Master Thesis
Environmental and Infrastructure Planning

Understanding Self-Organization, Urban Transformation, and the Spatial Planning System in Greater Jakarta Area, Indonesia

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Summary

Globalization has stimulated the emergence of self-organizing process in Greater Jakarta's civil society through their self-interventions, beyond the government control. Gradually, this self-organization encourages the urban development process at *macro* level. The urban development phenomena occur in a non-linear transition, and cause the emergence of new pattern of urban morphological and function through the urban land-use change. The urban land-use change phenomena stimulate an urban transformation process. According to the explanation and analysis results, we found that the urban transformation causes the reality out there to grow more complex. This growing reality makes uncertainty in the future is hard to be predicted. This situation leads the planners to implement a 'creative' spatial planning system that can deal with the non-linear transition process in the urban transformation. Unfortunately, the current spatial planning system in Greater Jakarta is not sufficient yet to respond the non-linear urban transformation. The spatial planning system in Greater Jakarta tends to implement the semi technical rationality approach to cope with the reality. The discrepancy between the empirical situation and the existing spatial planning system results in a mismatch between spatial planning system and urban system in Greater Jakarta. Therefore, this research is dedicated to identify how the urban transformation process in Greater Jakarta can be examined by the concept of non-linearity and to contribute to a new perspective for the spatial planning system that is able to deal with the non-linear transition process. As conclusion of this research, I found that the mismatch occurs because the current spatial planning system does not consider to the change of time. Meanwhile, the term time is much related to the unpredicted uncertainty in the future. In order to respond this mismatch, I argue to implement an alternative for the spatial planning system in Greater Jakarta that can pay more attention for urban system which evolves in a non-linearity process.

Key words: self-organization, urban transformation, non-linearity, spatial planning system, Greater Jakarta

Acknowledgements

Spatial planning is an ongoing process which is influenced by various factors. Understanding a spatial planning system in Greater Jakarta was a big challenge for me. The high level of complexity in Greater Jakarta encouraged me to analyse deeply the relationship between self-organization, urban transformation, and the spatial planning system. By doing this research, I hope there is a process of delivering insights for planners and decision makers in Greater Jakarta to deal with spatial planning more sensitively with the self-organizing process, that is initiated by the society which can stimulates an emergence of urban transformation.

I would like to express my sincere thanks to my supervisor, Prof. Gert de Roo. I was so honored to be supervised by him, due to his deep understanding and outstanding thinking about complexity theory in planning. He taught me that life is full with uncertainty, and the concept of 'relativism' is unavoidable in the planning process. I appreciated his detail checking to my writing, in spite of his busy time. I also want to say many thanks to my family and friends who always support me in writing my thesis. Special thanks to Fikri Zul Fahmi as my 'second supervisor', Pak Delik Hudalah and Adryan Sasongko who helped me doing my fieldwork for this thesis, Fanny (Pani) Azzuhra – Mas Oki – and Mba Fahri (Kasino) as members of 'Geng Ojek (Amsiong) Groningen', 'Geng Lantai Persetengahan', Big Family of Planetenlaan: Azis & Amalina, Niken, Keluarga Pak Asmoro, Kang Izul & Teh Alya, and many others (i.e 'de Gromiest' and 'PPIG'). You all have succesfully created a beautiful memory for my life story in Groningen.

Live and study in Groningen for a year has given me a lot of knowledges and experiences for me. I realize that a knowledge is important, but a learning process is even more. I believe that the learning process in Groningen will be a valuable provision for the maturation process of my character and knowledge. Therefore, from my deepest heart, I would like to thank Allah Swt for giving me a chance to study in Groningen, so I can enrich my knowledge and experience.

Finally, I realize that this thesis might be far from perfect and needs to be improved. However, hopefully this thesis cancontribute lessons for policy makers on how spatial planning system should be developed in order to be more applicable or easy to be implemented. In particular, this thesis gives policy recommendation for the Indonesian government in arranging spatial planning system within a complex situation.

Groningen, August 2014

Yovi Dzulhijjah Rahmawati

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CHAPTER 1
INTRODUCTION

1.1 Background

Globalization is an unavoidable phenomenon that we have recently faced, whereby distance is no longer a barrier to build interdependent networks between multi-continental actors. Globalization causes fundamental changes in political, economic, and environmental aspects through the global competition (Nye & Donahue, 2000; George & Wilding, 2002). One of robust effects of globalization that we can see at the local level is urbanization. Urbanization is intertwined with globalization, as they both create a loop in the development cycle process. We can see this impact as manifested by urban population growth, the expansion of existing cities and the rapid emergence of new city centres at rural areas (cf. Martin et al., 2008). The speed of urbanization is different across urban-regions in the world. Generally speaking, rapid and uncontrolled urbanization usually occurs in developing countries. UN predicts that there will be a massive growth of rural dwellers which is expected to transform into urban areas that have around 190 million inhabitants from 2000 to 2024 (UN Population Division as cited in Martin et al., 2008).

Basically, urbanization delivers both positive and negative influences on urban living. On the positive side, urbanization is believed to play a role in social and economic development. Generally, countries with the highest rate of economic growth have also been those with the most rapid increase in level of urbanization (Montgomery et al., 2003; Overman and Verables, 2005 as cited in Martin et al., 2008). On the contrary, urbanization is also indicated to deliver negative impacts, such as the emergence of slum areas and traffic congestion, as resulted from the progressive population growth. It is worth noticing that in developing countries urbanization indicated to be a form of self-organized process. The self-organization is manifested through several phenomenon. First, jobs opportunities are rather limited, and this imposes people to more creatively improve their economic conditions. People do so through migration, economic transaction, and the creation of new businesses at various scales, including informal economic activities. These activities need space, and thus can influence on the arrangement of urban land use, rural transformation, the creation of new city centre and extended development of urban boundaries. Second, and with regard to the previous point, in some cases housing and estates should be built autonomously (Monkkonen, 2013). Although there is a procedure of gaining the building permit, it is often that the issued permits were not crosschecked with the local spatial plans. Therefore, urban expansion exceeding territorial boundaries seems to be unavoidable.

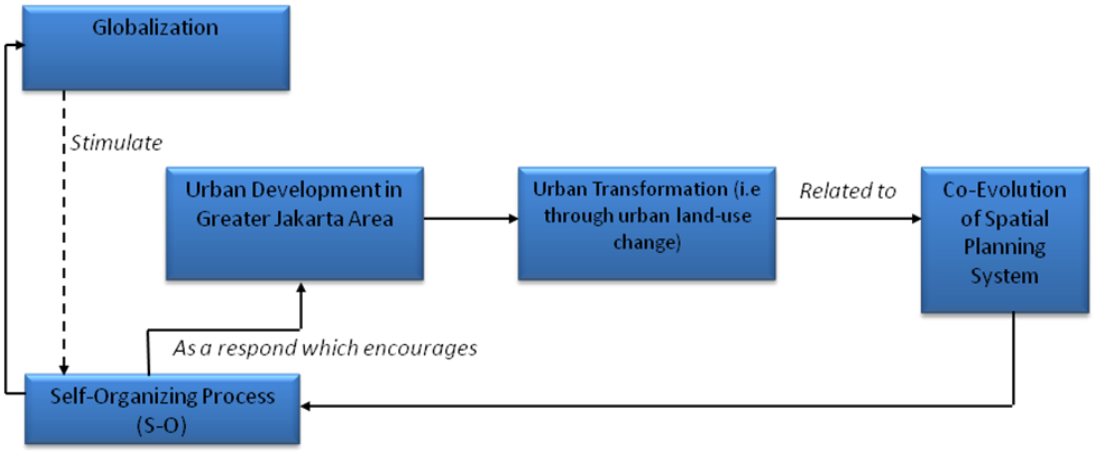
Greater Jakarta is one of urban areas in Indonesia which has a rapid dynamic growth (Firman, 2013). It consists of several territories, i.e. municipalities (kota) and districts (kabupaten), including **Ja**karta-**Bo**gor-**De**pok-**Ta**ngerang-**Bek**asi (Jabodetabek). Like other dynamic urban areas in South East Asia, Greater Jakarta has evolved becoming an extended metropolitan area through the urbanization process. This evolution process occurs as a consequence of challenges in the globalization era. Indirectly, these global challenges stimulate self-interventions that originate in the civil society itself, via autonomous networks of society, beyond the government control. In other words, this process is called self-organization in urban

development (Boonstra and Boelens, 2011). This self-organization then encourages social, behavioural, economic and political changes in Greater Jakarta through gradual shifting process (Firman, 2013). This process is resulted by the relationship among three fundamental phenomenon, including migration, local economic improvement, and urban development. Migration to Jakarta Municipality and its surrounding (i.e Bogor, Depok, Tangerang, and Bekasi) is likely to be the beginning of the self-organization. The migration process stimulates an emergence of population growth in Greater Jakarta, which leads to an increase of economic needs. In order to comply with the economic needs, the society both at the *micro* and the *macro* level starts various economic activities. These economic activities then trigger the generation of other activities, especially residential development. The combination of these activities stimulate an emergence of urban development in gradual processes through a creation of new city centres in the rural areas, such as in Bekasi, Bogor, and Tangerang regencies. Moreover, the emergence of urban development can be seen as a positive process of generating new economic activities, such as new small, medium, and high enterprises which can reduce unemployment and deliver contributions to the local revenues.

Nevertheless, the urban development process has also a potential influence on creating a crucial challenge for the urban planning process, that is much related to urban lad-use change. In Greater Jakarta, urban land-use change could be seen as a representation of the urban development process which is stimulated by self-organization through a non-linear transition process. It means that there is an unpredictable change in the structure and function of Greater Jakarta area during the transition process, because of a changeable context and causality (De Roo, 2010). This land-use change then could create negative impacts and stands against the current spatial plans when it grows out of control and results in urban morphological fragmentation (Barros and Sobreira, 2002). This negative impact then could become a serious problem for Greater Jakarta, which still tends to implement semi blueprint planning approach in its spatial planning system. As a metropolitan area which refers to semi blueprint planning approach, related plans in Greater Jakarta should be positioned as a main guidline in managing urban land-use changes. However, the spatial plans, which are supposed to play a role as a 'tool' in interfering the urban land-use change, are not well implemented and enforced by the related local governments due to the power dispersal at a decentral level, so that the problems occur. At decentral level, the making and implementation spatial plans in Greater Jakarta territories is limited by the hierarchical spatial planning system and its authority division. This phenomenon indicates that the increasing complexity in the urban land-use change causes the spatial planning system not to be well-equipped to deal with the changes, so that the implementation of spatial planning does not work well.

This situation then creates an emergence of other complex problems. One of the potential problems is the increasing of built-up areas in several protected zones (i.e through new towns, industrial, and also slum areas development) which then stimulate environmental degradation. Therefore, it is very important to analyse and try to improve the spatial planning system in Greater Jakarta, in order to interfere the urban land-use change that takes important role in an urban transformation process. This study is interested in the growing phenomena of 'planning that does not work' in developing countries, and particularly in Indonesia. Specifically, actor relationships can be elaborated to come up with an elaborated overview of how the current spatial planning system deals with complexity, especially self-organized urban development in an extended metropolitan area

Figure 1.1
Visualization of the Research Background



Source: Author, 2014

1.2 Aim and Objective

This research aims to analyze the urban transformation phenomenon in Greater Jakarta which is triggered by self-organizing process within its society, and also the role of spatial planning system in facing the phenomenon. The general objective of this research is to identify how the urban transformation process in Greater Jakarta can be examined by the concept of non-linearity and to contribute to a new perspective for the spatial planning system that is able to deal with the non-linear transition process (i.e the urban transformation). This objective results a research question and several sub research questions.

How can the concept of non-linearity be used to understand the urban transformation process in Greater Jakarta and what could be possible consequences for the spatial planning system?

Sub research questions:

- How does the self-organizing process trigger the urban transformation in Greater Jakarta?
- How is the urban transformation process (i.e which is stimulated by self-organizing process), in Greater Jakarta, positioned in the current spatial planning system?
- To what extent has the current spatial planning system in Greater Jakarta to deal with the urban transformation?
- How can the concept of non-linearity be used in improving the spatial planning system which can respond the urban transformation in Greater Jakarta?

Relevance

This study is expected to deliver insights for planners and decision makers in coping with spatial planning so as to be more sensitive with the self-organizing process that is initiated by the society which could stimulates an emergence of urban transformation. In practice, this study can provide lessons for policy makers on how spatial planning system should be developed in order to be more 'grounded'. In particular, this study suggests policy recommendations for the Indonesian government in developing a spatial planning system within a complex situation.

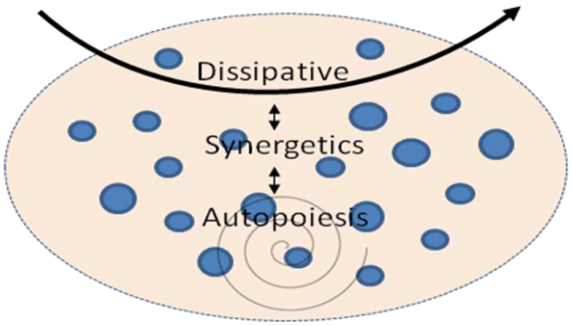
1.3 Conceptual Framework

According to the aims of this study, there are several theoretical concept which are related in order to be a basic and to emphasize the framework of the research, including: (1) Self-Organization (S-O), (2) Transition Process in Non-Linearity, and (3) Co-evolution of Spatial Planning. Substantial construction of the elements in this framework is elaborated further in Chapter 2.

1. Self-Organization (S-O)

The notion of self-organization or self-organizing process in urban development is understood as "initiatives for spatial interventions that originate in civil society itself, via autonomous community-based networks of citizens, outside government control" (Boonstra & Boelens, 2011). Fundamentally, self-organizing is a spontaneous emergence of global structure through local interactions and independent from external forces (Portugali, 2000; Heylighen, 2008). This means that under dynamic relation between elements and its environment, and dynamic interrelation among the elements; complex systems could manage themselves in a process of self-organization, to create new emergence of structures. According to Prigogine (1977; 1984), Haken (1983; 1978; 1981), Maturana & Varela (1974), and De Roo (2014), self-organization is conducted by three processes: (1) dissipative (i.e triggering event from external effects), (2) synergetics (i.e repetitive behaviour by responding elements in a system), and (3) autopoietic (i.e self-regeneration of elements which creates collective result). The phenomena of self-organization also tend to exist in urban areas. In planning, self-organization is also associated with learning processes and innovation through dynamic interaction between stakeholders (Zuidema & De Roo, 2004). In developing countries, especially Indonesia, self-organization mostly exists due to the limitation of government's funds and action in planning and developing process for an area (Hidayanti, 2013). For the case of Greater Jakarta, the concept of self-organization is applied to understand the emergence of local initiatives from its society which occur as the reaction to a system due to changing environment, in order to reach another level. Those initiatives then create an evolution of urban land-use changes.

Figure 1.2
Self-Organization (S-O) from a System's Perspective
(i.e Parts, Whole, and Context)



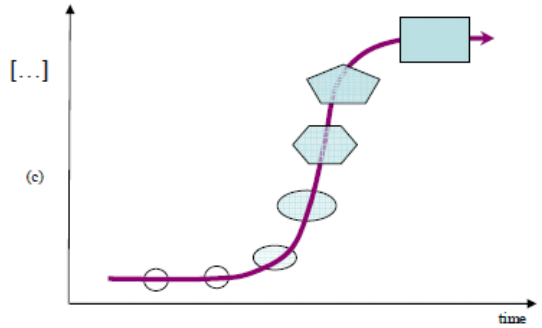
Source: Prigogine (1977; 1984), Haken (1983; 1978; 1981), Maturana & Varela (1974)

2. Transition Process in Non-Linearity

Fundamentally, transition process is defined as a 'gradual, continuous process of structural change within a society or culture' (Rotmans et al., 2006). It consists of several phases: pre-development, take-off, tipping point, acceleration, and stabilization. The transition process could emerge in a non-linearity

through a change of the 'core' of the system between stages of a dynamic equilibrium (De Roo, 2008). The non-linearity could result in a bifurcation concept. The bifurcation is part of the complexity theory, which become a base for the model of transition. The bifurcation means that there is always possibilities for transition, disintegration, or even transition in various ways. According to the explanation before, it is argued urban transformation in Greater Jakarta can be seen as a non-linear transition which is influenced by self-organizing process from the local initiatives, through an urban land-use change. It means that there is a sudden change in structure and function in Greater Jakarta area during the transition process, because of a changeable context and causality (cf. De Roo, 2010). This sudden change process then leads Greater Jakarta to an urban morphological fragmentation which has possibilities for transition, disintegration, or even transition in various ways.

Figure 1.3
Representation of Non-linear Transition (Change of Structure and Content)



Source: De Roo, 2008

3. Co-evolution of Spatial Planning System

Spatial development is a complex process which consists of multi-actors and various interests (Rauws, 2009). A shift from the technical to the communicative rationality shows that power dispersal and social fragmentation have been becoming a fundamental driving force in changing the structure and function of an urban system. Referring to the self-organizing process and non-linear transition in an urban transformation in Greater Jakarta, we realize that we (as a planner) could not control the situation strictly through a technical rationality approach anymore, because there will be an autonomous adaptation of a system in changing situation, outside the intervention from planners. This perspective implies a shift of planning focus that stimulates a co-evolution of spatial planning. A co-evolutionary perspective is useful to understand interaction between society, space, and spatial planning (Rammel et al., 2007; Rotmans et al., 2005 as cited in Rauws, 2009). Furthermore, this co-evolution then influence urban governance and its effectiveness in Greater Jakarta (Loorbach, 2007) through three interrelated dimensions of spatial planning (i.e institutional, organizational, and functional) in a matching configuration diagram (see De Roo, 2003). For the case of Greater Jakarta, co-evolution of the spatial planning concept is applied to identify a respond of spatial planning system at decentral level to interfere the urban transformation process.

1.4 Methodology

The study aims to examine the urban transformation phenomenon in Greater Jakarta, and also the role of spatial planning system in facing the phenomenon. Furthermore, in order to get detailed information of case study, this study involves several stages of methods:

1. Data collection and literature review

   Data collection and literature review were done in order to build a basis for related theoretical concepts (i.e self-organization, transition process in non-linearity, and co-evolution of spatial planning) and an overview of the urban transformation phenomenon in Greater Jakarta. In more detail, the steps of data collection and literature review can be described further as follows.

   a) Data collection

      Data collection is used to elaborate the phenomenon of urban transformation in Greater Jakarta. It is implemented through several processes: (1) an observation process, (2) following a related workshop, and (3) doing a deep interview to key related stakeholders in Greater Jakarta, which are based on the research questions. The following table below shows a data collection process through a mapping view of relationship between sub-research questions, objectives of the sub-research questions, and related stakeholders.

