
13. For what kind of purpose (zoning) does land use in Ciliwung watershed within your administrative developed?
14. Is there any mechanism to ensure that your spatial plans are well integrated with Jabodetabekpunjur plan? If yes, what is it?
15. What strategies can be done to manage the disintegration conflict?

**C. Coordination and Stakeholders**

16. Were you involved in the formulation process of Jabodetabekpunjur spatial plan? And What was your contribution?

17. What do you think about the coordination efforts among governments in Jabodetabekpunjur?  
Are factors, such as the number of institutions, distance of metropolitan region, different policy objective, less incentive, leadership that hinder the coordination in Jabodetabekpunjur?
18. Do think the inter-governmental cooperation can bring advantages especially in spatial planning Jabodetabekpunjur? If yes, could you give some examples?
19. According to the Law, there is BKPRD (Province and Municipal) that aims to manage the coordination in spatial planning. What are they responsibilities? And To what extend can BKPRD contribute in spatial planning coordination in Jabodetabekpunjur?
20. What are BKSP role in Jabodetabekpunjur? And Where is the position of BKSP in Jabodetabekpunjur planning?
21. How does BKPRN, BKPRD and BKSP coordinate?
22. In case there is a conflict in spatial planning in Jabodetabekpunjur, who has the responsibility to manage the dispute?

## APPENDIX 2: Overview of The Interviewees

Overview of the background of the interviewees is provided bellow.

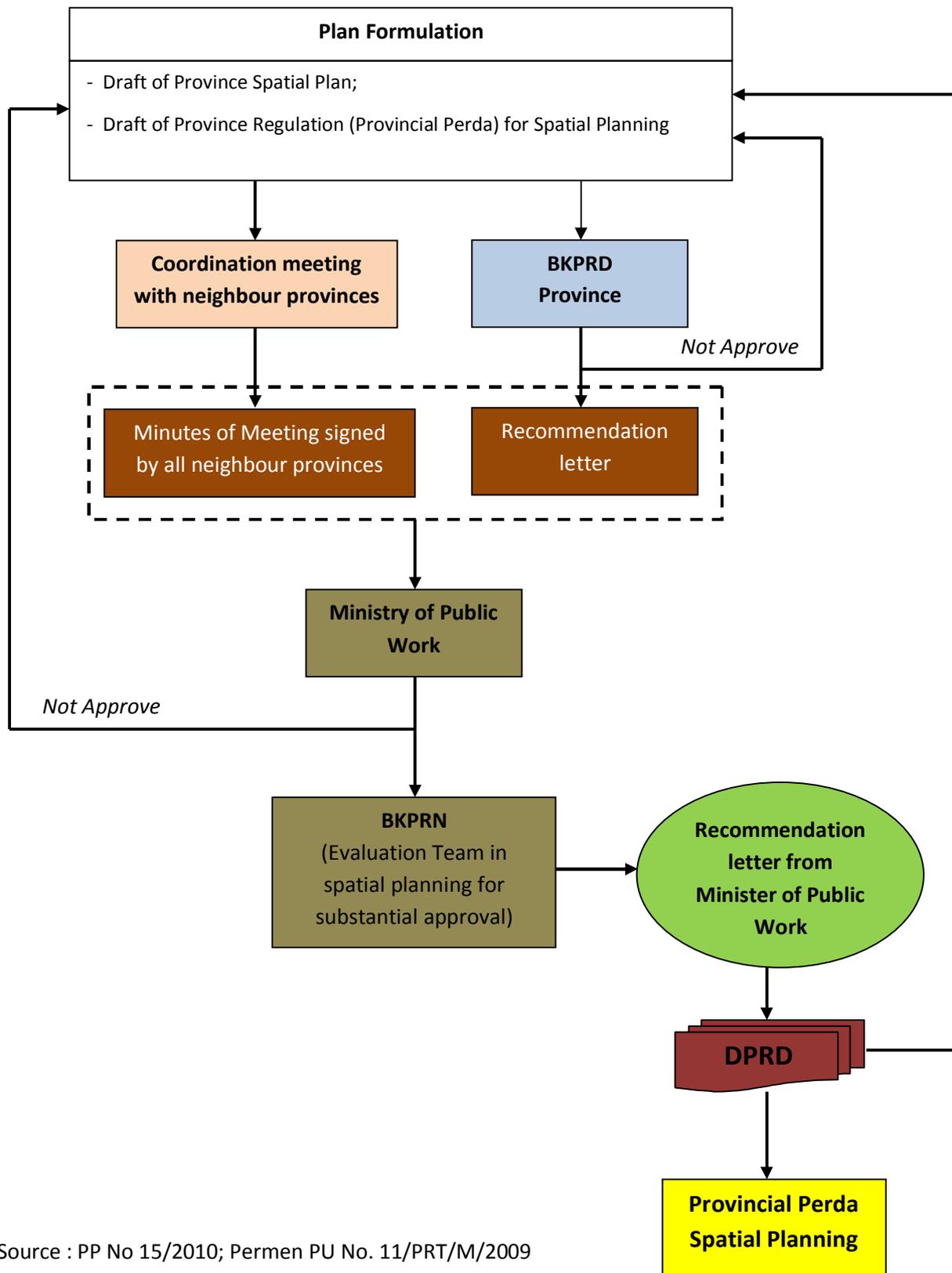
1	Name	Renny Windyawati
	Occupation	Deputy Director of Regulation, Directorate General of Spatial Planning, Ministry of Public Work
	Brief Task	The division has authority to develop and disseminate norm, standard, guideline and criteria for spatial planning at national level. Despite the task in the division, the interviewee was previously involved in the planning process of regional spatial plan of JMR.
	Date of interview	30 May 2011
2	Name	Nursyam
	Occupation	Head of Development Planning Division, Coordination board of JMR (BKSP)
	Brief Task	The division has authority to develop strategic planning of the coordination board.
	Date of interview	31 May 2011
3	Name	Ajat Rochmat Jatnika
	Occupation	Head of Physis Division, Urban Planning Agency, Kabupaten Bogor
	Brief Task	The division has authority to develop detail spatial plan in Kabupaten Bogor
	Date of interview	1 June 2011
4	Name	Vera Revinasari
	Occupation	Head of Urban Infrastructure and Environmental Division, DKI Jakarta's Planning Agency
	Brief Task	The division has authority to develop spatial planning for DKI Jakarta Province
	Date of interview	1 June 2011
5	Name	Yetti Nuryati
	Occupation	Deputy Director of Urban Development, Directorate General of Spatial Planning, Ministry of Public Work
	Brief Task	The division has authority to implement the spatial planning and national policy for strategic urban area development
	Date of interview	8 June 2011
6	Name	Baru Panjaitan
	Occupation	Deputy Director of Regional Planning, Directorate General of Water Resources, Ministry of Public Work
	Brief Task	The division has authority to develop planning for rivers
	Date of interview	8 June 2011