Table 1.1
Data Collection Process

No	Sub-Research Questions	Objectives	Related Stakeholders
1	How does the self-organizing process trigger the urban transformation in Greater Jakarta?	Knowing kind of self-organizing process that could stimulate urban transformation process in Greater Jakarta	- BKPRN[1] - Directorate General of Spatial Planning under Ministry of Public Works[2] - BKSP[3] - Local Governments (Bappeda)[4] - Spatial planning expert
2	How is the urban transformation process (i.e which is influenced by self-organizing process) in Greater Jakarta positioned in the current spatial planning system?	Knowing the government interventions & related instruments which are used in maintaining the urban transformation	
3	To what extent has the current spatial planning system in Greater Jakarta to deal with the uncontrolled urban transformation?	Knowing the effectiveness of the current spatial planning system in responding the urban transformation in Greater Jakarta	
4	How can the concept of non-linearity be used in improving the spatial planning system which can respond the urban transformation in Greater Jakarta?	Knowing kind of an alternative spatial planning system, which is based on the concept of non-linearity, in order to respond the urban transformation in Greater Jakarta	

[1] *National Spatial Planning Coordination Committee*
[2] *National Ministry which has a responsibility in creating national spatial plan in Indonesia*
[3] *Cooperating Agency for Greater Jakarta area Development*
[4] *Regional and Local Development Planning Agencies for each area in Greater Jakarta:*

1. *Bappeda Provinsi DKI Jakarta (Jakarta Province)*
2. *Bappeda Kabupaten Bogor (Bogor Regency)*
3. *Bappeda Kota Bogor (Bogor Municipality)*
4. *Bappeda Kota Depok (Depok Municipality)*
5. *Bappeda Kabupaten Tangerang (Tangerang Regency)*
6. *Bappeda Kota Tangerang (Tangerang Municipality)*
7. *Bappeda Kota Tangerang Selatan (Tangerang Selatan Municipality)*
8. *Bappeda Kabupaten Bekasi (Bekasi Regency)*
9. *Bappeda Kota Bekasi (Bekasi Municipality)*

10. *Bappeda Provinsi Jawa Barat (West Java Province)*
11. *Bappeda Provinsi Banten (Banten Province)*

b) Literature review

Literature review is used to elaborate theoretical concepts (i.e self-organization, transition process in non-linearity, and co-evolution of spatial planning) and an overview of the urban transformation phenomenon in Greater Jakarta through academic and governmental sources like journals, articles, research reports, related documents, and selected books.

2. Analysis method

To identify the urban transformation phenomenon in Greater Jakarta and build connectivity between the empirical phenomenon and the related theoretical concepts, the descriptive qualitative method is employed. The descriptive qualitative method is implemented through two ways of analysis methods:

- Explanatory analysis

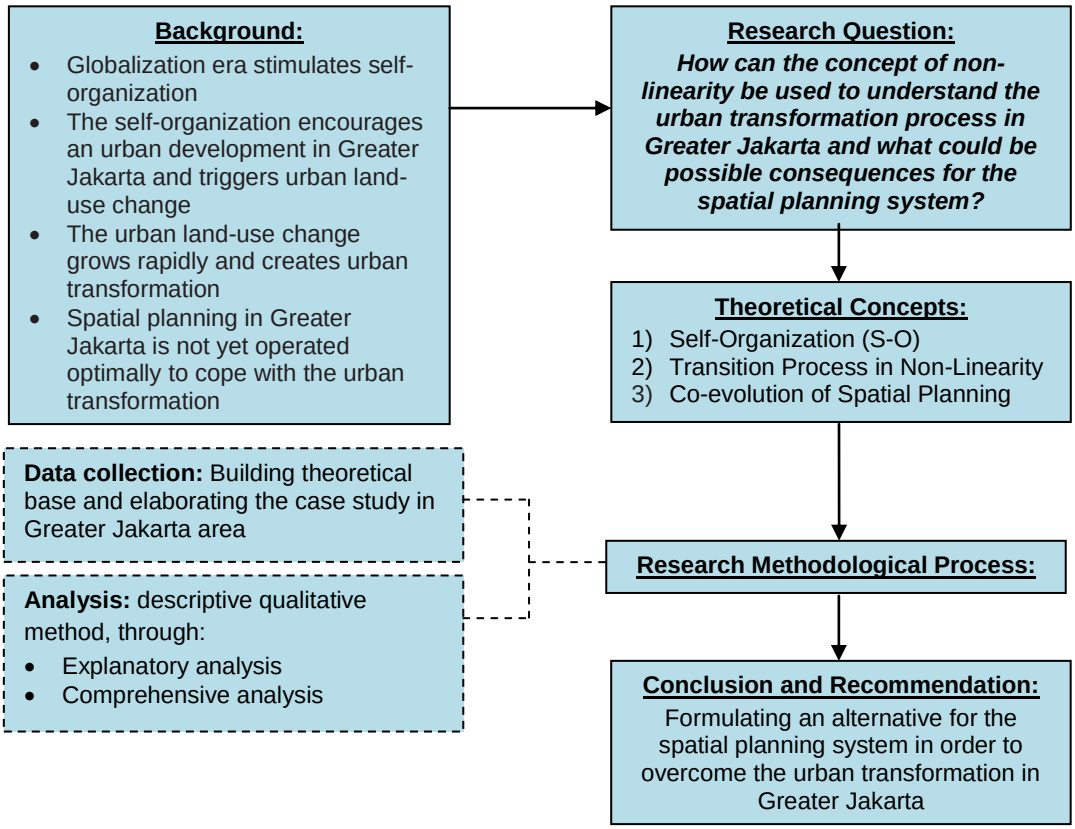
  In explanatory analysis, the qualitative relations are built between the issues or case study in Greater Jakarta area and its influences or impacts. This explanation is built based upon general academic understanding and empirical studies. From this analysis, it is interpreted how the phenomena of urban transformation process in Greater Jakarta, that is stimulated by the self-organization, could give impacts to the implementation of spatial planning system. In other words, it provides an input to answer the several first and second sub-research questions.

- Comprehensive analysis

  A comprehensive analysis finally connects and compares the influences of urban transformation phenomenon in Greater Jakarta and the spatial planning system. This comparison is based on the three main theoretical concepts (i.e self-organizing process, urban transition process in non-linearity, and co-evolution spatial planning). This kind of analysis would provide an input to answer the third and forth sub-research questions. In the end, the comprehensive analysis would grasp the inputs from the four sub-research questions to give an answer for the main research question and also provide a conclusion to deal with the occurred problems.

The following figure describes the methodological framework for this research:

Figure 1.4
Methodological Framework of the Research



Source: Author, 2014

1.5 Structure of Thesis

This thesis consists of 5 (five) chapters. As we recognized, the first chapter consists of a short description of the contextual background, research aim and objective, research questions, conceptual framework, research methodology, and structure of thesis. The Chapter 2 presents literature review on several theories of self-organizing process, transition process in non-linearity, and co-evaluation of spatial planning system. An explanation about the implication of decentralization policy in Greater Jakarta, the emergence of self-organizing process and its role in stimulating the urban transformation, and the related government's interventions on it can be found in Chapter 3. Chapter 4 explains a mismatch between spatial planning system and urban system in Greater Jakarta and try to identify an alternative formulation of the spatial planning system in coping with urban transformation phenomenon. In the end, all of the explanations and analyses would be summarised in Chapter 5. This chapter also concludes several strengths and limitations of this reserach in order to provide alternative recommendations for the future research.

CHAPTER 2
THEORETICAL CONCEPTS

2.1 Introduction

Planning is an ongoing process. It has no endogenous body of theory. Instead of having its own set of theories, planning draws upon a wide range of theories and practices from different disciplines (Allmendinger, 2002). Planning theory has to provide answers that help planners to cope with uncertainties and unexpected phenomenon. Allmendinger (2002) showed that planning theory has become more fragmented and pluralistic. For the recent decades, planning theorists have recognized that the identification of causes of a situation in a complex network exceeds a realism or rationalist reasoning (De Roo and Silvia, 2010; Gunder and Hillier, 2009). According to Baum (1977), establishing a line of argument which is based on rationalistic methods and bureaucratic rules is hard to be implemented under a complex system.

'Complexity' and complex system are popular terms which have developed in the last 20 years to explain many phenomena in physics, biology, sociology, economy, and many other field of science. The theory of complexity "can explain any kind of complex system – multinational corporations, or mass extinctions, or ecosystems such as rainforests, or human consciousness; which those all are built on the same few rules." (Lewin, 1992; Manson, 2001 as cited in Hidayanti, 2013). The definition of complexity has been developing in various perceptions. Every dicipline has its own definition, and even every researcher, theorist; author on complexity has their own definition which is based on the context of their research. In a system theory, the term of complexity is interpreted through several types of systems.

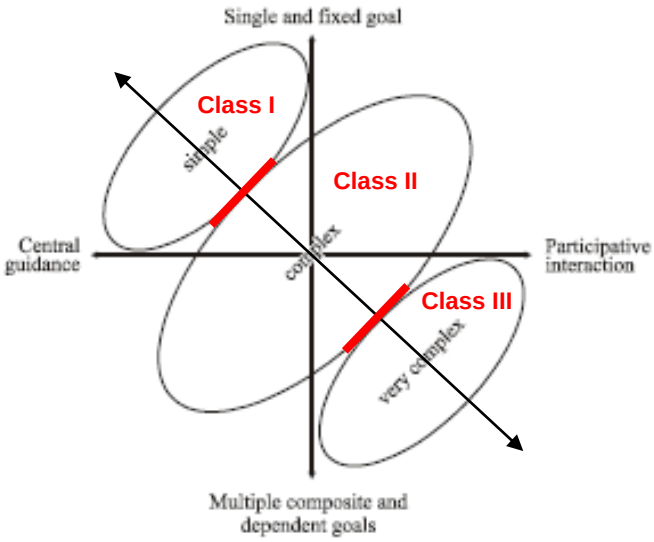
The first type is *closed systems,* in which the context is relatively stable, or not influence on the system, and the effect of interventions is easy to predict. In this system, a governing system is usually based on the technical rational approach, and decision making should be generic and centralised (Rauws, 2009). The second type is c*ircular feedback systems,* in which the context is more important and there are a number of stakeholders with various interests which are involved. The outcome of a process within the realm of this system is less predictable than in the closed systems (De Roo & Porter, 2007). Therefore, the possibility of feedback is advised to be included in decision making. To deal with uncertainty, the scenario approach is an option. In this system, the focus is not only on the content of interventions, but the process is also included in circular feedback systems (Rauws, 2009). The third system is o*pen network systems,* which are characterised by a large influence of the context. In contrast to the open and circular feedback systems, the open network systems are more dynamic or chaotic. Remote causality and the involvement of various participants with opposing interests make difficulties in predicting the outcome of interventions in this system. In the planning process where various stakeholders play a role, consensus building is essential; governing process tends to be covered by 'governance' that tries to reach multiple goals. An approach which seems to be the most appropriate in dealing with issues in this *open network systems* is the communicative approach (De Roo, 2003).

A *closed linear system* (class I) would involve a technical or content related approach (e.g blueprint planning), while an *open network system* (class III) involve a communicative or process oriented approach

(De Roo, 2003). Different from the class I systems, which causality is clear and the future and effects of interventions are highly predictable, in class III systems, causality is more remote and the future and effects of interventions are highly uncertain (De Roo, 2003; Mitchell, 2002). Therefore, creating a common future vision in the class III system with a communicative process is the best approach that could increase the likelihood that such a future becomes reality (Mitchell, 2002). However, public and private actors which should be involved in the decision-making and goal-setting process in the class III system, would remain a highly (inter-)subjective and case-related matter (De Roo, 2003). In the end, the goal (e.g. public interest) would become unique because of case-related issue that is occurred.

The figure below depicts the relationship between goal-oriented, institution-oriented and decision-oriented planning action (see also De Roo, 1995; De Roo, 1996; De Roo and Miller, 1997 as cited in De Roo, 2003) which incoporates complexity as the criterion for decision-oriented action, and therefore as an element linking the various perspectives on decision-led action. The degrees of complexity as proposed here relate to 'static' complexity, that focuses on a phenomenon which is being experienced at this time. At this figure, planning issues could be categorized as simple, complex, or very complex, based on the dergree of interaction and goals towards which it aims (De Roo, 2003). Determining the degree of complexity is a decision-oriented choice in the planning process, where a way to deal with parts of issue and consideration of the context are questionable. The decision-oriented choices are represented as a diagonal line that extends from the upper-left quadrant to the lower-right quadrant. According to De Roo (2003), the imaginary diagonal axis describes the dergree of complexity of planning issues, and also determine the relationship between interaction and the scope of the goal(s). This framework answers the question of 'who or what will deal with contingency?' by Nelissen (1992). Besides, it also tries to respond the comment made by Bryson and Delbecq which states that developing strategies are not a question of the different approaches to planning in themselves, but more about the relationships between them (De Roo, 2003).

Figure 2.1
A Framework for Planning-Oriented Action, in which the Relationship between Planning Goals and Interaction is based on Complexity

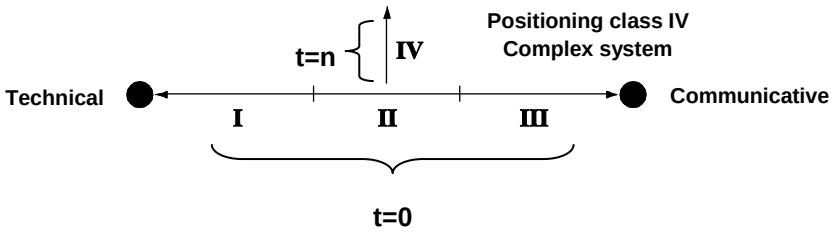


Source: De Roo, 2003

Nevertheless, the reality has been growing beyond those three categories of class systems. In other words, the reality has been growing beyond the static complexity towards a dynamic complexity. In the dynamic complexity, the reality would be steered to three assumptions (De Roo, 2008). The first assumption describes an idea that an open system evolves, from order to chaos, due to a growing complexity. The second assumption represents that a complex system emerges 'at the edge of order and chaos' (Waldrop, 1992 as cited in De Roo, 2008). This thinking implies that the complex system seems 'out of balance' and 'co-evolve', resulting two main characteristics of complex system: emergent and adaptive behaviour, and large degree of self-organization. The third assumption provides an emergence of orderly systems at a higher level to start evolving again, in accordance with the first assumption (i.e an increase of complexity). Concomitantly, these three assumptions represent a non-linear, evolutionary process (i.e class IV).

Non-linear adaptive system (or class IV) is a complex system. Different from open network system (or class III), the context in this system is not stable or changing, and hard to be expected. Non-linear adaptive systems are characterised by co-evolution, path dependency and a new emergence (Rotmans et al., 2001; Rammel et al., 2007; Sydow et al., 2005; as cited in Rauws, 2009). Therefore, it is important for planning to anticipate on processes of co-evolution. Different from the three class systems in the stable complexity which tend to ignore aspects of time in the decision making process (i.e t=0), the crucial thing in the non-linear adaptie system is a time (i.e t=n). Time becomes an important factor because its context is continuously changing, so that planning should change as well.

Figure 2.2
Relationships between Class I, II, III and IV Systems



Source: De Roo, 2010

According to the brief explanation about the complexity, there are some characteristics of complex system which are commonly agreed (Heylighen, 2008 as cited in Hidayanti, 2013). The *first* important characteristic is that a complex system consists of many elements, and the relation among the elements is characterized by non-linear interaction; their effects are not proportional to their causes, which make the system evolves in unpredictable and uncontrollable behaviour. *Second*, 'interaction between elements' and 'interaction between elements and their environment' in a complex system, might produce a new emergence of structure. These two characteristics then imply three key features of complexity theory (Teisman et al., 2009 as cited in Boonstra & Boelens, 2011):

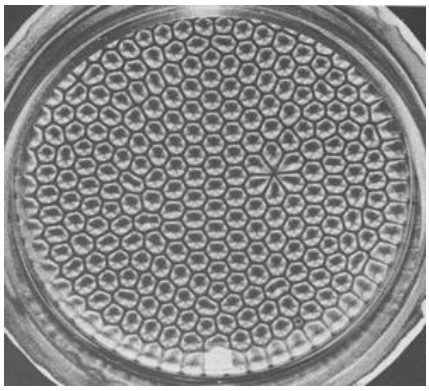
1. Self-organization (S-O), which refers to a self-organize of a system which is independent from external causes (Portugali, 2000)
2. Non-linearity, which refers to an idea that processes are always dynamic and unexpected change (De Roo, 2008).

3. Co-evolution, which refers to a shifting process of a system where its subsystems influence each other, either opposing each other or synchronizing each other (Garnsey & McGlade, 2006).

2.2 Self-Organization (S-O)

The term self-organization (S-O) or self-organizing process is mostly associated with complexity theories, which introduce the idea of 'complex adaptive systems'. The 'complex adaptive system' refers to the idea that processes in the society consist of various components and interactions that those are hardly to be managed (Klijn and Snellen, 2009). The concept of self-organizing process was introduced in 1947 by the works of Ross Ashby on cybernetics (Heylighen, 2008). This concept then started to gain its popularity through the works of Belgian thermodynamicist, Prigogine (1977; 1984) with his theory that is widely known as dissipative structures, and followed by a research of German physicist, Haken (1983; 1978; 1981) through his theory of synergetics. In biology, self-organizing process is also discussed under the notion autopoiesis, which was introduced by Maturana and Varela in 1974. In the past few decades, the term of self-organization has penetrated into the applied sciences (i.e including planning).

2.2.1 The Basic Concept of Self-Organization (S-O)



Source: http://antipasto.union.edu/~andersoa/mer332/BenardConvection.gif

Natural science experiment emerged as a basic of self-organizing process. There are several physical and natural experiments which had been done by some experts in formulating the self-organization phenomena. Benard's experiment on heated water, which is the most discussed phenomena in relation with self-organization (see also Newell et al., 1993 as cited in De Roo, 2014). Based on Benard's experiment, heated water in a vessel, as temperature increase, shows irregular chaotic motion of liquid which after quite sometimes starts to form regular hexagonal pattern just like honeycomb cells. The pattern emerges because of temperature differences between water molecules in the bottom of the vessel and in the upper side of the liquid. Similar with Bernads, Ilya Prigogine did an experiment on thermodynamics that is discussed about self-organization through a 'dissipative structure'. The notion of 'dissipative' is used by Prigogine to explain a paradoxical phenomenon at a close association, where there is a such structure and order on the one side, and also a dissipation or waste on the other (Prigogine & Stengers, 1984). In other words, the term 'dissipative' refers to the fact that systems consume energy and 'dissipate' it into the environment, so that creating entropy (Cleveland, 1994).

The experiment of self-organization has been continuously done by other scientists. Haken, as a German physicist, also did an experiment about the self-organization on laser light to explaine a 'synergetics' phenomena. In his experiment, the laser light is resulted through coherent oscillation of atoms because of an increase of electric current which is pumped continuously. This experiment resulted in an emergence of 'synergetics' term which refers to "joint action of many subsystems to produce structure and function on a macroscopic scale." (Haken, 1978; 1981). Besides, Humberto

Maturana and Fransisco Varela tend to discussed about 'autopoiesis' process of self-organization. The term autopiesis in their experiment described a system that recursively reproduces its elements through the use of elements in the system itself (Varela, 1981). Different from the previous experimnets of self-organization which tends to analyse a single specific object, the other phenomena of self-organization can also be seen in our natural environment, for example in succession of ecological system (Angelis, et al., 1981), in flock of birds, in school of fishes (Camazine, et al., 2003), in trail-formation and wall-building by ant colony (Bonabeau, 1997; Camazine, et al., 2003), etc.