7	Name	Latief Priyadi
	Occupation	Staff of Physic Division, Planning Agency of Kota Bogor
	Brief Task	The division has authority to develop and implement spatial plan of Kota Bogor
	Date of interview	9 June 2011
8	Name	Sudjtmiko
	Occupation	Head of Physic Division, Planning Agency of Kota Depok
	Brief Task	The division has authority to develop and implement spatial plan of Kota Bogor
	Date of interview	9 June 2011
9	Name	Bambang Warsito
	Occupation	Deltares Consultant
	Brief Task	Currently, Deltares Consultant is working for water plan development project
	Date of interview	10 June 2011
10	Name	Benny Agus Candra
	Occupation	Head of Environment and Spatial Planning Biro, Planning Agency of DKI Jakarta
	Brief Task	The biro has authority to provide infrastructure and implement spatial plan. Despite the task in the division, the interviewee was previously involved in the planning process of DKI Jakarta's spatial plan
	Date of interview	10 June 2011
11	Name	Agung Suhartono
	Occupation	Head of Physical Division, BBWS Ciliwung-Cisadane and also Head of TKPSDA of Ciliwung-Cisadane
	Brief Task	The division has authority to develop water plan for Ciliwung-Cisadane. Despite his main task, he also involved in the coordination board of Ciliwung-Cisadane
	Date of interview	13 June 2011
12	Name	I.F.Poernomosidhi Poerwo
	Occupation	Independent researcher
	Brief Task	Currently, he is working for Ministry of Public Work in a research about integrated management of Ciliwung-Cisadane
	Date of interview	13 June 2011
13	Name	Sarwono Sukardi
	Occupation	DHV consultant
	Brief Task	Currently, DHV Consultant is working for water plan development project
	Date of interview	13 June 2011

14	Name	Wilmar Salim
	Occupation	Lecturer in ITB
	Brief Task	As expert in public policy, he has done many researches about governance, institutions particularly for JMR
	Date of interview	14 June 2011
15	Name	Tommy Firman
	Occupation	Lecturer in ITB
	Brief Task	As expert in public policy, he has done many researches about governance, institutions particularly for JMR
	Date of interview	15 June 2011
16	Name	Rudi Mahmud
	Occupation	Head of Physic Division, Planning Agency of Province Jawa Barat
	Brief Task	The division has authority to develop and implement spatial plan of Province Jawa Barat
	Date of interview	15 June 2011