According to the explanations above, we can conclude that there are several main caharacteristics of self-organization:

- Self-organization occurs in complex situation. Based on Bernad's experiment, the honeycomb cells emerged because of difference temperature between water molecules.
- There is an external aspect which triggers a system to elaborate its elements. This character is briefly implies through Prigogine's experiment on thermodynamic, where a system consume energy and dissipate it into its environment (i.e dissipative). The energy in this context is assumed as an external aspect.
- Self-organization is driven by an internal interaction among elements in a system that demolishes last structure and function and creates a new pattern. This phenomenon could be refer to the Haken's experiment which showed that there is joint action of many elements (i.e synergetics), and Humberto & Varela's experiment that discussed about self-regeneration in a system (i.e autopoiesis). Moreover, the synergetics and autopoiesis process would result an emergence of new pattern.

2.2.2 Self-Organization in Social Sciences

Self-organization can also be seen as an emergence property of 'complex adaptive systems' in complexity theory. Besides those basic definitions of self-organizing process from the natural sciences, the concept of self-organization could also be interpreted in various ways, in relation to various public policies in a more or less urban setting (i.e spatial, social–political, and economic). Without assumption of being all-encompassing, the following interpretations reflect some of the various domains in which the notion of self-organization is used and different interpretations that tend to be given to the concept of self-organizing process (Boonstra & Boelens, 2011): (a) economic perspective, (b) spatial perspective, and (c) socio-political perspective.

a. Self-organization from the economic perspective is illustrated by the work of Paul Krugman in 1996 through his book about '*The Self-Organising Economy'*. In his book, Krugman interprets self-organizing systems as systems that spontaneously create alternative large-scale patterns, even when they start from an almost homogeneous or almost random state. He uses the notion of self-organization in order to explain self-organizing process of economies in time and over space, especially with regard to the way cities distinguish themselves into particular districts. This process is illustrated as an initial random noise which contains various components of the city, correspond to many potential and forming prototypes, with such dynamics that some of those prototypes are more magnified than others. Planning and public policy could help to lead such processes to desired directions, since "self-organizing process is something we observe and try to understand, not necessarily something we want" (Krugman, 1996). As such, Krugman

disagreed with a planned economy in favour of a self-organized economy (i.e in which market forces are leading). He pinpoints this opposition not only within the economy, but also in urbanization processes and land use in general: he states that self-organizing process appears recursively in cities where no planning or zoning entity predetermines the layout of the city (Krugman, 1996).

b. A primarily *spatial* interpretation of the concept of self-organization has been developed by Portugali in 2000, which basically encompasses an idea that a city is seen as a self-organizing system. In his concept, the system of a city consists of an infrastructural layer, being 'the space of houses, parcels of land, networks of streets and so on', and on top of that, a 'superstructure layer of free agents' (Portugali, 2000). The multi layers of the city indicate that a city is a reciprocal product of initiatives of actors, influenced by personal or individual motives which are caused by their environment, interacting with spatial developments that are in their turn product of collective actions. The results of such processes exhibit themselves in specific urban morphology and function. The physical growth or emergence of new socio-spatial groups are indicated as an outcome of certain geographical settings or characteristics such as houses, lots and housing blocks (Portugali, 2000). When a planner or policymaker perceives cities under that condition, according to Portugali: *'a new type of action in the city, a new type of city planning' is needed, in order 'not to control, but to participate'* in urban processes (Portugali, 2000).

c. A *social–political* interpretation of the concept of self organization is described by the work of Christian Fuchs in 2006 on the self-organization of social movements. In his definition of social movements, he is in opposition to the political system (i.e constituting and enacting laws) and tends to the civil society system (i.e comprising all non-parliamentary political groups). Social movements are a manifestation of the civil society system, which create the dynamic of the political system through production process of alternative topics and demands. They react to the political and social events, so that result in an emergence of new protest issues, methods, identities, structures and organizational forms. Social movements are defined as self-organizing systems because they have an internal logic which appears spontaneously. They are dynamic, and not closed, but open and coupled to an environment, with which they exchange resources. Self-organizing systems are complex networks of entities that synergize and produce newness. Moreover, a social movement is not a single group, but tends to a network of groups that are communicatively linked. According to Fuchs, 'self-organizing' systems or social movements are the 'networked, co-operative, synergetic production of emergent qualities and systems' (Fuchs, 2006). Since social movements anticipate desirable settings of society, he states that it is the scientist's role to explore those movements and then elaborate a critique of dominant structures in society and identify new potentialities for truly independence movements.

In a city, self-organization could be examined in a short term as in daily activities, and also in long term as the city develops and evolves. In daily activities, self-organizing process exists when a group of people are trying to across the street without traffic light or rules, or when they self-organized themselves to go to an event in the city centre. In longer term, self-organizing process could be observed, for example in the case of balcony enclosures in Tel Aviv (Alfasi & Portugali, 2007; Casakin & Portugali, n.d.), in the emergence of spontaneous settlement in most of developing

countries (Barros & Sobreira, 2002), or even in the appearance of new towns and industrial development at the fringe areas. Phenomena of self-organizing process in natural sciences (e.g physical, biology, and chemical) is not as complex as in social science, because physical or chemical sciences are usually composed of so many elements but identical in form and/or size, for example atoms or molecules. Due to its identical elements, solutions fit to one element will exactly fit the other elements as well. Therefore, the global structure that emerges from the process typically tends to uniform or regular (Heylighen, 2008), such as the case of Benard's experiment. However, this is not the case for social science. According to Portugali observation in 2000, social system is typically dual complex system, where the system consists of many human agents which are complex systems, with different interests, beliefs, values, and perspectives. Self-organizing process in social system requires more exploration in order to find the best fit solution to the unique characters, conditions and circumstances of each agent. The solution, which suit an agent, does not necessarily suitable for other agents or needs adjustment to fit other agents. Therefore, in social system, the producing of new structure and function is much more complex and unpredictable (Heylighen, 2008).

2.2.3 Self-Organization in Planning

According to the explanation above, the study of self-organization in social science has the same basic principles with other science, except in the character of the elements of the system - human - which is also categorized as a complex system. This makes the process of self-organization in social system harder to be recognized and explained. However, this character of self-organizing in social system seems to be useful, moreover in planning. Therefore, several theorists have tried to optimize the use of self-organization in planning, by proposing a relatively new approach in planning, emphasizing differently in content, process and procedural. One of theorists who concern with theory of self-organizing process in urban design and planning is Juval Portugali. One of his important concepts which are much related to this research is about 'Self-Planned City'. The main idea of this concept is about a procedural in planning, in term of separation of planning institution into three functions, namely (1) planning executive, (2) planning legislative, and (3) planning judiciary (Portugali, 2000; 2012). Besides, in his recent publication (2012), Portugali argued that self organizing process can be encouraged in planning, by the use of what he calls a 'planning court'. No master plan is provided in planning, except a set of regulatory planning principle which manages relation between physical elements of urban area. This planning court is a negotiation place when a new development is about to take place. In the context of planning process, self-organization is associated with learning process and innovation through dynamic interaction between stakeholders (Zuidema & De Roo, 2004). This also implies the use of communicative approach in planning as to encourage the learning process. Ideas of Healey's (1997) about collaborative planning and Innes (1996) about consensus planning are two approaches among the rise of communicative turn in planning. Furthermore, as criticism to the practice of participation in planning, which remains controlled by government, Boonstra and Boelens (2011) introduced the notion self-organization in urban development as "initiatives for spatial interventions that originate in civil society itself, via autonomous community-based networks of citizens, outside government control". They argued that self-organization, as community-based activity is not to be confused with collaborative participation.

In spatial planning, as a kind of planning process, the term self-organization could be identified in a macro perspective. The context of the self-organization would grow wider and attract government interventions in order to respond the self-organizing process. According to De Roo (forthcoming), there are 3 main stages of self-organization which could be identified in a spatial planning process:

- Stage 1: triggering event
  Self-organization is a specific situation that could be occurred when there is a trigger from the others that could stimulate a spontaneous action. Bernard's experiment in 1901 was one of evidences that showed about a triggering event. He investigated a fluid in a dish which was heated from below. The result showed that there was not only a vertical upward movement of heat transport, but a horizontal movement of convection fluid appeared. The experiment shows us that there is a trigger from the heater which could stimulates vertical and horizontal movements of fluid.
- Stage 2: repetitive behaviour by responding agents
  As an autonomous and spontaneous action which is triggered by a reason, self-organization then invites self-initiatives from every individual or a group actor to do interventions. These interventions then develop through an adaptively process in responding the conditional change from the environment. In a long time period, the interventions grow to become an unintentional repetitive behaviour from the actors.
- Stage 3: collective result
  The repetitive behaviour encourages a critical mass of the people in executing similar interventions to respond something. The similar action from number of people then creates a collective result. The important think of the collective result is an emergence of new pattern which is caused by the autonomous collective behaviour from the actors.

Those three stages of self-organization stimulate an emergence of self-management and self-regulation from the new system in an area, and also encourage an appearance of self-governance from related governments. Self-management is an action which is operationalized through a partial intention that is resulted by the self-organizing process, so that it creates a collective result. Similar with the self-management concept, self-regulation occurs when there is a partial intention from agents that produces collective results, but in a collective condition (i.e an organized situation). Different with those two concepts, the self-governance concept emerges through the collective arrangement of agents under a collective condition, so that produces a collective result.

Table 2.1
Differentiation of Self-Organization, Self-Management, Self-Regulation, and Self-Governance

	Behaviour/actions	Conditions	Result
Self-organization	no intent	no intent	collective
Self-management	partial intent	partial intent	collective
Self-regulation	partial intent	collective	collective
Self-governance	Collective	collective	collective

Source: De Roo, 2014 (forthcoming)

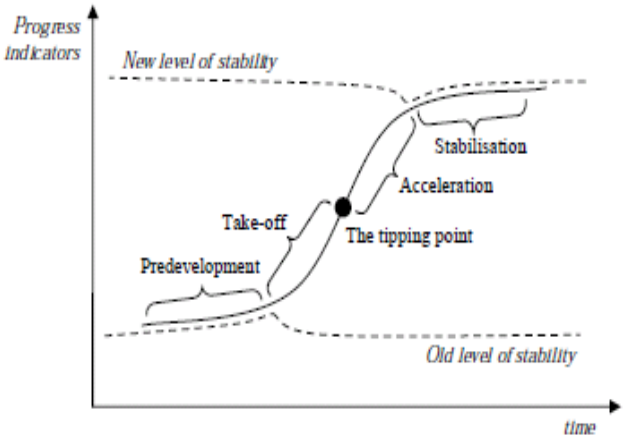
2.3 Transition Process in Non-linearity

Be like 'evolving cells', cities have been developing under complex situations through self-organization and be challenged by number of important dimensions, such as speed of change, intangible nature of many communities, weakening of traditional intermediary bodies (i.e political parties, local associations, enterprises themselves) (Portugali, 2000; Balducci, 2011). Balducci argued that those dimensions then stimulate the urban to change and transform. There are three determining factors of urban change:

1) Movement. City is no longer an ordered and isolated model of mobility. A myriad of traces of mobility bring distant places closer and push near places away. The contemporary city is an agglomerate of flows (Castells, 1996; Amin and Thrift, 2002 as cited in Balducci, 2011).
2) Fragmentation. It is both cause and effect of the proliferation of movements, which is affecting a series of organizing in society. There are three kinds of fragmentation:
   a) In the social sphere;
   b) In the economic sphere; and
   c) In the political and administrative sphere.
3) Construction of new communities. The construction is built by networking that is new links in fact reconnect the components of the extended city and in some way offer new forms of aggregation and sociability that are detached from space.

Fundamentally, the transformation process occurs through a transition process. A transition is defined here as '*a gradual, continuous process of fundamental change within a society or culture'*. It consists of several phases: predevelopment, take-off, tipping point, acceleration and stabilisation. (Rotman et. al., 2001). A pre development is a dynamic equilibrium phase, which a status quo changes in not obviously. The process of change then occurs because state of a system begins to shift at a take-off phase. The accumulation of socio-cultural, economic, ecological and institutional changes (i.e that react to each other) emerges and result a structural change under a tipping point and an acceleration phase. At this phase, collective learning process, diffusion, and embedding process occur. Speed of the change decreases and a new dynamic equilibrium then would reach a stabilisation phase.

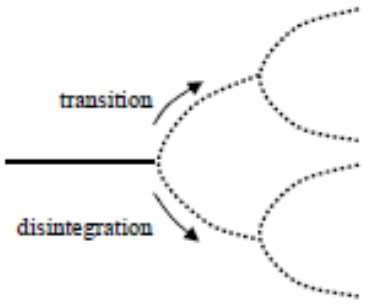
Figure 2.3
The Four Phases of a Transition Process



Source: Rotman et. al., 2001, as cited in Rauws, 2009

In accordance with the explanation of four class system, the 4th class of the system theory (i.e non linear adaptive system) will lead to a bifurcation concept. This concept is part of a complexity theory, where the model of transition is based. In the concept of bifurcation, there is possibility for both of transitions and disintegrations. The need for change in the bifurcation concept is so high, so that a take-off occurs. This results in 'a causal pattern evolving that tracks a particular type of behaviour building on social mechanisms by which the pattern is likely to be reproduced over a certain period of time' (Sydow et al., 2005; Rauws, 2009). Indirectly, the gradual transition of the four classes systems (i.e from closed system to become non-linear adaptive system) become an overview of the urban transformation process.

Figure 2.4
Bifurcation Model



Source: modified from Crawford, 1991 as cited in Rauws, 2009

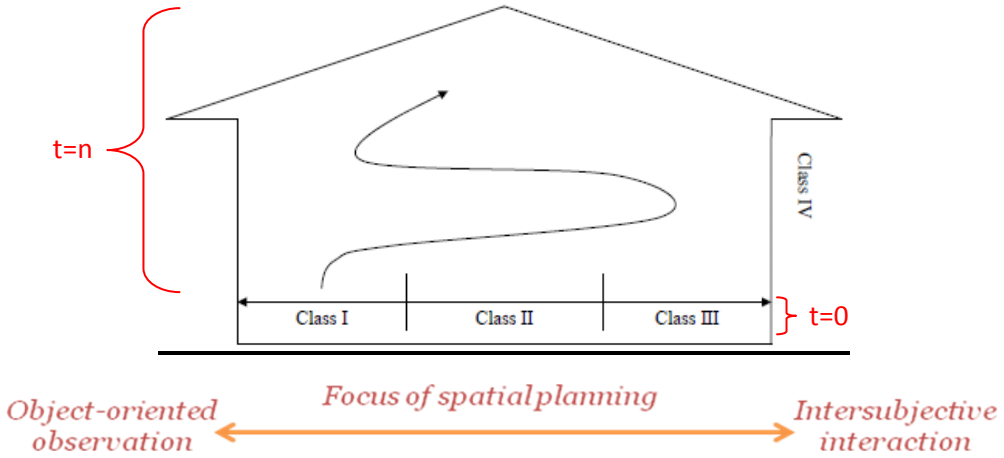
2.4 Co-Evolution of Spatial Planning

Planning is a scientific discipline with a long, rich history of discussion that is taken as the starting point of this study in order to arrive at a *pluriform vision* that can be used to understand the physical environment and the policy measures relating to it (De Roo, 2003). The focus of spatial planning has shifted from object-oriented observations towards intersubjective interaction. The shift of focus of spatial planning from object-oriented observation to intersubjective interaction encourages a spatial planning approach to move from a rigid, vertical-hierarchical structure (or technical rationality) to an approach that tends to communicative and

interaction processes (or communicative rationality) (Alfansi and Portugali, 2004). Therefore, the role of spatial planners has changed over the last half century.

Since 1960s, the planner is regarded more as an advisor as well as a participant in the planning arena (Kaiser et al., 1995; Allmendinger, 2002; De Roo & Voogd, 2004, as cited in Rauws, 2009). Due to the changing society and changing philosophical insights, the undisputed knowledge and objectivity of the planner is being challenged. Allmendinger (2002) emphasises the normative aspect of planning. Apart from a focus on the object of planning (space), a focus towards the process of planning has emerged. In other words, planning involves public as well as private actors. Hidding (2006) argues that their goals should be legitimised with a democratic decision-making process. Therefore, paying attention to the decision-making process is required, next to the content of the question at the other hand. How to balance the process and content-oriented strategies could be derived from the type of system that is dealt with. Especially, when dealing with non-linear adaptive systems (Class IV) which is reflected through an urban transformation process.

Figure 2.5
A Schematic Representation of the Four Classes of Complex Systems



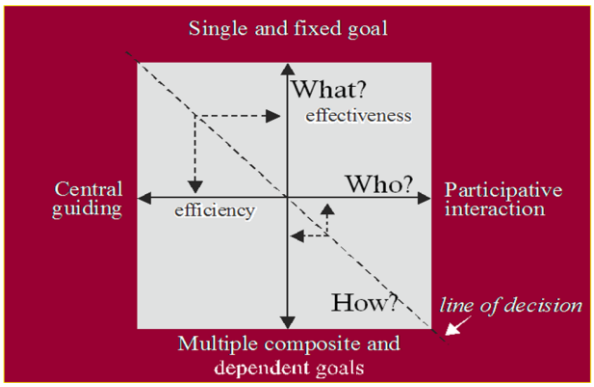
Source: De Roo, 2010

Self-organizing process within a complex adaptive system might make interventions even unnecessary or contra-productive. The non-linear perspective might provide the spatial planner with a useful framework to improve understanding of these complex processes. According to Kaiser et al. (1995) 'rather than leading events, in turbulent times planners are constantly responding to events'. Instead of shaping society through spatial modifications, the spatial planners' job is reduced to accommodating the desires of society in space. Moreover, while turbulent times lead to more uncertainty about the future, the job of the spatial planner is to recognize it (Kaiser et al., 1995): 'the necessary techniques must be both rational and adaptive in responding strategically to unforeseen changes as they occur'. Planning needs to respond to change, is what can be deducted from this statement. In order to improve the ability of spatial planners to deal with turbulent times, i.e changing society, strategies are needed that will bring spatial planning beyond behaving reactively, or in other words become more proactive. A non-linear, adaptive perspective, with the explicit recognition of autonomous processes in society, could be of help to setting goals and deciding about spatial interventions in dynamic periods.

Unfortunately, not every dimension of planning and also spatial planning is able to adapt as quickly as other dimensions in facing the shift of spatial planning focus under a non-linearity. It means that there is difference of change process for a content of policy, a policy institution, and a government agency. The content of policy changes as perceived problems change; policy institutions, however, are more stable; and finally government agencies change faster than institutions, but slower than the content of the policy. The changing context, adaptation of the system, and autonomous processes are notions which influence effectiveness of governmental interventions (Loorbach, 2007). There are three interrelated dimensions of spatial planning which are much related to the effectiveness of governmental interventions (De Roo, 2003):

a) **Functional**: relates to the object or content of planning: physical or social reality. This dimension is goal-oriented: what should be achieved?
b) **Organisational**: refers to the actors, stakeholders and shareholders, and the choices they make. Furthermore, it refers to the rationalisation of these choices. This dimension is addressed with the 'how' question. How to reach a goal?
c) **Institutional**: also refers to actors and institutions, but also to cultural values, scientific paradigms and tenets. Furthermore, it refers to the democratic legitimisation and the 'who' question. Who should be involved?