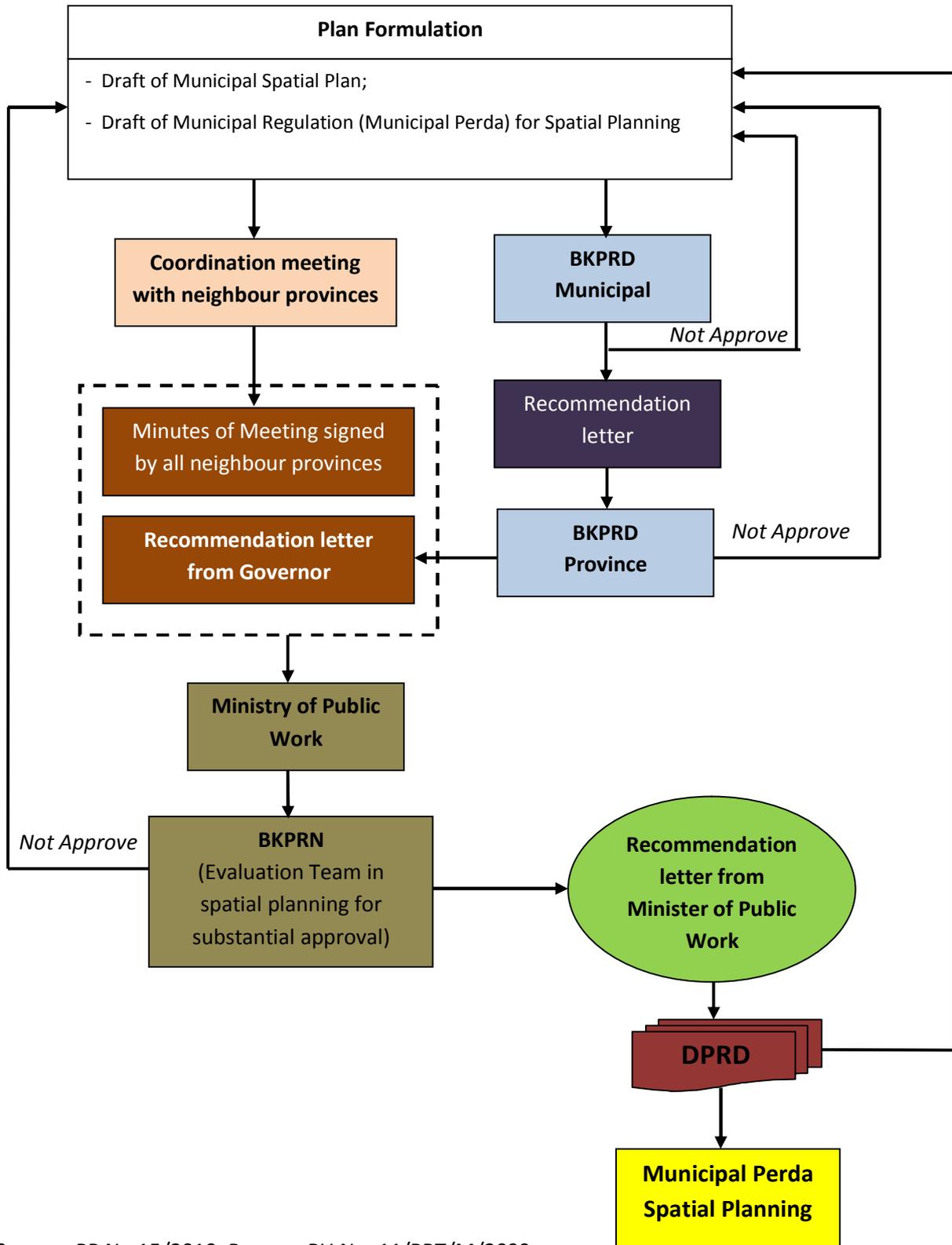
## APPENDIX 3 : The Legalization Process of Spatial Planning and Water Planning