Figure 2.6
A Framework for Planning-Oriented Action whereby a Relationship is Established between Efficiency and Effectiveness



Source: De Roo, 2003

Those three dimensions imply a planning-oriented action. It usually will be difficult to describe a planning-oriented action in just one of those dimensions, as many changes in spatial planning will consist of more than one dimension. The planning-oriented action is taken to be any action performed by individuals, groups or organisations which is designed to achieve goals in a systematic way by making and implementing choices and decisions, with the help of others if necessary, and by using the required resources (De Roo, 2003). In other words, the planning-oriented action involves various stakehorders or actors. As a human, every actor has their own opinions, prejudices and assumptions, and these should be taken seriously within the planning arena. The difference of their opinions and assumptions drives a planning to a fuzziness. The fuzziness should be handled in order to avoid disappointments in planning process and outcome. Therefore, we need an appropriate planning tool to help us coping with the fuzziness of actor-related phenomenon, that would focus on the role, motivation, perception, and behaviour of the actors during the planning process.

The essence of this tool is a consultation process between actors regarding his or her desired contribution, and his or her present or actual contribution in solving a particular planning issue. In other words, this tool is well known as an actor-consulting approach that use in indentifying and elaborating a 'willingness' and a 'competence' (De Roo, 2003). The 'willingness' is a sense of 'what an actor is willing to do in spatial planning'. It brings us to terms of 'desired contribution' from the related actors. On the other hand, the 'competence' could be seen as a way of various actors to give their contribution in spatial planning (i.e actual and potential contribution). As a method, the actor consulting could be qualifed in various ways. It could be seen as a design approach for decision-making processes, as a problem structuring method for multiple stakeholder evaluation, and as a mediation technique for conflict resolution. Nowadays, the actor-consulting is more focusing on understanding and reframing the frames of reference of the involved actors, instead of prescribing how to turn decisions into actions.

2.5 Summary

Based on those explanations, we can conclude that the reality out there had growth gradually through the shifting process from complex situation to become very complex. This increasing level of complexity triggers the emergence of self-organization, non-linear transition process, and co-evolution of spatial planning. In the planning and spatial planning context, the self-organization takes an important role in influencing the government interventions through the self-regulation and self-governing process. The emergence of self-regulation and self-governing process are indirectly addressed to respond the self-organization, from the society at various level, which has developed in non-linear conditions. In the end, the combination of those two phenomena stimulate a shift of spatial planning focus from the object oriented action to become more intersubjective interaction. This shift then results an emergence of co-evolution of spatial planning that could not be separated from the three crucial dimension (i.e functional, organizational, and institutional). These three aspects are considered as phenomenon that have an aim to contribute to a new perspective that could result in spatial planning strategies (i.e as a main content of spatial planning system). In conclusion, self-organization, transition in non-linearity, and co-evolution of spatial planning can be interacted each other to formulate a comprehensive framework which shows the whole empirical transformation process in an urban area.

CHAPTER 3
URBAN TRANSFORMATION IN GREATER JAKARTA

3.1 Introduction

As a 'living cell', Greater Jakarta has been gradually developing every year. The development process brings Greater Jakarta to a transformation process through its urban land-use change. The phenomenon of urban transformation in Greater Jakarta could be indicated as a complex process that is influenced by internal and external aspects. The internal aspect refers to an internal process of a system which could stimulate the emergence of the transformation process. In this context, Greater Jakarta acts as a system where self-organization plays a role as a main process there, and potentially encourages the emergence of urban transformation. Self-organization plays its role in stimulating urban transformation through several development phenomena. In addition to the internal aspect, the urban transformation in Greater Jakarta is much related to the implementation of decentralization policy. The decentralization concept effects the spatial planning system and governmental interventions in Greater Jakarta, whereby we recognize that spatial planning is one of important 'tools' that is used to deal with the urban land-use change. The influence of decentralization then becomes a crucial internal aspect on urban transformation process in Greater Jakarta. Following this brief explanation, this chapter would describe several fundamental elements which are associated with urban transformation (i.e decentralization policy in Greater Jakarta), the urban transformation process in Greater Jakarta (i.e which is stimulated by self-organizing process), the related government's interventions in Greater Jakarta, and also impacts of urban transformation process at decentralization.

3.2 Decentralization Policy in Greater Jakarta

Decentralization in Indonesia had been formally established since 1999, through Local Government Act 22/1999. The concept of decentralization in Indonesia is related to three fundamental aspects: (1) division of administrative boundaries, (2) division of authority, and (3) division of fiscal affairs (Miller, 2013). In 2004, this law was replaced by new version of decentralization law (i.e Local Government Act 32/2004). The Local Government Act 32/2004 tries to divide the central government authority to local governments through two categorization for division of authority. The division of authority, between central and local government in the decentralization era in Indonesia, is described in the following table.

Table 3.1
Division of Authority between Central and Local Government in Decentralization Era in Indonesia

Central Government Authority	Local Government Authority (i.e Province, Regency, and Municipality)
a. Foreign politic b. National defence and security c. Judicial d. National fiscal e. Religion	a. Planning and development control b. Spatial planning process, development promotion, and development control c. Implementation of public orderliness and tranquillity d. Provision of public facilities and infrastructure e. Handling of the health sector

Central Government Authority	Local Government Authority (i.e Province, Regency, and Municipality)
	f. Provision of education g. Alleviation of social problems h. Employment services i. Facilitating development of small and medium enterprises j. Environmental control k. Land services l. Population and civil services m. General administration of government services n. Investment administration services o. Implementation of other basic services p. Other obligatory mandates by regulations

Source: Local Government Act 32/2004

For the fiscal affairs, there is fiscal decentralization system which is amended by Local Government Act 32/2004. Based on this decentralization system, provinces, municipalities, and regencies have been entitled for funding from three main revenue streams: (1) general allocation fund (*Dana Alokasi Umum* a.k.a DAU), (2) original regional revenue fund (*Pendapatan Asli Daerah* a.k.a PAD), and (3) special allocation fund (*Dana Alokasi Khusus* a.k.a DAK) (Miller, 2013). DAU and DAK are a fiscal incentive from the central government to local government, while PAD is a revenue fund from the local income.

In this globalization era which is laden by competition process, the decentralization policy potentially encourages local governments to exploit local resources more intensively (e.g land, water, and other physical assets), in order to maximise their own income (i.e PAD) without considering the political and socio-economic conditions of the region (Firman, 2008). In other words, decentralization encourages local governments to develop their regions through their own style and preferences. For Greater Jakarta, the concept of decentralization gives unique challenges to its governmental authority system. As a mega-region which consists of several local governments, Greater Jakarta tends to implement a 'fuzzy system' for its governmental authority. At the niche level, each of the local governments has liberties to do their authorities based on Local Government Act 32/2004 on decentralization policy. On the other hand, as a mega-region, this area is encouraged to establish a coordination system in multi level governance which has no formal rules that regulate the model of coordination system. This phenomenon then stimulates an ambiguity of coordination model among local governments in Greater Jakarta. One of the most crucial impacts is on the implementation of spatial planning system for Greater Jakarta. Indirectly, spatial planning system in Greater Jakarta is much influenced by the decentralization policy. This policy encourages an emergence of hierarchical spatial planning process from national-provincial-regency and municipality. This hierarchical tier needs a strong coordination system in processing the substance of spatial plan. Nevertheless, the reality shows that this coordination system is unable to handle the next two spatial planning processes (i.e spatial development promotion and spatial development control), because the decentralization policy indirectly stimulates local egoism from each local governments in governing their spatial development promotion and spatial development control. Like what was said by one of spatial planning experts on metropolitan area in Indonesia[1]:

[1] *Lecturer at Bandung Institut of Technology for the programme of Urban and Regional Planning*

"The steps of spatial planning system in Indonesia are no longer about planning – development - control, but more about development – planning - control." (Spatial Planning Expert on Metropilitan Area, 2014)

"Decentralization era today then encourages each regions to bring out their local egoism or even stimulates regional split (i.e regional autonomy)..This phenomenon gives huge influences on the local spatial development promotion." (Spatial Planning Expert on Metropilitan Area, 2014)

Implication of Decentralization Policy for Spatial Planning System in Greater Jakarta

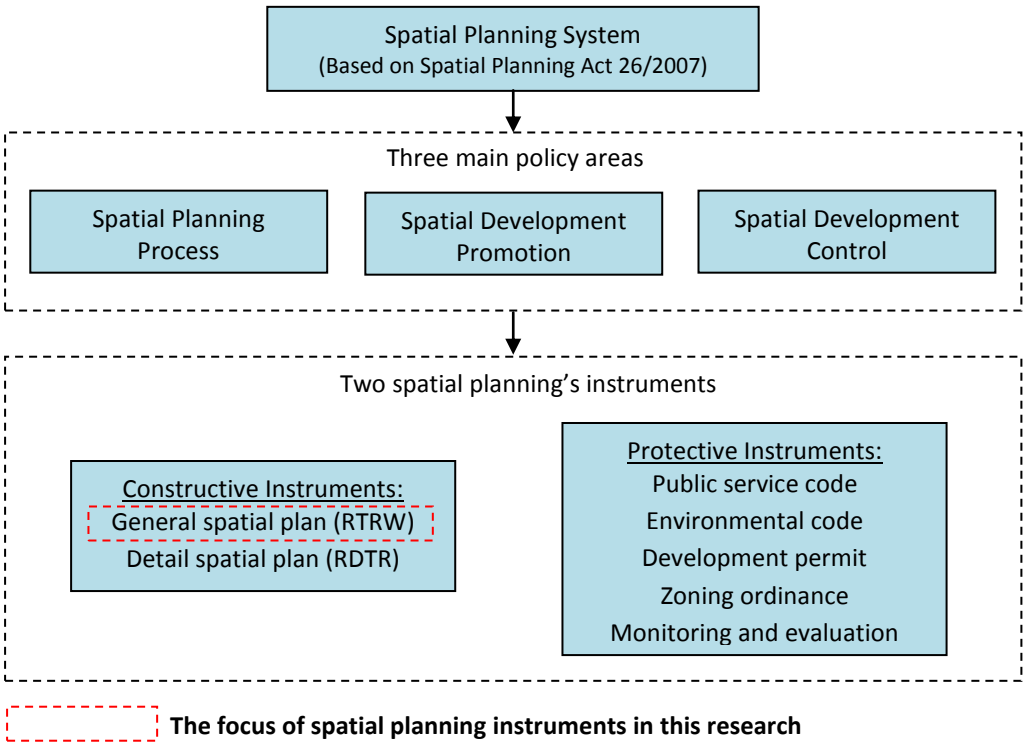
The concept of spatial planning system is "a generic term to describe the ensemble of territorial governance arrangements that seek to shape patterns of spatial development in particular places" (Nadin & Stead, 2008). Territorial governance is about "the complex of policies by which public powers rule – in accordance with the distribution of competences established by a Constitution – the multiple land uses, combining the various relevant interests without the attribution of a prevailing relief to any of them" (Chiti, 2003). European Commission (1997) has differentiated spatial planning system into four broad approaches, which are *(1) regional economic, (2) comprehensive integrated, (3) land use regulation, and (4) urbanism*. Spatial planning system in Greater Jakarta is a part of spatial planning system in Indonesia. Spatial planning system in Indonesia is a national policy that integrates various space use-related policies. It combines three main policy areas, which consists of spatial planning process (*perencanaan tata ruang*), spatial development promotion (*pemanfaatan ruang*), and spatial development control (*pengendalian pemanfaatan ruang*), in an integrated manner.

- Spatial planning process (*perencanaan tata ruang*) is a processes making and decision of spatial plan;
- Spatial development promotion (*pemanfaatan ruang*) is attempt to realize spatial structure and spatial development pattern in accordance with spatial plan through the making and implementation of program and its finance; and
- Spatial development control (*pengendalian pemanfaatan ruang*) is monitoring, evaluation, and control of spatial development based on zoning ordinance.

For Indonesia, the spatial planning aspect is carried out under an umbrella of Spatial Planning Act 26/2007. This spatial planning act regulates some spatial planning's instruments to support development and control functions. The instruments consist of positive or constructive and negative or protective instruments (Cullingworth, 1997 as cited in Hudalah, 2007). Constructive instruments are tools that focus on provision of incentive in order to promote the development, while protective instruments tend to focus on creating disincentive restrict development. In other words, the protective instruments aim to control the development. At the implementation process, those kinds of istruments are manifested through several types of spatial plan's 'tool'.

- Constructive instrument: general spatial plan (RTRW) and detail spatial plan (RDTR)
- Protective instrument: public service code (*standar pelayanan minimum*), environmental code (*standar kualitas lingkungan*), development permit (*izin pembangunan*), zoning ordinance (*peraturan zonasi*), and monitoring and evaluation.

Figure 3.1
Spatial Planning Instruments



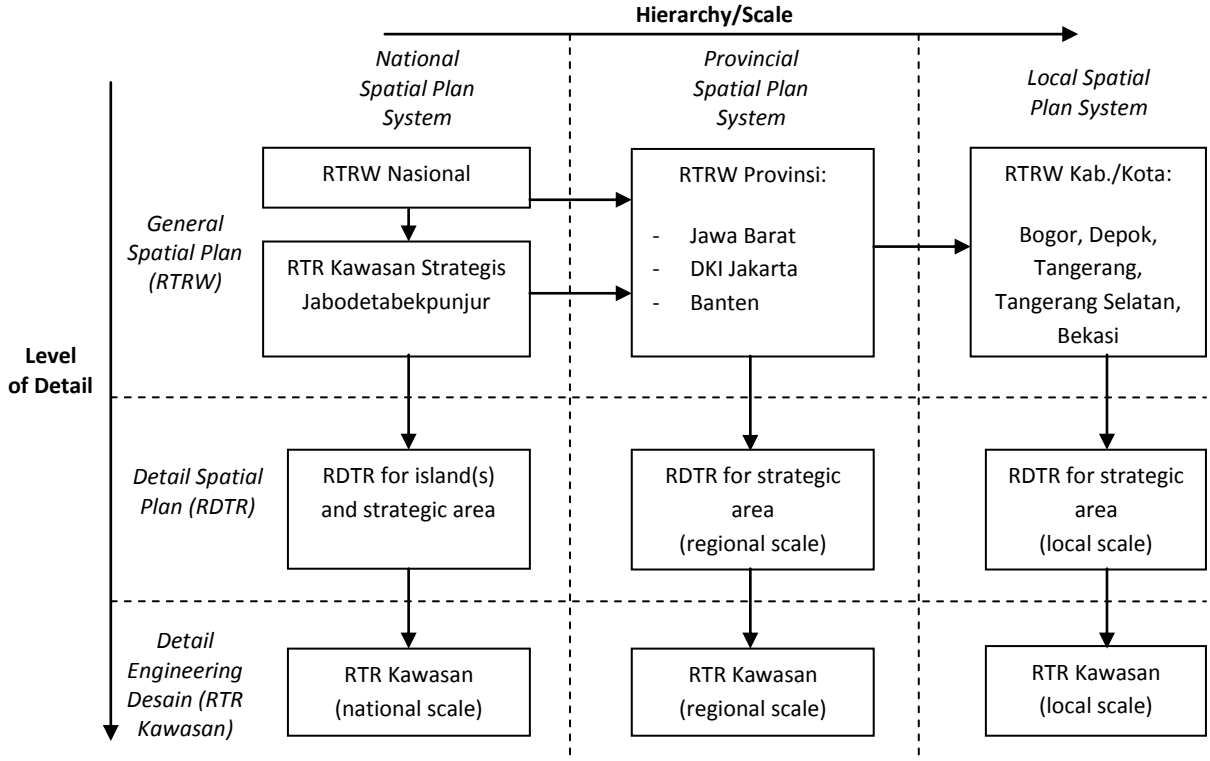
Source: Spatial Planning Act 26/2007

According to the objective of this research, this thesis focuses on the spatial planning instruments namely a general spatial plan (RTRW) in Indonesia. General spatial plans or RTRW (*Rencana Tata Ruang Wilayah*) are made in all tiers of government:

1) Central Government makes National Spatial Plan or RTRWN (*Rencana Tata Ruang Wilayah Nasional*);
2) Provincial government makes Provincial Spatial Plan or RTRWP (*Rencana Tata Ruang Wilayah Provinsi*);
3) Municipality (*kota*) and Regency (*kabupaten*) make Municipal Spatial Plan or RTRW Kota and Regional Spatial Plan or RTRW Kabupaten.

Those spatial plans are interrelated to each other under the hierarchical tiers based on the level of government's scale. The diagram below shows the hierarchical concept of spatial plan in Greater Jakarta.

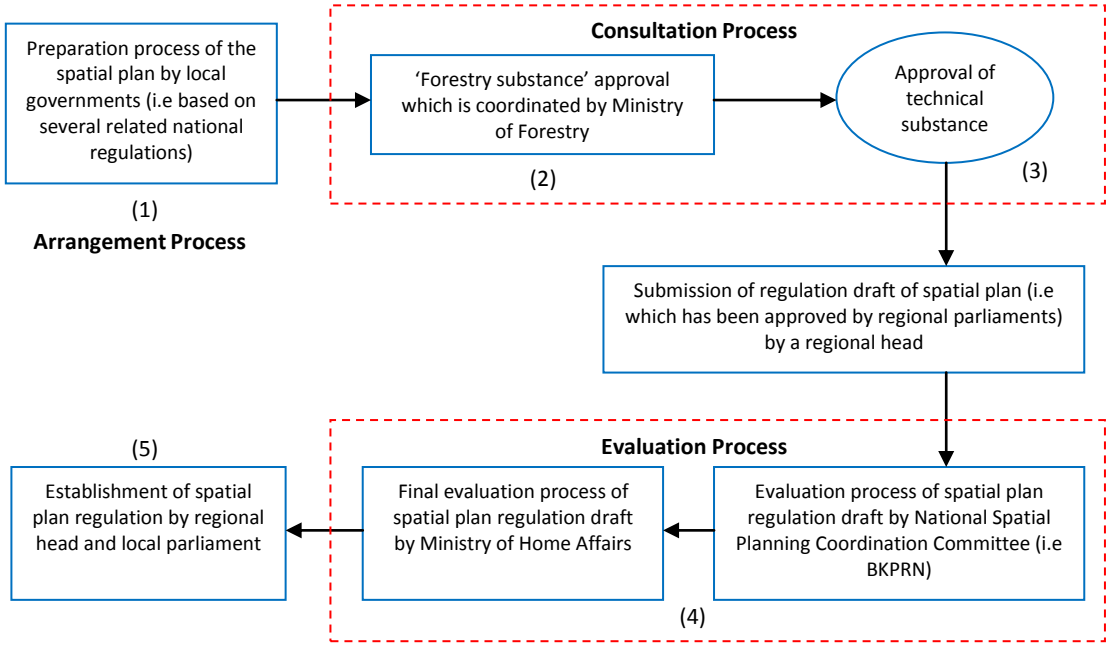
Figure 3.2
The Hierarchical Concept of Spatial Plan in Greater Jakarta Area



Source: Hudalah, 2007 (modified)

Based on the previous explanation, we recognize that spatial planning system in Indonesia is much influenced by the decentralization policy. This influence is clearly implied in the Spatial Planning Act 26/2007 which states that every provinces, regencies and municipalities in Greater Jakarta has their own authority to formulate spatial plan document (RTRW-*Rencana Tata Ruang Wilayah*). However, even though they have the authority to formulate their own RTRW documents, the RTRW document of each regency and municipality should still refer to the upper scale of spatial plan document at provincial and national level. The formulated RTRW documents in each of the local governments then become 'a guideline' for related regencies and municipalities to provide a direction for the urban land-use change in their areas. The formulation process of RTRW document for provinces, regencies and municipalities are coordinated by the central government (i.e National Spatial Planning Coordination Committee or BKPRN) through several tiers stages, i.e arrangement process, consultation process, evaluation process, and establishment of the spatial plans. The scheme below shows the framework of substance approval for RTRW in a tiered flow.