### 1. The Substantial Approval Process For Provincial Spatial Plan



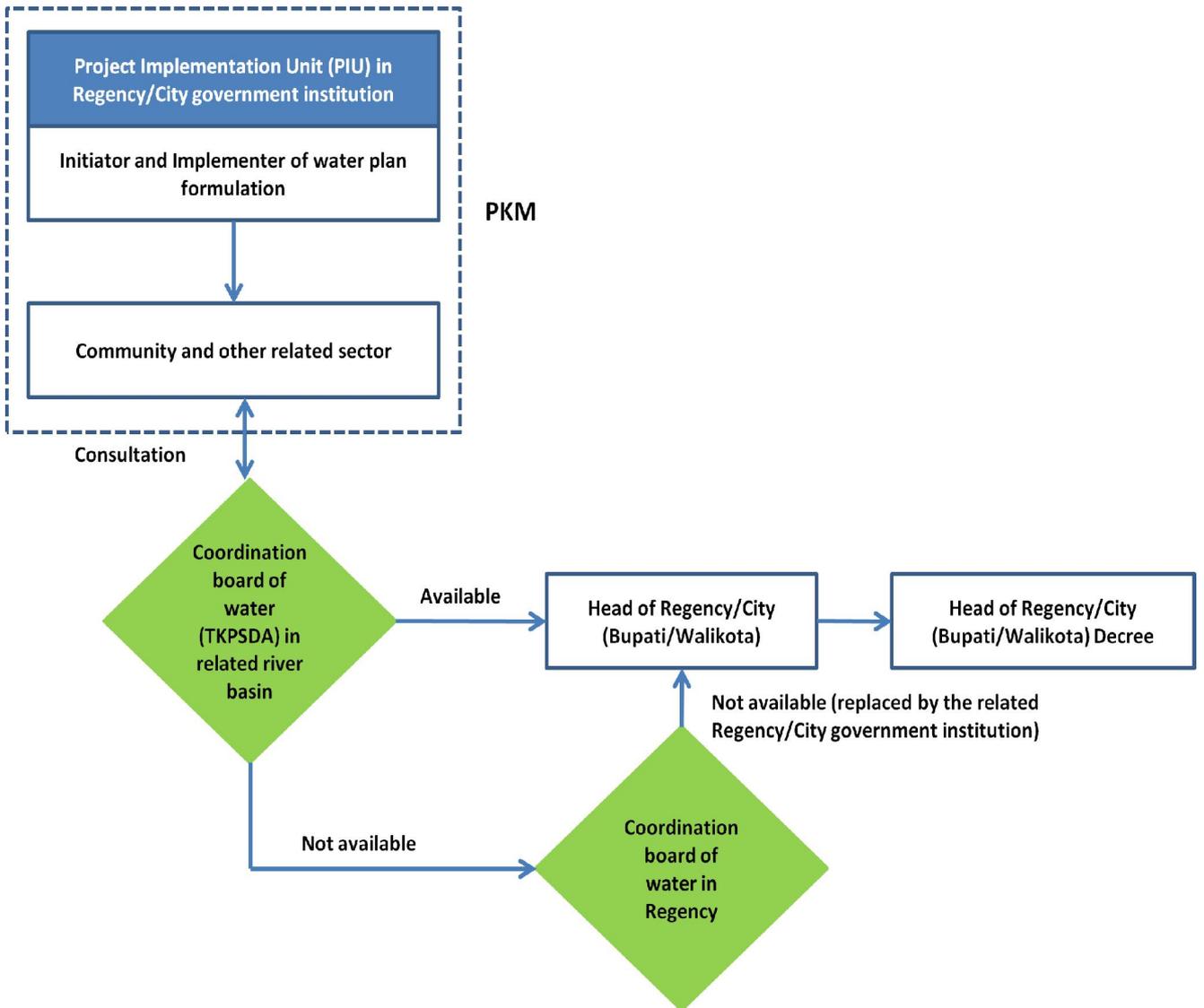
Source : PP No 15/2010; Permen PU No. 11/PRT/M/2009

## 2. The Substantial Approval Process For Municipal Spatial Plan



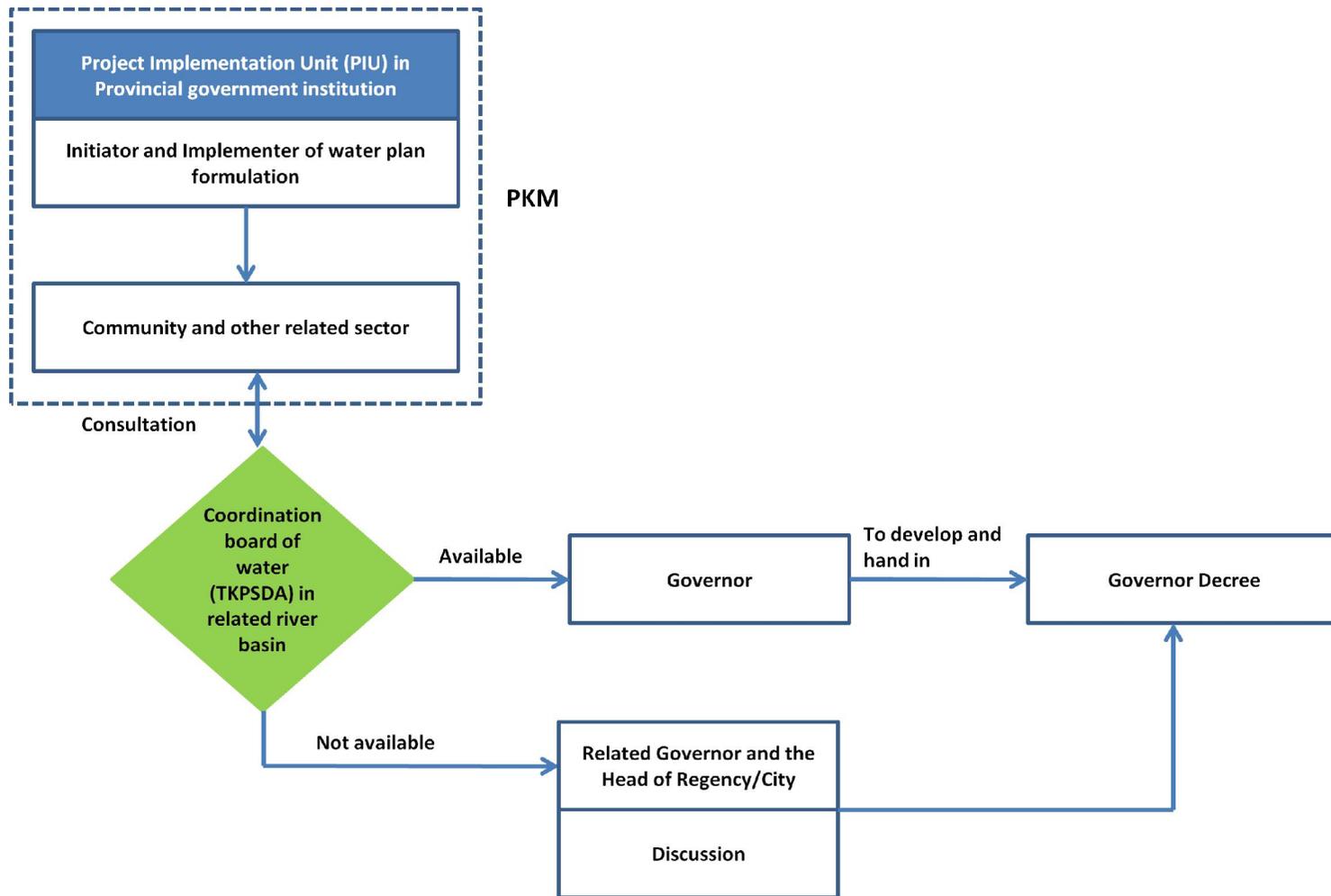
Source : PP No 15/2010; Permen PU No. 11/PRT/M/2009