Figure 3.3
A Framework of Substance Approval for RTRW Document



Source: National Spatial Planning Coordination Committee (i.e BKPRN), 2014

According to the two schemes above, spatial plan in Greater Jakarta is described within a hierarchical spatial plan system. At the national level, the spatial plan for Greater Jakarta is covered by national strategic spatial plan (i.e RTR *Kawasan Strategis Nasional Jabodetabekpunjur* with precision scale of map 1:150.000) which refers to RTRWN (i.e with precision scale of map 1:1.000.000). This RTR *Kawasan Strategis Jabodetabekpunjur* then become a guideline for three provincial spatial plan documents in Greater Jakarta, with precision scale of map 1:250.000 (i.e RTRW Province DKI Jakarta, Banten, and West Java). Those provincial spatial plan documents are referred by the related regencies and municipalities in formulating their local spatial plan documents with precision scale of map 1:50.000 for a regency and 1:25.000 for a municipality (i.e RTRW Kab./Kota). Moreover, based on the Spatial Planning Act.26/2007, those RTRW documents in Greater Jakarta should be derived into detail spatial plan document (i.e RDTR with precision scale of map 1:5.000) for each area. According to the precision scale of map, we recognize that the RDTR document gives a proper guideline in providing building permits or land-use change at local level than the RTRW document. Unfortunately, most of RDTR documents in Greater Jakarta have not been processed yet by each related local governments. Therefore, local governments in Greater Jakarta have been referring to their RTRW document. This condition might happen because the related governments focus too much on formulating RTRW document in the hierarchical tiers that could take long time, while the reality out there has been growing rapidly and needs to be responded by a more detail spatial plan. This situation then becomes potential problem in implementing and managing urban land-use change, like a representative of central ministry (i.e Bappenas) said:

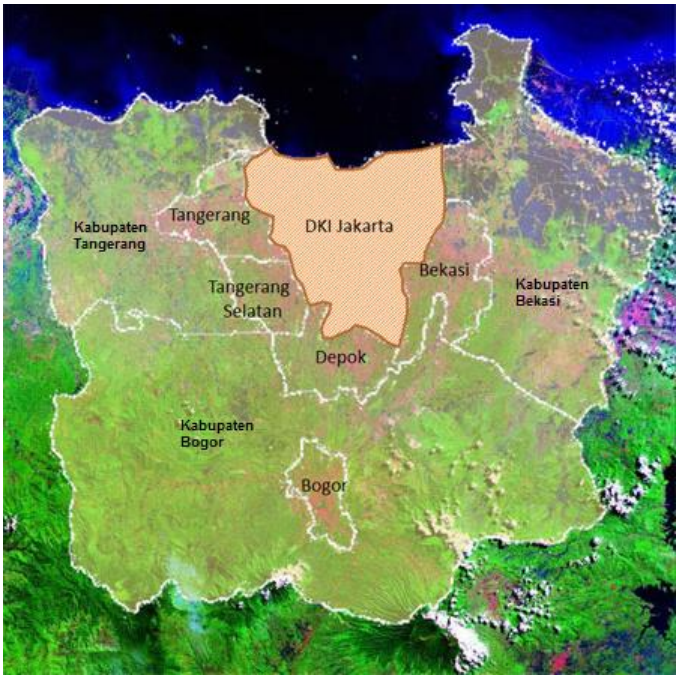
> *"RTRW document for regency and municipality with its scale of map 1:50.000 and 1:25.000 is still too macro in providing a direction to urban-land use development permits." (Head of sub-directorate Spatial Plan, Directorate Spatial Plan and Land Affairs-Bappenas, 2014)*

According to all of the explanation about the decentralization policy in Indonesia and its implication for spatial planning system in Greater Jakarta, it is then natural for us to worry about the future condition of the spatial planning implementation in Greater Jakarta, especially in facing self-organization and urban transformation.

3.3 Self-Organization in Greater Jakarta

Greater Jakarta is one of urban areas in Asia which has been transforming along with the globalization era. The total population of Jabodetabek in 2010 is about 22 million, which is spreaded in ± 6.470,71 Km^2 for the total amount of Jabodetabek area (Ministry of Public Works, 2013). The area comprises the DKI Jakarta and parts of West Java and Banten Provinces, specifically the three regencies of those provinces which surround Jakarta: Bekasi and Bogor in West Java province, and Tangerang in Banten province. Besides, Greater Jakarta also consists of independent municipalities (*kota*), such as: Bogor, Depok, Bekasi, Tangerang and South Tangerang. The name of the region is taken from the first two (or three) letters of each city's name: **Jabo(de)tabek** from **Ja**karta, **Bo**gor, (**De**pok), **Ta**ngerang and **Bek**asi.

Figure 3.4
Administrative Map of Greater Jakarta Area



Source: http://jgreenmetro2050.com

Greater Jakarta can be categorized as a 'mega-urbanization' because its morphology has been growing uncontrolled from the centre in all directions and spilling over beyond its formal administrative boundaries. There are seven characteristics of 'mega-urbanization' in Indonesia: (1) the development of economic activities at the global scale; (2) the division of function between the core and the outskirts of the large cities; (3) a transformation from single-core to multi-core urban areas; (4) land-use change in the core of the city and the conversion of farmland to urban uses on the outskirt areas; (5) development of large-scale urban infrastructure; (6) greatly utilization of space; and (7) increasing of commuter numbers and commuting times (Firman, Kombaitan and Pradono, 2007; Firman, 2009 as cited in Firman, 2013). Over the past decade, Indonesia's mega-urban regions have been reflecting urban fragmentation that is influenced by the implementation of decentralization policy since 2001 (Firman, 2008; 2009; 2013). Those seven

characteristics indicate urban development in Greater Jakarta under the globalization and decentralization realms, which are also stimulated by self-organization.

Development Process through Self-Organization

The population of Greater Jakarta grew at average rate of 3,6 per cent per annum between 2000 and 2010, and reaching 27,9 million in the latter year. In 2010, five of the areas in Greater Jakarta were categorized as cities with a population of at least 1 million, they are: Jakarta, Bekasi, Tangerang, South Tangerang, and Depok. The city (or province) of Jakarta itself had a population of almost 9,6 million in 2010. In addition, approximately 2 million people commuted daily from the peripheral cities such as Bogor, Depok, Tangerang, and Bekasi to work in Jakarta. This situation made Jakarta reach its total population about 11,6 million in a daytime (Firman, 2013). On the other hand, the population density of Jakarta city has increased more slowly, from 126.1 persons per square hectare in 1990 to 128.0 in 2000 and 145.9 in 2010 (Salim, 2013 as cited in Firman, 2013). This reflects the fact that the population growth in Jakarta has been growing slowly. In contrast, the Jabodetabek's peripheral areas have been experiencing much more rapid population growth. For example, population of Bekasi city and Tangerang city grew by 3,4 per cent and 3,2 per cent per annum respectively in 2000–2010, while that of Depok city grew even faster, at 4.2 per cent. Gradually, the population growth encourages an increase of society's needs. The increase of needs stimulate an emergence of urban land-use conversion or urban land-use change.

Over the last four decades, the development of economic activities in Greater Jakarta results in land conversion in both the city of Jakarta and its peripheral areas. By the early 2000s, there were about 8.000 Ha of primary forest and 4.000 Ha of paddy fields had been converted into residential and industrial areas in south of Greater Jakarta (Firman, 2013). Within Jakarta city itself, many previously residential areas are becoming commercial areas which are marked with high-rise apartments and condominiums. Over the past decade, the process of urban land-use conversion in Greater Jakarta has been faster in the periphery than the city centre (i.e Jakarta city). The built-up areas of Jakarta increased from 560 to 594 square kilometres between 2000 and 2010 (that is, by 0.6 percent per annum), those in the periphery, including Bogor, Tangerang, Depok and Bekasi, expanded significantly from 544.2 to 849.7 square kilometres (that is, by 4.6 per cent per annum) (Salim, 2013 as cited in Firman, 2013). This urban land-use change occurs through several phenomena:

a) Shopping mall and apartment development in Jakarta city

There are about 40 large shopping malls had been built in Jakarta by 2010, including the city's first mall, Ratu Plaza,which was constructed in the early 1980s. The land area covered by the city's shopping malls has increased greatly, from 1.7 million square metres in 2000 to 4.8 million square metres in 2009 (Suryadjaja, 2012 as cited in Firman, 2013). One of the largest commercial areas is Sudirman Superblock, consisting of about 2 million square metres of residential, hotel, entertainment and business space. At present there are about 20 large malls in the Jakarta central business district. Besides, the other physical development of Jakarta over the past decade has been shaped by the construction of luxury high-rise apartments in many areas. In many cases these apartments are purchased for speculative purposes rather than owner occupation, which is done to anticipate rapidly rising prices.

Moreover, shopping malls and high-rise apartment buildings are also now being built in Jakarta's peripheral areas, including Bekasi, Depok, Bogor, and Tangerang (Firman, 2013).

b) Large-scale residential areas, new towns, and industrial estate development in fringe areas

Source: http://www.bsdcity.com/

A number of new towns and large-scale residential areas have been built in the periphery of Jakarta city since the early 1980s, in order to respond the demand for modern, secure, and quite living environment (Leisch, 2002). For many middle and upper-income Indonesians, their main reasons for living in those new towns are to achieve a more secure, better living environment with higher-quality infrastructure, and to avoid the air pollution and congestion of the city centre while still retaining access to it for work and shopping (Firman, 2013). Most of individual private developers have been involved in new town developments in Jabodetabek, with the result that the towns are poorly linked to the existing large infrastructure system or even violate the spatial plans of the region's districts and cities (Firman, 2009). Many of the new towns have been designed as 'gated communities', which are surrounded by walls separating them from existing local communities, since most of the new residents do not want to live in culturally and socially mixed areas for security reasons. Similar with the large-scale residential and new town growth, industrial estates have been developed in several districts in Greater Jakarta (e.g Bekasi district). This development is implemented to meet the demand of industrial land which is driven by both domestic and foreign direct investment (Hudalah and Firman, 2012). At present, each industrial estate tends to build its own facilities and infrastructure– including road networks, water and waste-water treatment plants, and telecommunication networks– without overall coordination, resulting in a fragmented industrial complex (Hudalah, 2013).

c) Transport development

One of the crucial problems in Greater Jakarta is traffic congestion. The increasing population growth and economic activities force the central and local government in Greater Jakarta to developing and improving transportation infrastructure and system within Greater Jakarta areas. The demand of transportation infrastructure and system development is also listed in the national government's Masterplan for Acceleration and Expansion of Indonesia Economic Development (*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia, MP3EI*) for 2011–25 include: (1) improving and expanding the port of Tanjung Priok; (2) constructing a new international airport; (3) building the Jakarta MRT; (4) expanding Sukarno-Hatta Airport; (5) upgrading the city's road network; (6) improving the commuter railway system; (7) developing new sources of clean water supply; (8) constructing a solid waste treatment and disposal plant in West Java; and (9) rebuilding a pumping station in Pluit in North Jakarta. Several developments have been implemented, such as the build of new highway roads, the operationalisation of Trans

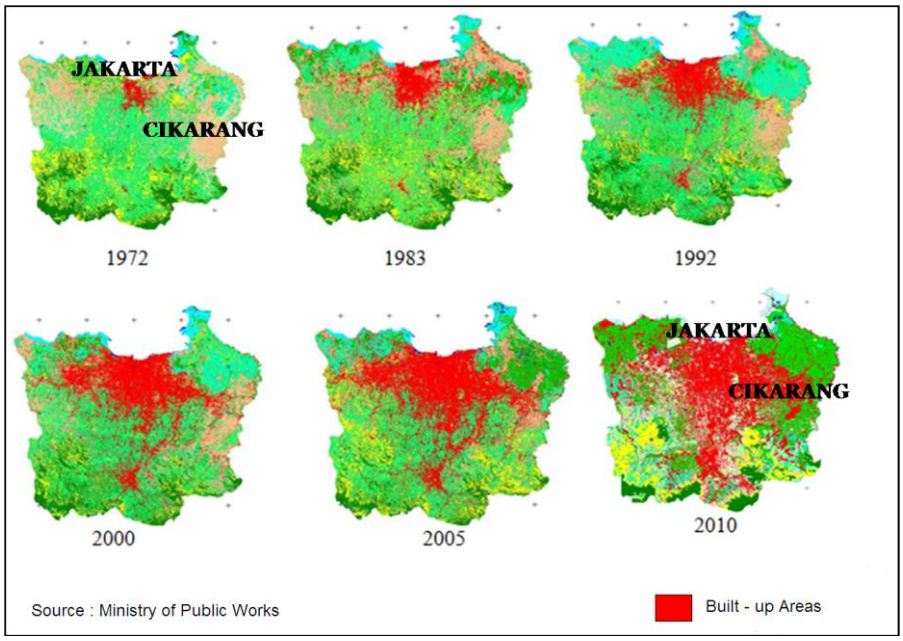
Jakarta and KRL. At present, the provincial government of Jakarta has announced mass rapid transportation (MRT) and monorail projects to respond to the transport problems in the city. The MRT is expected to improve Jakarta's public transportation capacity, cut travel times, and reduce the city's total transport-related CO_2 emissions and create job opportunities. The MRT would also be integrated with other modes of transport that already exist in the city to encourage a shift away from the use of private means of transportation. However, transportation infrastructure and development still results in the congestions, because those developments have not been successful yet in changing the behaviours of citizens to move from the private transportation to public transportation.

d) Increasing of slum areas along the banks of river in Jakarta city

In contrast to the previous discussed phenomena which more talked about development process that are marked by the built-up areas and infrastructures, there are also increasing of slum areas in Jakarta city. The increasing of slum areas indicates a self-organizing process of low-income citizens who migrate to Greater Jakarta areas. The growth of economic activities in urban areas has been attracted people from the other area to come to Jakarta and become illegal migrant. However, due to the lack of their ability, those illegal migrants could not afford decent housing, and thus eventually build illegal settlements. The amount of this settlement has been increasing year by year, and become serious social and spatial planning problems for the government.

Source: http://www.worldvision.com.au/

Figure 3.5
Land-use Development in Greater Jakarta Area in 1972-2010



Basically, those urban land-use change phenomena begin from the emergence of self-interventions that originate in civil society itself, via autonomous networks of society, outside government control. The self-interventions then result in repetitive collective behaviour in an autonomous way, symmetry break of an

existing pattern because of the collective behaviour, and finally encourage an emergence of new pattern. In other words, those phenomena show the self-organized pattern at the higher level.

In the context of Greater Jakarta, the notion of self-organizing process is briefly identified from the growing phenomena and its background. Urban land-use conversion, shopping mall and apartment development, large-scale residential areas, new towns, and industrial estate development in fringe areas; transport development; and also the increasing of slum areas are several phenomena that indicate a self-organizing process. Those phenomena show us about the emergence of new pattern of the system in social life. The system which is identical by a new physical form through an urban land-use change process in an urban development. Moreover, the explanation of self-organization in Greater Jakarta could be described in the following paragraphs below.

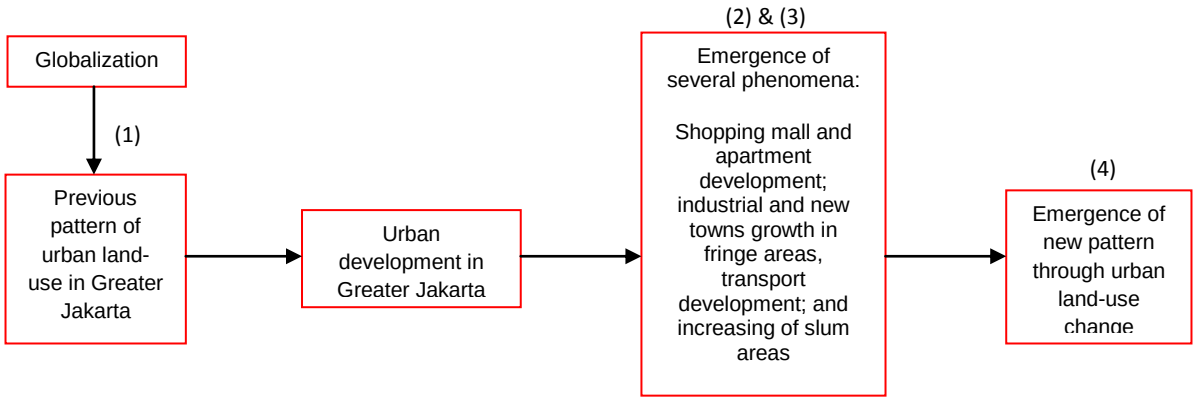
According to the fundamental definition, the term of self-organization is characterized by three concepts (i.e dissipative, synergetics, and autopoiesis). Those three concepts are translated to become three stages for the spatial planning context (i.e triggering event, repetitive behaviour, and collective result). Begun with the dissipative concept, the phenomena in Greater Jakarta implicitly show that there is triggering event from the external aspect which then encourages the emergence of the phenomena. The triggering event is globalization that stimulates the eagerness of society, or even the governments of Greater Jakarta, to participate in the economic development process through providing opportunities for foreign investors to open their business farm in several specific locations. Shopping mall and apartment development as well as large-scale residential areas, new towns, and industrial estate development in fringe areas are the first phenomena which occur because of the stimulation from the globalization. On the other hand, transport development and the increasing of slum areas along the river bank are the second phenomena which occur as an indirect impact of the first phenomena. Those second phenomena emerge in order to give responds to the first phenomena and globalization era, through production of the autonomous self-interventions from the society and governments.

With regard to the synergetics concept of self-organization, the emergence of shopping mall and apartment development; large-scale residential areas, new towns, and industrial estate development in fringe areas, transport development, and also the increasing of slum areas are evidences that explain the interrelation between elements of a system in a society life. The globalization, as a triggering event, encourages a dynamic economic climate in Greater Jakarta. This climate triggers the related actors to respond the change by executing their self-interventions, which then perform an evolutionary process through interaction and interrelation between elements of a system and create a collective repetitive behaviour from the related stakeholders. The phenomena of slum areas as well as shopping mall and apartment development, are two interesting example of synergetics concept. In the slum areas, the interrelation between elements of a system in a society life is shown through social interaction among lower income residents who gradually migrated to Greater Jakarta and build slum settlements. During the building process, there are interactions between the lower income residents in deciding the appropriate place for their houses. They might make a ‘virtual’ consensus in their internal societal system through a voluntary action from a volunteer which then be responded by others through the following actions. Similar with the slum area phenomena, the shopping mall and apartment development is developed by the interrelationship between private sectors in an urban

economic life. In other words, the phenomena reflect a synergetics concept within the particular internal community through the interrelation process.

All of those two previous concepts (i.e dissipative and synergetics) then stimulate the last concept of the whole process of a self-organization, which is autopoiesis. Based on its basic definition for the social planning context, the autopoiesis means that there are self-maintenance, identity forming and stabilization, and also reproduction in a system. In other words, there is a creating process of a new pattern through a self-management that creates a symmetry break. For the Greater Jakarta phenomena, the autopoiesis concept is identified through the urban land-use conservation process which is adjusted to an urban economic development, such as an adjustment of a vacant land at along side of the bank river in several cities to become new slum areas, etcetera. There are self-maintenance processes through a collective repetitive behaviour between number lower income residents in building new slum areas. The self-maintenance and identity forming process then ruin the previous pattern (i.e the previous land-use) to become new form of a land-use in an area. Within a specified period , the emergence of new slum areas develop gradually and create a new pattern of urban land-use. In other words, the phenomenon indicates an urban transformation process in Greater Jakarta which occurs through the urban land-use change. In detail, those three concepts and stages of self-organization, in the case of Greater Jakarta, could be described in the following diagram.

Figure 3.6
Visualization of Self-Organization in Greater Jakarta



Source: Author, 2014

Detail explanation:
(1) Triggering events from the globalization (i.e or the dissipative concept)
(2) Repetitive behaviour of the related stakeholders in a system (i.e or synergetic concept) which then stimulate a collective result
(3) Collective result, where there is a process of self-maintenance, identity forming and stabilization, and reproduction (i.e or autopoiesis concept)
(4) The emergence of new pattern through a symmetry break process from the previous pattern

According to the explanation above, we realize that self-organization in Greater Jakarta could encourage phenomena of urban development. Furthermore, the phenomena of urban development would stimulate an emergence of urban transformation in Greater Jakarta within gradual period. Interestingly, urban transformation in Greater Jakarta occurs in a non-linear transition process.

3.4 Urban Transformation in Greater Jakarta: a Non-linearity

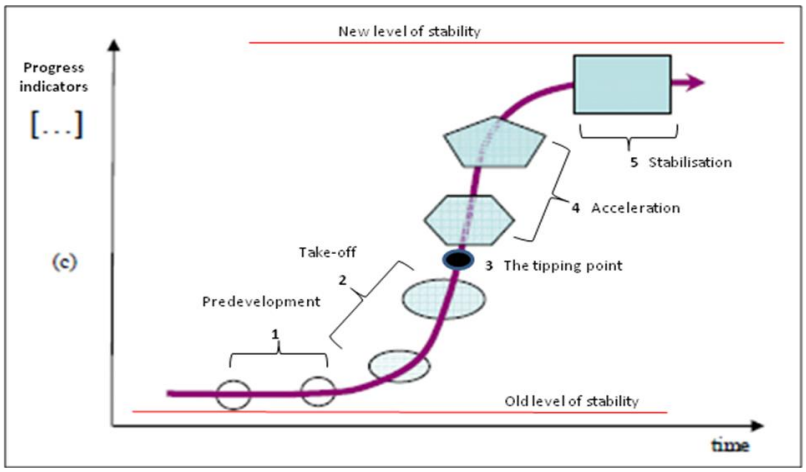
As an urban metropolitan area a developing country, Greater Jakarta has showed its growth during a period of time in order to do an adaptation to a global economic change (i.e globalization). The growth could be indicated through a shift of main economic activities in fringe areas of Jakarta Municipality, which has been transforming from agriculture into industrialization and trade. Bekasi and Tangerang are two real evidences of the transition of economic activities. The rapid development of economic activities in Jakarta Municipality has encouraged the increase of space and human resources demand in covering the economic development needs. As Jakarta satellite municipalities, Bekasi and Tangerang are automatically respond the demand through its transition of local economic activities, from agriculture into industrial and trade. The emergence of shopping mall and apartment development, and also large-scale residential areas, new towns, and industrial estate development in fringe areas are several main results from the urban economic transition. Indirectly, this economic transition influences on the formal local economic pattern; and the lifestyle and basic needs of community. Most of the communities in Greater Jakarta area (i.e at the fringes of Jakarta Municipality) have been evolving to become urban society which tends to give more attention to industry, trade and service sectors, and also leisure activities.

The transition process in Greater Jakarta changed urban structure and function. In this context, the structure refers to the urban spatial structure which is indicated through the urban land-use. On the other hand, the function refers to an urban's role in a development process through the primary urban economic activities. The change of urban structure and function occurs through the transition process. According to Rotmans et al., (2001), this transition process emerges as a manifestation of a shifting process from the old level of stability (i.e the old structure and function) to the new one. The transition process consists of several stages which can be chategorized in four phases. The first phase is pre development. It is a preliminary stage in a transition process which become a beginning of a movement, where the complex system is in a dynamic equilibrium and the autonomous processes are emerging under the surface, but not at the system level yet. Greater Jakarta has experienced this phase when the globalization gives its impacts. The second phase is a take-off. During its phase, the autonomous processes strengthen each other and shift the system to get out of balance and reach the tipping point, in collectively way (Loorbach & Rotmans, 2006 as cited in Rauws, 2009). The take-off phase in Greater Jakarta is represented through the beginning of urban economic change from the agriculture to become more industry, trade, and service. The interesting thing of the take-off phase for the context of Greater Jakarta is an emergence of a bifurcation.

In the concept of bifurcation, there is possibility for both of transitions, disintegrations, or even transition in various ways. It results in 'a causal pattern evolving that tracks a particular type of behaviour building on social mechanisms by which the pattern is likely to be reproduced over a certain period of time' (Sydow et al., 2005; Rauws, 2009). The urban economic change in Greater Jakarta could be seen as a phenomenon that successfully passing through the disintegration and continue to the transition process. This take-off phase stimulates an emergence of a tipping point phase. In the tipping point phase, there is a new form for the urban economic change which is indicated by the a creation of new structure and function in Greater Jakarta. In the end, the tipping point phase then encourages an acceleration process. At this acceleration phase, irreversible and multidimensional changes take place on different aggregation levels in the out of balance condition. It means that the urban economic-activities change in Greater Jakarta grows rapidly.

Finally, the growth of urban economic change in Greater Jakarta reaches its new level of equilibrium or pattern of structure and function at the stabilisation phase. This change of structure and function shows that the urban transformation process in Greater Jakarta occurs through a non-linear transition. The following figure describes the non-linear transition of the urban transformation in Greater Jakarta.

Figure 3.7
Representation of Non-linear Transition (Change of Structure and Content) in Greater Jakarta



Source: Rotman et. al., 2001; De Roo, 2008; Rauws, 2009 (modified)

Detail explanation:

(1) There was first stimulation from the globalization era in triggering the predevelopment process in Greater Jakarta
(2) The begin of urban economic change from the agriculture to become more industry, trade, and service in Greater Jakarta under the take-off phase through various jumps of transition, which stable periods in between.
(3) The emergence of new form of urban economic-activities change in Greater Jakarta at the tipping point
(4) The urban economic-activities change in Greater Jakarta grows rapidly under the acceleration phase through the various jumps of transition, which stable periods in between.
(5) Both of the various jumps and stable periods are fuzzy, fluid, and affected by discontinuous all the time, which is common in a plural social environment. This situation then brings Greater Jakarta to reach its new level of equilibrium or pattern of structure and function at the stabilisation phase

The urban transformation phenomenon in Greater Jakarta indirectly invites attention of the related governments in Greater Jakarta play a role to interfere the urban transformation through their interventions.

3.5 Interventions of Spatial Planning by the Related Governments in Greater Jakarta

The most important initiation of the local government that influences urban development in Greater Jakarta is spatial planning interventions for every local government. Spatial planning in Indonesia takes an important role as a 'tool' which can bridge development planning policies into physical development under a spatial context. Based on the Spatial Planning Act 26/2007 which has been influenced by the decentralization concept, every local government has authority to formulate their spatial plan document (i.e RTRW, RDTR, and RTR *Strategis*) which still refer to the upper spatial plan at the national and provincial level in hierarchical way, through the three main spatial planning process:

- Spatial planning process (*perencanaan tata ruang*) is a process of making and decision of the spatial plan;

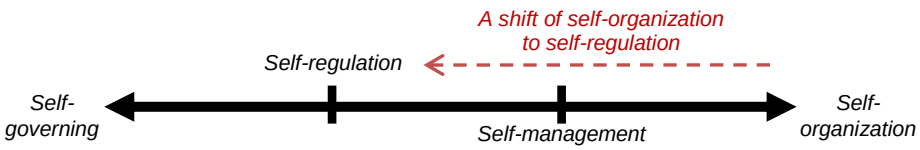
- Spatial development promotion (*pemanfaatan ruang*) attempts to develop spatial structure and pattern in accordance with spatial plan through the making and implementation of program and its finance; and
- Spatial development control (*pengendalian pemanfaatan ruang*) is monitoring, evaluation, and control of spatial development based on zoning ordinance.

In the context of Greater Jakarta, the local authority, in formulating spatial plan documents, has been growing in a complex way due to the globalization pressure and the implementation of decentralization policy. On the one side, the related local governments are required to fulfil their local development autonomously, but on the other side their power are still limited by the partial centralized power from the central government (i.e ministry) in delegating development power and allocating financial sources for the development process. In other words, the implementation of decentralization era in Greater Jakarta tends to become controlled decentralization process. This style of decentralization then provides several pitfalls for the local governments, which have to face the complex dynamic situations, in executing their plans. Like one of local governments representatives in Greater Jakarta said:

> *"In implementing concept of decentralization, central government could be likened to a man who tries to release an animal but still clutching its tail" (Head of Physic, Facilities, and Infrastructure-Bappeda Tangerang Regency, 2014)*

According to this situation, most of the local governments in Greater Jakarta try to initiate autonomous interventions in implementing the spatial development promotion to realize spatial structure and spatial development pattern, based on their priorities and abilities. In other words, it could be identified as a self-regulation from the local government in Greater Jakarta through the self-initiation process which is stimulated by self-organization, as be described by the following figure.

Figure 3.8
The Shift of Self-Organization to Self-Regulation thourgh the Governments Interventions in Greater Jakarta



Source: De Roo, 2014 (forthcoming), modified

Nevertheless, this self-regulation results some constrains in synchronizing the spatial planning program for several areas in the borderland between two or more cities or regencies. For instance, the Jakarta city has a plan to build an industrial area in the areas that is a borderland with Tangerang regency. In contrasts, Tangerang regency has also already planned the residential areas on it. This complex situation has been growing for almost a decade, without any intervention from the central government as a mediator.

Even there is an institution in Greater Jakarta whose main task is to coordinate and monitor development in the region (i.e the Jabodetabek Development Cooperation Agency or *Badan Kerjasama Pembangunan*,

BKSP[2]), the coordination process between the local governments is not implemented well. There are various reasons that influence this situation; the delegation of power and political factors could become the main reasons of it. Like a representative of Bappeda DKI Jakarta and BKSP said:

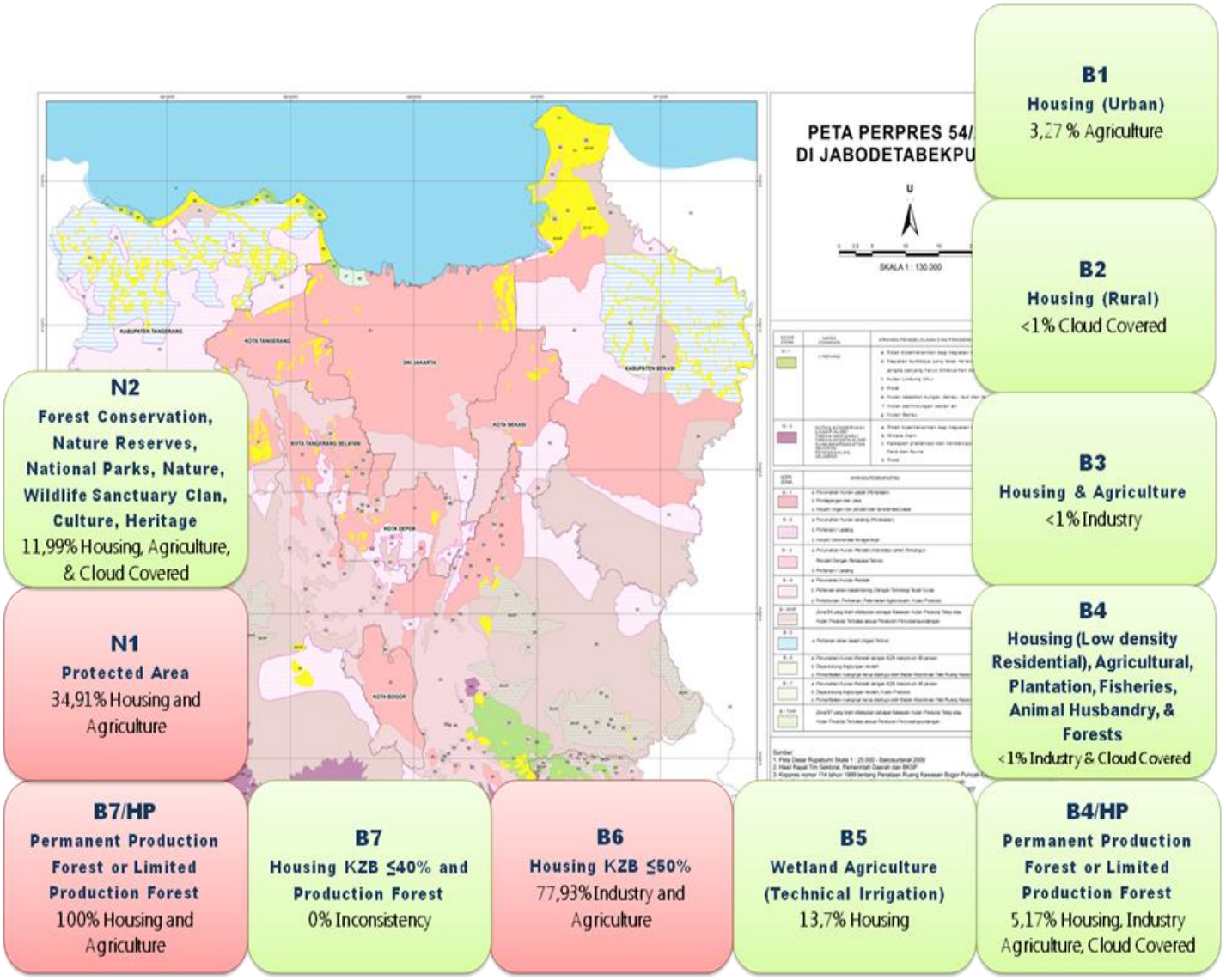
> *"BKSP is like has no intention to life but also hesitate to die..maybe because of lack of its power in coordinating several provinces, municipalities, and regencies in Greater Jakarta." (Representative of Bappeda DKI Jakarta, 2014)*

> *"BKSP had lost its power since an evolution process from cetralization era to decentralization..besides, lack of fiscal source become one of crucial aspects which influences its downturn." (Representative of BKSP, 2014)*

Based on the situation, the local governments interventions processess through an uncoordinated implementation of spatial plan among the local governments and central government, resulting an inconsistency between the existing land-use and the land-use plan that based on the document of strategic spatial plan for Greater Jakarta area (RTR KSN *Jabodetabekpunjur*). This condition implies us that there is a dilemmatic situation between the self-organization phenomena and the implementation of the existing spatial planning system in Greater Jakarta. The map below shows the inconsistency of land-use development in Greater Jakarta from the result of space utilization audit process by Ministry of Public Works since the last a year.

[2] *A government agency which was jointly established by the provincial governments of Jakarta and West Java in 1975; and later reinforced by Decree 29 /1980 of the Minister of Home Affairs and Decree 125/1984 of the National Planning Minister*

Figure 3.9
Inconsistency Map of Urban Land-use Development in Greater Jakarta Area



Source: Ministry of Public Works, 2014

A Dilemma between Self-Organizing Process and the Existing Spatial Planning System in Greater Jakarta

According to the previous explanation, we recognize that the self-organizing process which occurs in Greater Jakarta has influenced fundamental change on the urban structure and function change through the transformation process. During this process, there are several positive impacts which are produced. The growth of new job opportunities and emergence of the chance for increase of local income per capita in an area are the two main examples of the positive impacts. Nevertheless, there are also several negative impacts which emerge because of the urban transformation that is stimulated by the self-organization. The main negative impact is the urban land-use change in Greater Jakarta area, which has been shifting dramatically from the protected areas to become cultivated areas. According to the result of space utilization audit, which has been executed by Ministry of Public Works in 2013, there are several discrepancies between the existing land-use and the basic spatial plan (i.e especially Jabodetabekpunjur Spatial Plan or *RTR KSN Jabodetabekpunjur*). Those discrepancies are categorized into five typologies (Ministry of Public Works, 2014):

a) The inconsistency of spatial development promotion for each regencies and municipalities in Greater Jakarta with the Presidential Decree No.54/2008 (i.e Jabodetabekpunjur Spatial Plan) and the local spatial plan documents (i.e *RTRW Kabupaten dan Kota*). Most of those spatial development promotions in every regencies and municipalities have already existed before the enactment of the presidential decree and the local spatial plans.
b) The lack of adjustment for the existing spatial development promotion with the presidential decree.
c) The emergence of spatial development promotion which has no legal permit from government.
d) The poor implementation of licensing process that does not fit with the presidential decree and local spatial plans.
e) The emergence of land-use change in the middle of the implementation of related spatial plans.

As main responsible ministry for a spatial planning in Indonesia, Ministry of Public Works concludes several main problems in Greater Jakarta, which are based on the emergence of the five discrepancies categories. The problems of spatial plan in Greater Jakarta are described in the following points:

1) Inconsistency in the existing spatial development promotion in Greater Jakarta with the presidential decree and the other local spatial plans.
2) Weak spatial development control in Greater Jakarta area.
3) Lack of spatial instruments for the development control in Greater Jakarta.
4) Lack of local budget for every regencies and municipalities in Greater Jakarta in order to give an incentive or disincentive to the concessionaire of the spatial development promotions which have been existed before the enactment of the presidential decree and the local spatial plans.
5) Weak of public awareness about spatial development promotions in accordance with the related regulations (i.e spatial plan documents).

6) Lack of public complaint facilities for the regencies and municipalities in Greater Jakarta, in order to cover the discrepancy of spatial development promotions.

Interestingly, those spatial planning problems in Greater Jakarta, which have been concluded by the Ministry of Public Works, indicate a weakness in the implementation of the existing spatial planning system itself. The implementation of new decentralization policy in Indonesia since 2004, which still tends to semi-centralized, gave crucial influence on the chain of spatial planning system (i.e spatial planning process, spatial development promotion, and spatial development control). For the spatial planning process, the decentralization era has encouraged hierarchical spatial planning process. This hierarchical process indirectly enforces the local governments in Greater Jakarta to attend the BKPRN forum (i.e a kind of central government forum for the spatial planning in Indonesia) in order to process the approval of their spatial plan documents. This process absolutely drains the time and local economic resources of those related local governments. On the other hand, the decentralization era also gives opportunities for the local government and its society to improve their social economic condition independently, through self-organizing and self-regulating process. The worst influence occurs when the local governments, who have a responsibility in managing urban and regional development, have to face the limited authority in managing urban land-use change in their region, due to the implementation of the semi-centralized of the decentralization era. This situation shows us that there is lack of implementation of spatial planning system in Greater Jakarta (i.e which is influenced by decentralization policy), that cause inability of the related local governments in maintaining the urban transformation phenomena (i.e that is manifested through the urban land-use change). The following statements below are the local government representatives' statements, which indicate the lack of decentralization era to the implementation of spatial planning system.