### 3. The Legalization Process of Water plan in inner-city/regency river basin



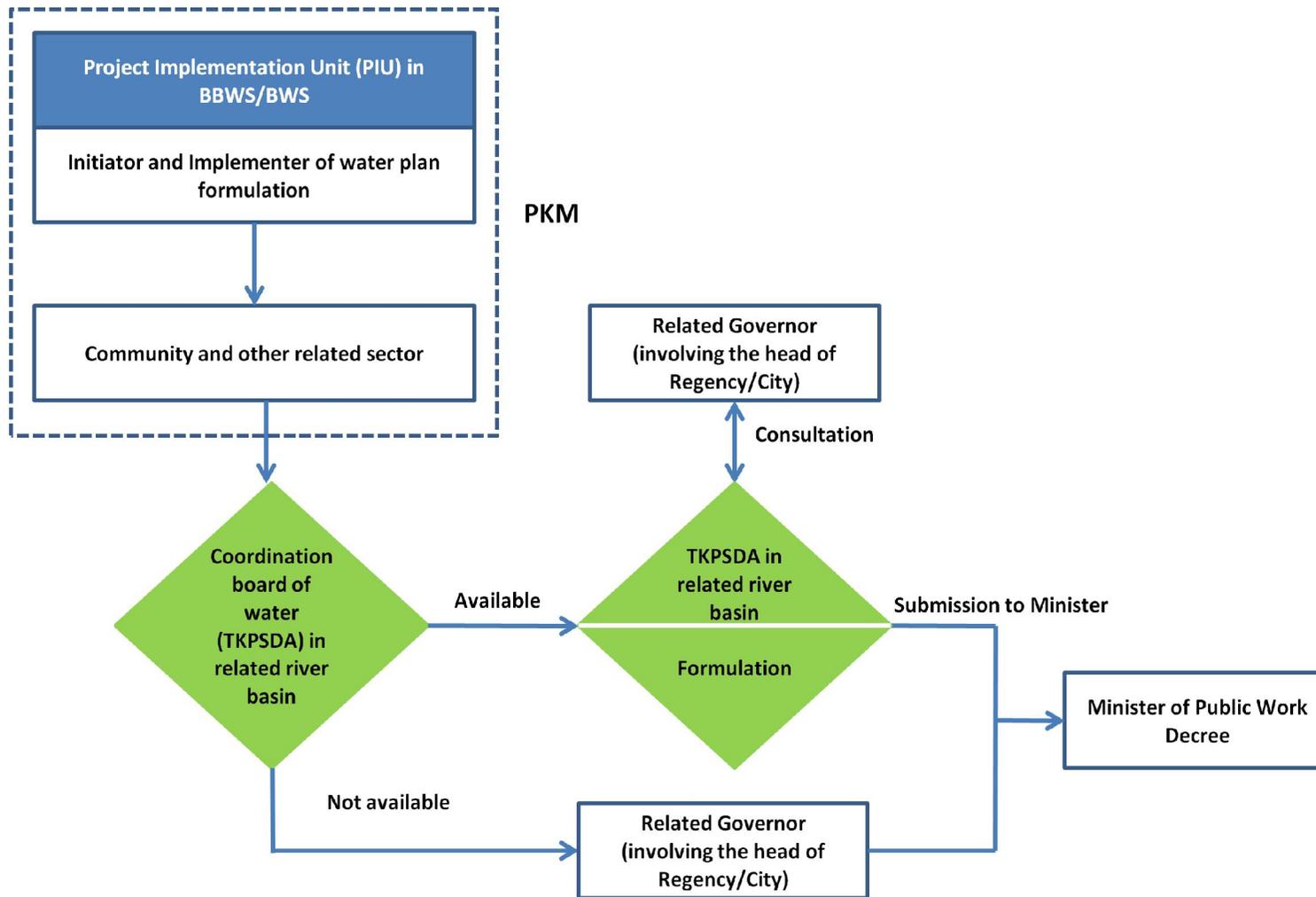
Source : Ministry of Public Work Regulation No. 22 of 2009