> *"The division of authority and budgeting becomes crucial thing in the implementation of local development. The central governments (i.e related ministries) are impressed so greedy, but in fact out there, they seem poor in maintaining and building the new infrastructure or handling the urban land-use change problems" (Head of Physic, Facilities, and Infrastructure-Bappeda Tangerang Regency, 2014)*

> *"Actually, there is no problem in the spatial planning process, because the discussion among the related stakeholders has already been implemented. However, the problems then occur in the implementation of spatial planning. The main constraint of the problems is the autonomy era...The main root of the problem in the autonomy era is the division of authority between central and local government. The existence of this decentralization era causes an ability of a municipality and a regency in doing more interventions to cope the spatial planning cases in their areas, because they do not have power or authority" (Head of Physic, Facilities, and Infrastructure-Bappeda Tangerang Municipality, 2014)*

> *"The important thing of the spatial planning is about the implementation and consistency..The central governments have already did well coordination with the government of DKI Jakarta, as the capital city of Indonesia. However, there is still a lack in the bureaucracy process that is tends to*

convoluted. Meanwhile, we have already known that planning process always lose with the budgeting mechanism process and division of authority" (Representative of Bappeda DKI Jakarta, 2014)

Based on those statements, we realize that basically most of the local governments in Greater Jakarta really appreciate the decentralization policy from the central government. However, on the other side, the lack of decentralization policy also gives an impact on the spatial planning system in Greater Jakarta as a whole. This impact then positions the local governments in an insufficient position, where they have to obey the central mandates, while on the other hand they could not ignore the reality out there that has been growing rapidly and needs a quick respond. This dilemmatic situation between the positive and negative impacts of a self-organization, through the urban transformation process in Greater Jakarta, to the existing spatial planning system in the decentralization era then stimulates a shift of planning system from object oriented observation to intersubjective interaction. This shift is evidence from the self-regulation of each local government in Greater Jakarta in governing their local spatial development through their own related local interventions in the context of spatial planning.

3.6 Summary

The globalization era indirectly triggers self-intervention and self-management from the society through repetitive behaviour in Greater Jakarta which then stimulate collective results that is manifested by several urban development phenomena (i.e shopping mall and apartment development, industrial and new residential growth in fringe areas, transport development, and increasing of slum areas). Gradually, those phenomena then create new patterns of structure and function that replace the previous pattern of urban land-use in Greater Jakarta. On the other side, the implementation of decentralization policy that is based on Local Government Act 32/2004 indirectly gives an important impact on spatial planning system in Indonesia. For the context of Greater Jakarta, this impact is clearly identified through the hierarchy of spatial planning system which is based on the tiers of the government's scale (i.e national-provincial-local). Nevertheless, according to the reality, the implementation of the spatial planning system in Greater Jakarta that is lied under the decentralization policy results in several shortcomings. The most obvious shortcomings are: (1) the lack of spatial development promotion and spatial development control, (2) the focus of related government which still concern to the spatial plan document that still has macro level of map scale (i.e RTRW), while the reality out there has been growing rapidly and needs a more detail scale of map for the spatial plan documents (e.g RDTR), and (3) the decentralization policy still tends to lie under a nuance of controlled system from the central government, while the development plan at the local level needs a quick respond from the related local government to interfere. Those several shortcomings are then 'enhanced' by a lack of coordination between related governments in Greater Jakarta in maintaining the spatial planning because of local egoism of each local government to interfere and to create a self-regulation at their own areas in order to respond the self-organization. This situation then creates a dilemmatic situation between the self-organizing processes and the existing spatial planning system in Greater Jakarta. Therefore, to deal with this situation, an analysis about 'the role of spatial planning system in responding the urban transformation' is needed.

CHAPTER 4
THE ROLE OF SPATIAL PLANNING SYSTEM IN RESPONDING THE URBAN TRANSFORMATION

4.1 Introduction

Extended urban development in Greater Jakarta, as explained in chapter 3, clearly shows that there is a huge transformation which is stimulated by self-organizing processes. Globalization and decentralization are the two crucial elements that influence the relationship between the spatial planning system and self-organization in Greater Jakarta. Based on the empirical evidences explained in the previous chapter, the hierarchical spatial planning system in Greater Jakarta is rather impossible to influence urban land-use conversions or land-use change phenomena which had occurred, such as huge development of shopping mall and apartment, various emergence of large-scale residential areas, new towns, and industrial estate in fringe areas, transport development, and the increasing of slum areas along the banks of river in several big cities in Greater Jakarta Area. Ideally, the existing spatial planning system in Greater Jakarta can respond to those phenomena in way that make sense, which means identifying a balance between the urban development's and the planning system's capabilities to support society's desires. It means that the spatial planning system could firstly identify the base of urban development process and how it can influence the urban transformation. Besides, the spatial planning system should be able to predict the possible impacts of all the phenomena on the spatial planning system itself, because planning is a process that is implemented in a dependent chain. Co-evolution in spatial planning is a related concept which is needed in analysing further the role of spatial planning system in responding the urban transformation. Therefore, there are two main crucial points which will be explained at this chapter, including a mismatch between the spatial planning system and the urban system in responding the urban transformation in Greater Jakarta, and positioning the concept of non-linearity as an alternative to the spatial planning system that can better overcome the urban transformation.

4.2 A Mismatch between Spatial Planning System and Urban System in Greater Jakarta

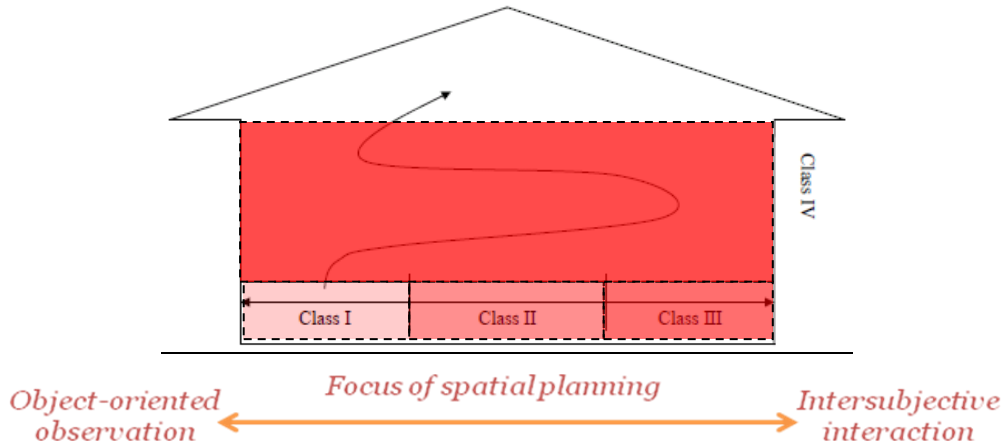
Before discussing on the mismatch between spatial planning system and urban system in Greater Jakarta, it should be understood that the spatial planning system in this context is different from an urban system. The spatial planning system refers to spatial planning policies that are manifested in spatial planning strategies or approaches and actions. On the other hand, the urban system in this context refers to the dynamic change in the morphology and function of an urban area in the urban development and the urban transformation phenomena. According to the previous explanations, the existing spatial planning system assumes that the urban system in Greater Jakarta could be dealt with as closed linear and circular feedback system. Meanwhile, we recognize that the urban system is more divers, and it is impossible for the existing spatial planning system to control everything. In other

words, there is a mismatch between the spatial planning system and the urban system in Greater Jakarta. Moreover, the detail description about the mismatch will be explained as follows.

Dynamic Urban System in Greater Jakarta

Urban transformation process in Greater Jakarta indicates a mixture system between a closed linear system (class I), a circular feedback system (class II), an open network system (class III), and a non-linear adaptive system (class IV). It means that the closed systems have existed in the transformation process, as well as the non-linear adaptive system (see Figure 4.1). This mixture system is caused by a self-organization of society in Greater Jakarta, through emergence of various stakeholders and their interests in the urban transformation process. The new town and industrial area development, which are driven by middle class society and private sectors and the increasing of slum area for low class society, are several kinds of manifestation from the various stakeholders and their interests in Greater Jakarta. Gradually, this situation makes the urban system in Greater Jakarta complex, where a transition process in non-linearity occurs through the existence of uncontrolled urban land-use change. This land-use change results an alteration of the urban morphology and the urban function in Greater Jakarta, which develops rapidly and difficult to be predicted, even more so at the decentralization era.

Figure 4.1
Dynamic Reality of Urban System in Greater Jakarta



Source: *De Roo, 2010 (modified)*

According to the previous explanation, the emergences of a mixture system results a shift of spatial planning focus at the reality, from 'object oriented' to 'intersubjective interaction'. The shifting process of the spatial planning focus is much related to a decision-oriented action in a planning-oriented action. According to De Roo (2003), the planning-oriented action is a framework that is built by a relationship between goal-oriented, institution-oriented and decision-oriented action (see also De Roo, 1995; De Roo, 1996; De Roo and Miller, 1997). As a part of the planning process, the planning-oriented action is performed by individuals, groups or organisations. This action is designed to achieve goals in a systematic way by making and implementing choices and decisions, with the help of others if necessary, and by using the required resources. It means that there will be various actors

who participate in representing their interests. According to the theoretical explanation, there are two essential things which are related to the aspect of interest: 'willingness' and 'competence'.

In the case of Greater Jakarta, those various stakeholders have a strong willingness to interfere the urban development, while the related government's competence is still restrained by the 'semi-controlled' decentralization policy. This situation causes the policy is not more flexible in responding the reality out there, where the situation is getting complex, not clear, and rather fuzzy. Indirectly, this condition stimulates the related governments in Greater Jakarta to create a self-regulating process through their own self-interventions. According to the theoretical concepts, the phenomena of self-regulation begin with a shift of spatial planning focus, through a change of spatial planner's role. It means that the spatial planners become more as an advisor as well as a participant in a planning arena (De Roo, 2003). This shift of spatial planning focus and role of spatial planners imply that the technical rationality approach in spatial planning tends to be less suitable in dealing with the growing complexity out there. It means that the technical rationality approach could still be relevant for the growing complexity, but only for particular situations.

An Overview of Spatial Planning System in Greater Jakarta

According to the previous explanation above, the complexity level of the urban system in Greater Jakarta has been growing rapidly and could not be dealt with the technical rationality approach for a whole. It means that the dynamic urban system in Greater Jakarta needs a role of planner who is more than just a controller, but rather an advisor. Nevertheless, for the context of Greater Jakarta which its spatial planning authority stands on the 'semi-controlled' decentralization era, self-regulation does not encourage the shift of spatial planner's role to become an advisor. According to the observation's results, most of the planners[3] in Greater Jakarta still refer to a complementary process between the technical rationality and the communicative approach at the implementation process. The complementary process between the technical rationality and the communicative approach, for the planning-oriented action in Greater Jakarta, is indirectly reinforced by the results of interviews with the several local governments in Greater Jakarta, as mentioned below.

> *"Even for the space requirements (i.e for industrial zones or residential areas), we have created a reclamation scenario through our spatial plan regulation document (i.e Perda RTRW). In the regulation document, we planned 7 islands in the northern region of Tangerang regency, through the reclamation process. This scenario is implemented in order to avoid the intervention in areas that have already plotted as farming." (Head of Physic, Facilities, and Infrastructure-Bappeda Tangerang Regency, 2014)*

[3] *Planners who work at governemtal agency that focuses on the spatial planning (i.e BKPRN, BKSP, Ministry of Public Works)*

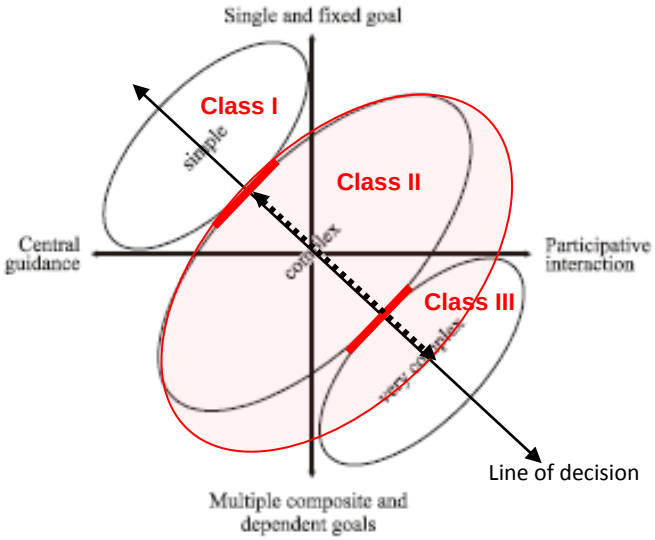
"For the spatial plan in the future, we have developed multiple nuclei and TOD (i.e Transit Oriented Development) to address urban development. We have 6 development centers. The main center of the Tangerang Municipality. There are 1 centre in the west, and 2 others in the south areas. We utilize the private sector (i.e 'Alam Sutera' Developer), because its role is outstanding. There is an airport in the north area, but it is not predictable because it has its own rules from the central government. However, we still take the airport into account, because it must give huge influence to the traffic flow in our area...In the future, the existence of agriculture is no longer taken into account, except for protected areas (i.e RTH). The management of the RTH will be associated with the basic building coefficient (i.e KDB)." (Head of Physic, Facilities, and Infrastructure-Bappeda Tangerang Municipality, 2014)

The statements from the Head of Physic, Facilities, and Infrastructure-Bappeda Tangerang Regency and Tangerang Municipality imply that they still operationalize the scenario and communicative approaches in order to respond the urban transformation phenomena. The operationalization of the scenario and communicative approaches are clearly indicated through following characteristics of planning-oriented action below:

- For the goal-oriented action, the related local governments use a linear phased cycling planning process (i.e with feedback, correction, and self-regulation) in arranging the goals.
- For the institution-oriented action, the related governments implement a decentralized shared governance and horizontal network under decentralization concept. Besides, there are varying interests from the related stakeholders (i.e society, private sectors, etc.) with highly variable and problem based institutional links which responsibilities are difficult to identify.
- For the decision-oriented action, there is a strong emphasis on the problem definition and selection in every related government, and coordination in terms of the whole through BKPRN and BSKP forum.

Those three characteristics imply a tendency of the spatial planning process in Greater Jakarta to implement a scenario approach in responding the growing complexity (i.e urban transformation process) there. Figure 4.2 below shows a visualization of the existing of planning-oriented action in Greater Jakarta. The red circle indicates a complementary process between the technical rationality and the communicative approach, even though the nuance of technical planning approach (i.e scanario approach) still dominates in the planning-oriented action.

Figure 4.2
A Framework for Planning-Oriented Action, in which the Relationship Between Planning Goals and Interaction is based on Complexity in Greater Jakarta

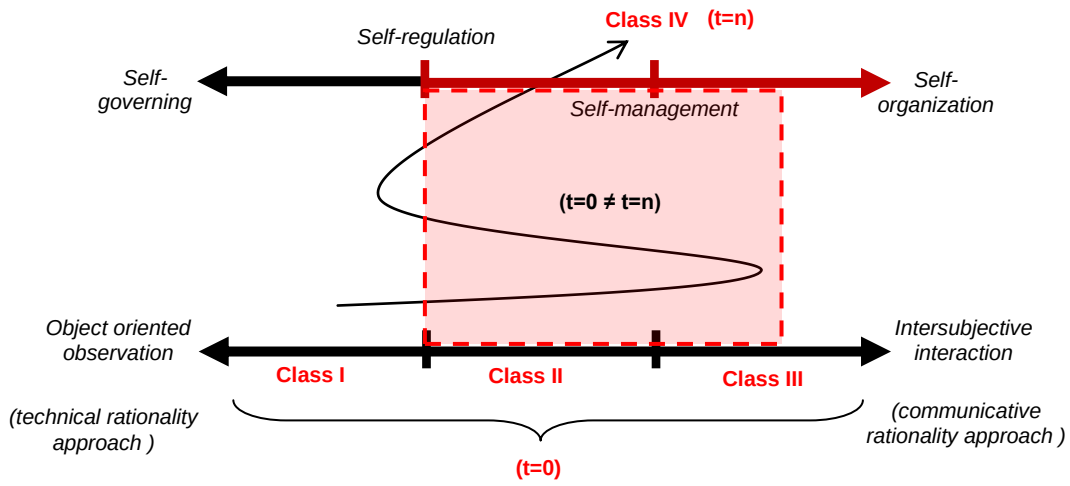


Source: De Roo, 2003 (modified)

Mismatch between Spatial Planning System and Urban System in Greater Jakarta

The empirical explanation of spatial planning system and urban system in Greater Jakarta imply a mismatch between the spatial planning system and the urban system in Greater Jakarta. The mismatch occurs when the current urban system is believed to possibly be dealth with by the closed linear and circular feedback system. Meanwhile, we recognize that the urban system is more divers and it is impossible for the existing spatial planning system to control everything. If we try to compare between this existing spatial planning system and the empirical situation in Greater Jakarta, we found an interesting condition where the spatial planning system seems tends be left behind from the growing reality out there. This interesting finding shows that the decision-oriented action for the planning-oriented action in Greater Jakarta still lies in the 'intersubjective interaction' in a stable complexity with a predicted uncertainty. Whereas, the reality out there has already grown rapidly through a non-linear transition process (i.e under dynamic complexity), which the uncertainty is hard to be predicted becuase there are possibilities for the context to change in the future (i.e there is a consideration to the change of time or t≠0, but t=n). In other words, it is impossible for the existing spatial planning system to control everything through the existing decision-oriented action. The result of this comparison implies that the decision-oriented action for the planning-oriented action should be lied on the 'intersubjective interaction' that takes into account the change of time (i.e t≠0, but t=n) in the decision making process. The following figure tries to show the position of the existing spatial planning system from the growing complexity in Greater Jakarta.

Figure 4.3
A Position of the Existing Spatial Planning System in Greater Jakarta to The Growing Complexity



Source: De Roo, 2010; De Roo, 2014 (forthcoming), modified

Figure 4.3 above indicates an interesting comparison between the existing spatial planning system in Greater Jakarta and the phenomena of self-organization there. According to the red box in the Figure 4.3, the crucial problem that is found is the mismatch of the 'time' between the planning-oriented action in the spatial planning system and the empirical situation that has already developed rapidly in non-linear condition. The difference in the matter of time is identified as one of 'roots' for the spatial planning problem in Greater Jakarta, besides other reasons (e.g politic, etc.). The term time becomes an important thing for a planning process, because we must discuss about a future in this process. A future is a situation that has not occurred yet which is fully filled with uncertainty. In a planning, planners take a role in predicting the future that is in line with their expectations. This situation then leads the planners to implement the decision making process under a 'frozen' time, or within the predicted uncertainty. This decision making process (i.e under a 'frozen' time) might be implemented well, but only for particular situation where a centralized political system is implemented. Meanwhile, Greater Jakarta has been implementing decentralization policy, even though it tends to the implementation of 'semi decentralization'. Therefore, we then could not ignore the time dimension in the planning process. It means that the empirical situation shows there is lag between the existing spatial planning system in Greater Jakarta and the growing reality out there. This lag then pulls back the important question about the efficiency and the effectiveness of the existing of spatial planning system in Greater Jakarta in responding the growing complexity of the reality out there.