4. The Legalization Process of Water plan in cross-city/regency river basin



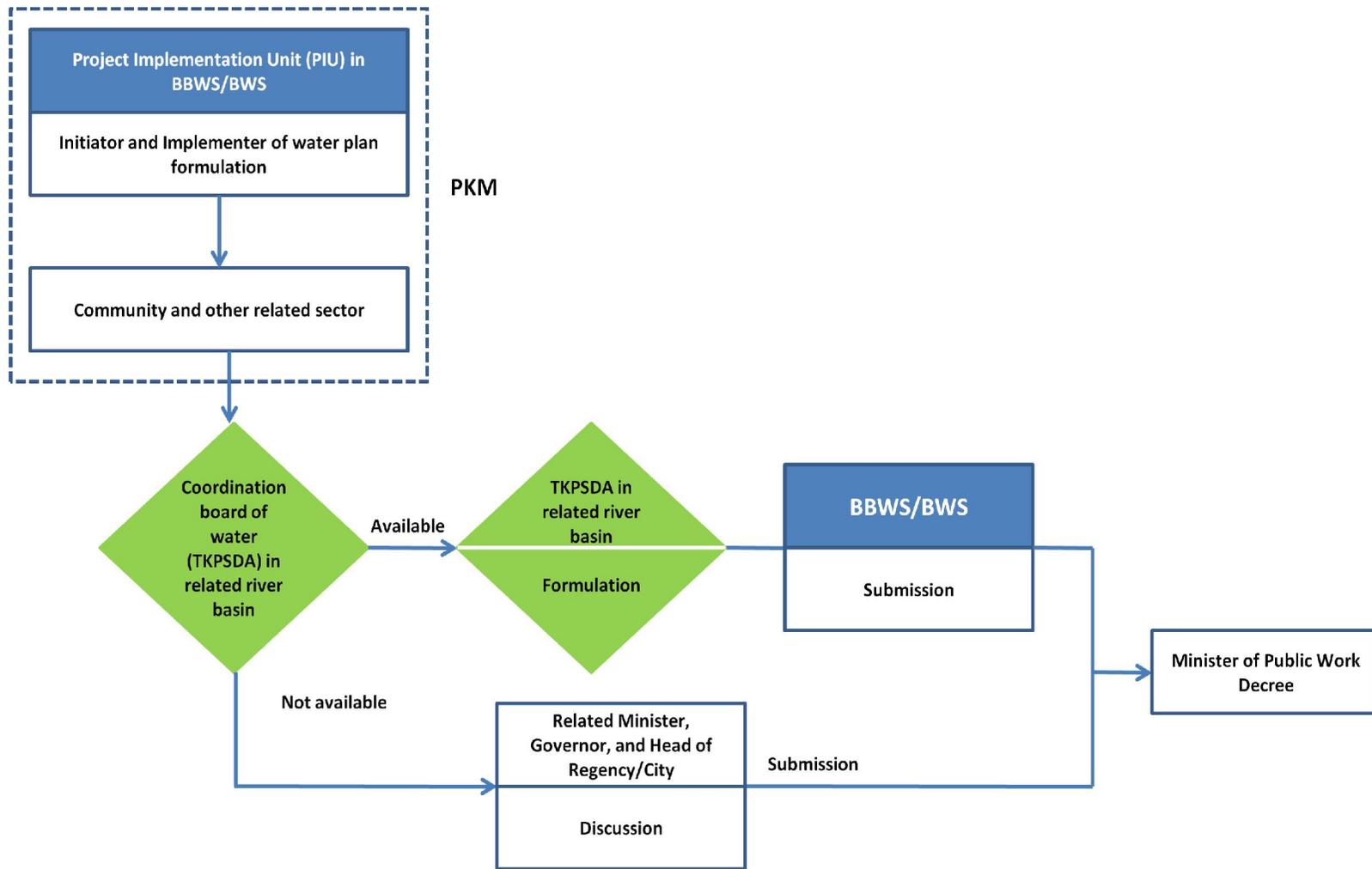
Source : Ministry of Public Work Regulation No. 22 of 2009

5. The Legalization Process of Water plan in cross-provinces river basin



Source : Ministry of Public Work Regulation No. 22 of 2009

6. The Legalization Process of Water plan in national strategic area of river basin



Source : Ministry of Public Work Regulation No. 22 of 2009

## APPENDIX 4 : Structure Organization of Coordination Board of Spatial Planning and Water Planning

### 7. BKPRN Organisation

Chairman: Coordinator Minister of Economy Vice Chairman I: Minister of Public Works Vice Chairman II: Minister of Home Affairs Secretary: Minister of PPN/Head of Bappenas	
Members: 1. Minister of Defense 2. Minister of Energy and Mineral Resource 3. Minister of Industry 4. Minister of Agriculture 5. Minister of Forestry	6. Minister of Communication 7. Minister of Marine and Fishery 8. Minister of Environment 9. Head of National Land Agency (BPN) 10. Minister of Cabinet Secretary

Source : URDI, 2010; Presidential Decree No. 4/2009

### 8. Dewan SDA Nasional Organisation

Chairman: Coordinator Minister of Economy Daily Chairman : Minister of Public Works	
Members: 1. Minister of PPN/Head of Bappenas 2. Minister of Home Affairs 3. Minister of Health 4. Minister of Energy and Mineral Resource 5. Minister of Industry 6. Minister of Agriculture 7. Minister of Forestry 8. Minister of Marine and Fishery	9. Minister of Environment 10. Minister of Research and Technology 11. Minister of National Education 12. Head of Meteorology, Climatology, and Geophysics Board 13. Head of Indonesian Institute of Sciences 14. Local Government representatives 15. NGOs

Source : Presidential Decree No. 6/2009

## APPENDIX 5 : Statistic of JMR

### 1. Number of Population and Population Growth in JMR in 1990, 2000, and 2008

Municipalities	Population (in thousands)			Population Growth ( % )	
	1990	2000	2008	1990-2000	2000-2008
DKI Jakarta	8,259	8,384	9,146	0.15	1.09
<b>Kota</b>					
Bogor	255	751	942	11.41	2.87
Depok	-	973	1,504	-	5.59
Tangerang	-	1,312	1,532	-	1.96
Bekasi	-	1,471	2,238	-	5.39
<b>Kabupaten</b>					
Bogor	3,737	3,100	4,215	-1.85	3.92
Tangerang	2,765	2,783	4,141	0.06	5.09
Bekasi	1,270	1,625	2,194	6.29	3.82
Cianjur	1,662	1,946	2,211	1.59	1.61
<b>Total of JMR</b>	<b>17,948</b>	<b>22,345</b>	<b>28,123</b>	<b>2.21</b>	<b>2.92</b>
<b>Total of Indonesia Citizen</b>	<b>179,378</b>	<b>206,265</b>	<b>237,359</b>	<b>1.41</b>	<b>1.77</b>

*Source : Statistical Board from each Kota and Kabupaten in Jabodetabekjur*

*Population growth results obtained from Geometric Rate of Growth calculations*

*Note: Kepulauan Seribu established in 2001*

*Kota Depok established in 1999*

*Kota Tangerang established in 1993*

*Kota Bekasi established in 1996*

### 2. Area of Built up and Open Space in JMR from 1992 to 2005

Municipalities	Area of Built Space		Average growth (%/year)	Area of open space	
	1992 (ha)	2005 (ha)		1992 (ha)	2005 (ha)
DKI Jakarta	40,602.33	54,405.85	2.37	17,956.12	7,166.08
<b>Kota</b>					
Bogor	2,974.94	6,277.32	6.16	8,059.96	4,911.85
Depok	1,985.92	9,766.55	13.59	17,532.78	9,780.17
Tangerang	6,699.57	13,738.66	5.91	8,468.46	3,820.00
Bekasi	5,538.29	14,717.08	8.31	14,618.49	7,239.74
Tangerang Selatan	n.a	n.a	n.a	n.a	n.a
<b>Kabupaten</b>					
Bogor	5,934.76	34,215.64	15.04	260,177.77	234,945.39
Tangerang	6,705.73	31,821.26	13.27	82,738.69	66,601.42
Bekasi	3,064.30	22,196.01	17.16	83,280.06	77,903.54
Cianjur	n.a	n.a	n.a	n.a	n.a
<b>Total</b>	<b>73,505.84</b>	<b>187,138.37</b>	<b>7.76</b>	<b>492,832.33</b>	<b>412,368.19</b>

*Source: Jabodetabek Metropolitan Study, IPB, 2007*

## APPENDIX 6 : Classification of Land Use Function in Regional Spatial Plan of JMR

The spatial zone in Jabodetabekpunjur is divided into three categories which are protection (N1,N2) cultivation (B1,B2, B3, B4, B4/HP, B5, B6, B7, B7/HP) and buffer zone (P1, P2, P3, P4, P5). The direction for each zone is explained bellow.

1. N1 : non-cultivation (in case there are cultivation areas in this zone, those should be removed immediately), protected forest, research activities, forest streams, lakes, seas and slopes, forest retention and mangrove.
2. N2 : non-cultivation, nature tourism, preservation and conservation areas for culture, flora and fauna, and research activities
3. B1 : high density of urban settlement, business and services, and small, non-polluting, and market orientation industries
4. B2 : medium density of rural settlement, agriculture, labour orientation industries
5. B3 : low density of settlement (low-intensity for built up with technical engineering intervention) and agriculture
6. B4 : low density of settlement, dry/wet crop, fishery, plantation, agro farms, and production of forest
7. B4/HP : B4 zone that has been issued as permanent production forest or limited production forest as in accordance with regulations and laws
8. B5 : wetland agriculture (technical irrigation)
9. B6 : low density of settlement (with 50% maximum of building zone coefficient), low environmental carrying capacity, and any other development activities that have been approved by national planning coordination board
10. B7 : low density of settlement (with 40% maximum of building zone coefficient), low environmental carrying capacity, production of forest, and any other development activities that have been approved by national planning coordination board
11. B7/HP : B7 zone that has been issued as permanent production of forest or limited production of forest as in accordance with regulations and laws
12. P1 : a land use zone that is functioned to protect from abrasion, seawater intrusion, pollution, and other damaging forces from sea, and also any other land uses aiming to protect and support N1 zone
13. P2 : a land use zone that is functioned as flood prone and protection from abrasion, intrusion, pollution and other damaging forces from sea, and any other land uses aiming to protect N1 and P5
14. P3 : a land use zone that is functioned as buffer zone for high density activities and accessibilities and any other land uses aiming to protect and support B1
15. P4 : a land use zone that is functioned as low environmental carrying capacity aiming to support B2 and B4
16. P5 : a land use zone that is functioned to protect abrasion, retention, seawater intrusion, mangrove conversion, and low environmental carrying capacity zone, and any other land uses aiming to support N1 and B1