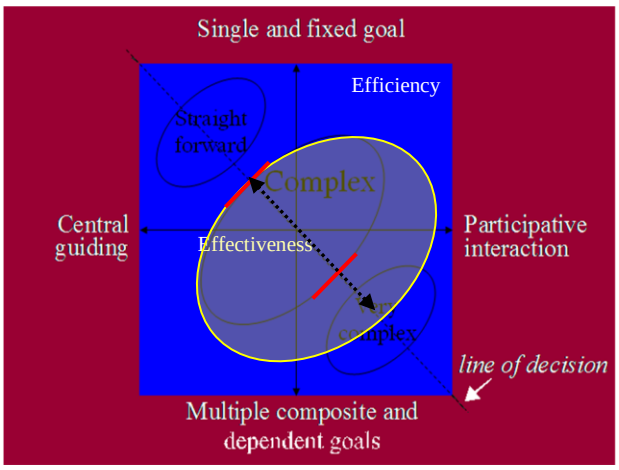
A discussion about effectiveness and efficiency in the implementation of spatial planning system for an area is an intricate and a vague study. As part of social science, spatial planning is full with the concept of relativism and context dependent. Therefore, it would be a challenge for social scientists to identify and assess effectiveness and efficiency of the spatial panning system. As manifestation of a policy, spatial planning system must be integrated with the effectiveness and the efficiency of

governmental interventions, which are covered by the planning-oriented action (i.e through goal-oriented, institutional-oriented, and decision-oriented actions). Therefore, a discussion about the effectiveness and efficiency of spatial planning system in this section would be analysed through the implementation of the planning-oriented action.

Based on the previous explanations, the spatial planning authority in Greater Jakarta stands on the 'semi-controlled' decentralization era. According to the observation's results, most of the planners in Greater Jakarta still refer to a complementary process between the technical rationality and the communicative approach in the implementation process of the decision-oriented action in Greater Jakarta. According to the previous explanation, the goal-oriented action in Greater Jakarta indicates that the related local governments use a linear phased cycling planning process (i.e with feedback, correction, and self-regulation) in arranging the goals, which is also generally implemented by the other local goverments in Indonesia. For the institution-oriented action, the related governments in Greater Jakarta implement a decentralized shared governance and horizontal network under decentralization concept. Besides, there are varying interests from the related stakeholders (i.e society, private sectors, etc.) with highly variable and problem based institutional links which responsibilities are difficult to identify.

Those phenomena indicate that spatial planning system in Greater Jakarta tends to be covered under a participative interaction among stakeholders, and multiple composite and dependent goals; even though the central guiding and single-fixed goal still be involved in the spatial planning system for particular situations. Meanwhile, for the decision-oriented action, the related governments in Greater Jakarta implement a strong emphasis on problem definition and selection at every governments, and coordination in terms for the whole through BKPRN and BSKP forum. The combination between the existing goal-oriented, institutional-oriented, and decision-oriented actions can be represented through the following figure.

Figure 4.4
A Framework for Planning-Oriented Action in Greater Jakarta whereby a Relationship is Established between Efficiency and Effectiveness



Source: De Roo, 2013 (modified)

As shown by Figure 4.4, we realize that the planning-oriented action has been evolving more flexible through the implementation of communicative approach (i.e through BKPRN and BKSP forums) in the decision-oriented action. If we refer it to the line of decision, this condition seems has reached its effectiveness and efficiency for the constant or predicted uncertainty in stable complexity (i.e t=0), even though several shortcomings still remain because there is semi-controlled decentralization. This effectiveness and efficiency is manifested through the emergence of participative interaction and multiple composite goals.

Nevertheless, for the context of Greater Jakarta that is much influenced by globalization, self-organization, and also decentralization, the emergence of relativism and uncertainty are unavoidable and hard to be predicted and be adjusted. There are too many stakeholders and various interests that involve in the planning process. The self-organizing process is such an unpredicted situation in the future which occurs because of the existence of uncertainty in Greater Jakarta. This process then stimulates an emergence of urban transformation process in a non-linearity. All of those phenomena imply that there is a changing context because of the rolling of time (i.e t=n). In the end, we can conclude that the implementation of existing spatial planning system in Greater Jakarta is not sufficiently effective and efficient in responding the empirical condition (i.e the urban transformation process in non-linearity). Considering that the urban transformation is a crucial phenomenon which could not be ignored by the planners and decision makers in Greater Jakarta, we need to search for an alternative to spatial planning system that could be positioned in order to respond the urban transformation. The alternative which should consider the aspect of changing time (i.e t=n), because the possibilities of uncertainty in the non-linear transition are hard to be predicted and could not be ignored anymore. It means that the alternative must have more attention for urban system which evolves through procesess of self-organization. In other words, the alternative that refers to the concept of non-linearity.

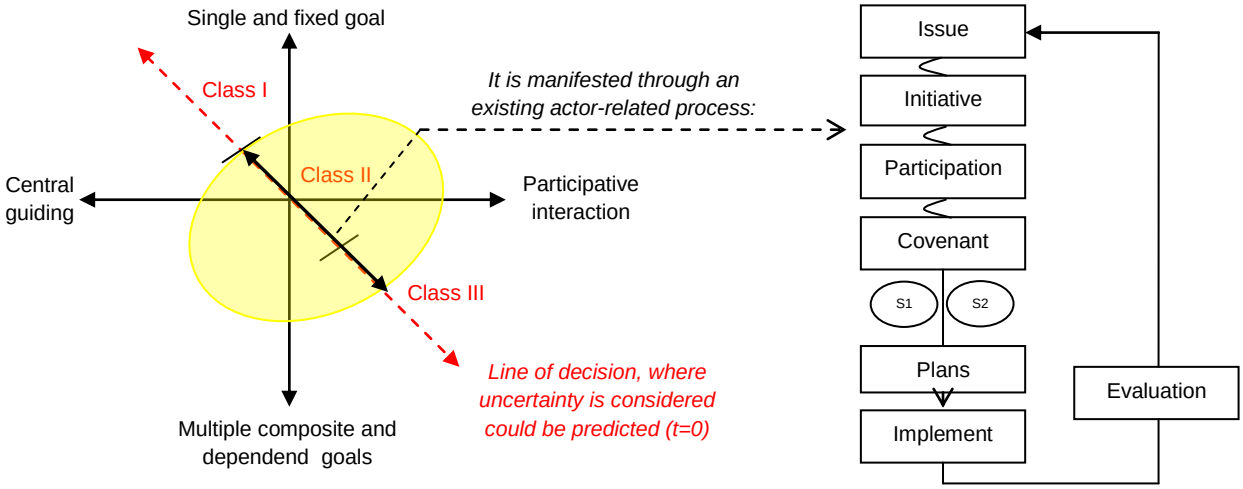
4.3 Formulating an Alternative to the Spatial Planning System in Greater Jakarta: An Implementation of a Non-Linearity Concept

Understanding the best alternative of spatial planning system in Greater Jakarta, in order to overcome the urban transformation, needs more than just a tough effort. As we recognize that a study on the spatial planning system must inevitably involves many considerations. The impacts of globalization, self-organization, and even decentralization era have given a huge influence for the social development in Greater Jakarta. Mergers between a competence and a democratic climate in Greater Jakarta have influenced a paradigm and behaviour of the society in voicing their interests and doing activities. This situation then creates an intersubjective interaction in the society, which empirically stimulated a gradual development process of the spatial planning approach in Greater Jakarta. Besides, as an area that is implemented a decentralization policy, the spatial planning system in Greater Jakarta could not be separated from political and financial interests in the governmental system.

Those empirical situations shows that we could not decide the appropriate spatial planning system in Greater Jakarta in a hastily and strictly ways. As we figured out empirical situation, one of the best first steps in responding the urban transformation in Greater Jakarta (i.e through the spatial planning system), is to identify an alternative way to planning-oriented action. The framework of planning-oriented action becomes an important thing, because indirectly it could represent the efficiency and the effectiveness of a spatial planning system. According to the theoretical concepts of 'co-evolution of the spatial planning', the planning-oriented action plays an important role in manifesting the decision making process of spatial planning, through functional and institutional dimensions. Indirectly, those dimensions indicate an actor-related process, which means that there is an interrelation between various stakeholders in the spatial planning system. Governments, private sectors, society, are the various stakeholders who must be involved in the spatial planning system through the planning-oriented action.

Actually, the implementation of actor-related process for the spatial planning system in Greater Jakarta has already been done. This process is indicated through several planning forums at BKSP and BKPRN. In these fora, the central and local governments sit together with the other related stakeholders (i.e private sectors or society) to discuss on the expected spatial plan. This process begins with an initiation from the governments who realize that there is an issue out there which needs to be addressed. The initiative then develops into a participation process among several related stakeholders that aims to reach a mutual covenant. Interestingly, this mutual covenant is managed by the government's interventions through several scenarios (e.g S1, S2, etc.). This phenomenon indicates that there is still a semi technical rationality in the spatial planning system in Greater Jakarta. In the end, this mutual covenant then is manifested through plans that would be implemented. This whole process is visualized through the following figure below.

Figure 4.5
Actor-Related Process for the Existing Spatial Planning System in Greater Jakarta



Source: De Roo, 2003 (modified)

Unfortunately, the implementation of the actor-related process for the existing spatial planning system in Greater Jakarta still results a potential shortcoming. Based on the figure 4.5, there is an assumption in a decision making process which tends to predict the uncertainty in the future. In other words, the aspect of time in the decision making process is considered fixed (i.e t=0). Meanwhile, according to Figure 4.3, we realize that the reality out there has been growing and transforming rapidly and creates unpredicted uncertainty through the various phenomena of self-organization. In this situation, the aspect of time could not be considered fixed anymore (i.e t≠0), but it more becomes an important aspect which its change should be considered (i.e t=n). Therefore, in order to respond this situation, we try to positioning an alternative to the spatial planning system in Greater Jakarta through an evolution of the actor-related process. The evolution in this context means that we try to involve various possibilities in the future by identifying a desire, an actual, and a potential contribution of the related stakeholders in the spatial planning system (see more at the chapter of theoretical concepts).

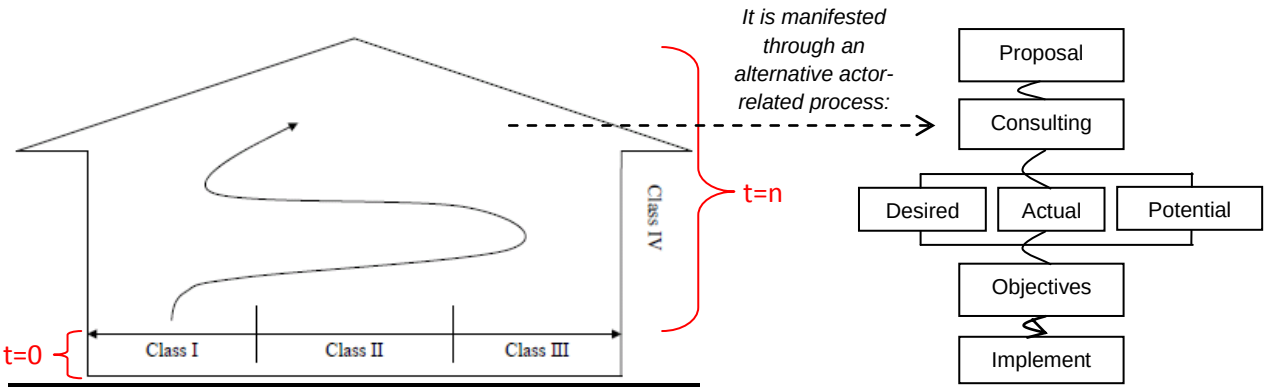
A desire, an actual, and a potential contribution of the related stakeholders are the crucial elements in the spatial planning system, especially for the decision making process in the planning-oriented action. We have recognized that the planning-oriented action is performed by individuals, groups or organisations which try to achieve goals. The phenomena of this action then are represented through an emergence of the willingness and competence. According to the previous explanation, those two aspects (i.e willingness and competence) are manifested by a desire, an actual, and a potential contribution of the related stakeholders. Therefore these three elements become important for the spatial planning system. For the context of Greater Jakarta, the planning-oriented action tends to only consider a desired and a potential contributions, without encloses an actual contribution from the related stakeholders. This situation then leads the decision making process to ignore the growing uncertainty in the future. The related planners, governments, and other stakeholders tend to focus on

the desired thing and forget that there is an actual situation which could influence the achieving process of the expected goals or plans in the future.

According to the empirical situation, we recognize that the implementation of evolution of actor-related process, for the spatial panning system in Greater Jakarta, is unavoidable. An alternative way to the evolution process that is provided in this research is an implementation of an actor consulting model. Basically, this model tries to facilitate the consultation process between actors regarding his or her desired contribution, and his or her present or actual contribution in solving a particular planning issue. In other words, this model can be used to facilitate an identification and elaboration processes of the three crucial elements; that are desire, an actual, and a potential contribution of the related stakeholders. By implementing this model, the actual contribution of the related stakeholders could be facilitated, so that the possibilities of uncertainty in the future are still become a consideration at the decision making process in the spatial planning system. In other words, the aspect of changing time is positioned as an important thing in the planning-oriented action (i.e t=n).

In more detail, the implementation of the actor consulting model for the context of Greater Jakarta could be executed through several steps. The first step is an arrangement of a planning proposal which is coordinated by the related planners in the BKSP forum. The proposal must consider to the growing issues or reality out there. It means that the proposal have to involve the phenomena of self-organization in Greater Jakarta that has gradually stimulated an emergence of the urban transformation. This proposal then would be consulted together by the other related stakeholders in discussion meetings (i.e the related governments, representative of private sectors, or even representative of society in Greater Jakarta). During the discussion process, the desired, actual, and potential contributions of the related stakeholders must be seriously discussed to consider the possibility of uncertainties in the future. This discussion process then would result several objectives. Finally, through the consideration of the uncertainty, the objectives then would be implemented together through various ways (e.g shared responsibilities between stakeholders, etc.) in more flexible. The implementation process of this alternative actor consulting model in Greater Jakarta could be represented through the following figure below.

Figure 4.6
Actor Consulting Model for the Alternative of Spatial Planning System in Greater Jakarta



Source: De Roo, 2003; De Roo, 2010 (modified)

According to the explanation about the implementation of actor consulting model as an alternative to spatial planning system in Greater Jakarta, we recognize that the role of BKSP is important and crucial. Therefore, in order to fulfil the implementation of this model, empowerment of BKSP's role is needed. This empowerment could be implemented through the return of the planner's professionalism in BKSP itself. It means that the BKSP should be run by professional planners which are neutral and not bound by the political interests. With the new form of the BKSP, it is expected to be an appropriate mediator between the central and local governments in Greater Jakarta. In executing this effort, the financial support and delegated power from the central government is also needed. Besides, the support and active participation from the related local governments in Greater Jakarta become other important things that should be involved. By well-implementing this, we can expect that the several spatial planning problems in Greater Jakarta (see chapter 3) could be better tackled.

4.4 Summary

According to the explanation above, we realize that the urban transformation in Greater Jakarta, which is stimulated by the self-organization, has encouraged a development process of spatial planning focus to be more intersubjective interaction under a non-linear transition. This development process leads the planners to implement a 'creative' spatial planning system, which could accommodate the non-linear transition process in Greater Jakarta. Unfortunately, the existing spatial planning system in Greater Jakarta is not sufficient yet in responding the transition (i.e the urban transformation). The spatial planning system in Greater Jakarta tends to implement the semi technical rationality approach in responding the reality, while the reality out there has been growing more complex or even under a non-linear transition, so that the uncertainty is hard to be predicted. The discrepancy between the empirical situation and the existing spatial planning system remains ineffective and inefficient. Therefore, we need to identify an alternative to spatial planning system which could be implemented in Greater Jakarta effectively and efficiently.

We realize that the identification of the appropriate alternative to spatial planning system in Greater Jakarta is not easy. There are many complex aspects which should be taken into account (i.e various actors and their interests). Hence, we need to begin this identification process from the base of the spatial planning system, which is a decision making process at the planning-oriented action. Based on the empirical situation, the planning-oriented action in Greater Jakarta still refers to the actor-related process that only considers the desired and potential contributions of the related stakeholders. This condition then causes the spatial planning system tend to ignore the possibility of uncertainty in the future. In other words, the aspect of changing time is not being considered. Meanwhile, this aspect is a crucial element in the urban transformation in a non-linear transition. Therefore, in order to respond this situation, we need an innovative solution for the spatial planning system that considers uncertainty in the future. One of the alternative solutions is by implementing the actor consulting model which not only consider the desired and potential contribution of the related stakeholders, but also the actual contribution. The consideration of these three kinds of contribution (i.e the desired, actual, and potential contributions) indicates that the decision making process in the planning-oriented action has already refered to the possibilities of uncertainty in the future. In other words, by implementing the three kinds of contribution, the spatial planning system has already considered the changing of time. For the context of Greater Jakarta, the implementation of this model should be coordinated by the cooperating agency for Greater Jakarta area development, which is BKSP.

CHAPTER 5
CONCLUSION AND RECOMMENDATION

5.1 Conclusion

Globalization has stimulated the emergence of self-organizing process in Greater Jakarta's civil society through their self-interventions, beyond the government control. Gradually, this self-organization encourages urban development process at *macro* level through several phenomena, such as shopping mall and apartment development, industrial and new towns growth in fringe areas, transport development, and increasing of slum areas. The phenomena of urban development occur in a non-linear transition process and cause the emergence of new pattern of urban morphological and function, through the urban land-use change. Urban land-use change phenomena indicate an urban transformation process. The uncontrolled urban transformation through the urban land-use change provides a great challenge for the spatial planning system. This challenge enforces the spatial planning to perform a co-evolutionary process. Basically, co-evolutionary process refers to a shifting process of a system where its subsystems influence each other, either opposing each other or synchronizing each other (Garnsey & McGlade, 2006). It indicates a development shift in spatial planning focus from the 'object oriented' to the 'intersubjective interaction'. The crucial thing of the co-evolutionary process is its relationship to the three interrelated dimensions of spatial planning which are much related to the effectiveness of governmental interventions (De Roo, 2003):

1) **Functional**: relates to the object or content of planning: physical or social reality.
2) **Organisational**: refers to the actors, stakeholders and shareholders, and the choices they make. Furthermore, it refers to the rationalisation of these choices.
3) **Institutional**: also refers to actors and institutions, but also to cultural values, scientific paradigms and tenets.

These three dimensions imply a planning-oriented action, where the decision making process plays an important role.

For the context of Greater Jakarta, the current hierarchical spatial planning system is difficult to overcome the land-use change inconsistency between the spatial plans and the reality. There are various aspects which are involved in this spatial planning system. According to the empirical situation and interview results, the spatial planning strategies in Greater Jakarta still tend to implement a combination of the scenario approach (i.e which is more suitable to the circular feedback system) and the open network system (i.e which implement the communicative rationality), in order to respond the urban transformation process. In other words, the spatial planning system in Greater Jakarta tends to implement the semi technical rationality approach in responding the reality, while the reality out there has been growing more complex under a non-linear transition, so that the uncertainty in the future is hard to be predicted.

The discrepancy between the empirical situation and the existing spatial planning system in Greater Jakarta indicates there are ineffectiveness and inefficiency of government interventions through their spatial planning strategies. In other words, the growing complexity in Greater Jakarta leads the spatial planning system to be 'smarter' in responding the urban transformation. It means that there is a need of spatial planning strategy other than just the scenario and open network approaches, which can better tackle non-linear development as also there are various related stakeholders in the urban transformation process which play a role in implementing the self-organizing process (i.e or the level of complexity is already high). Therefore, in order to respond this condition, we need to identify an alternative to spatial planning system that could be implemented in Greater Jakarta appropriately.

Nevertheless, we realize that to identify the appropriate alternative for spatial planning system in Greater Jakarta is not easy at all. According to the previous explanation in chapter 3 and 4, the emergence of various stakeholders result the multiple composite and dependent goals (i.e for the functional oriented), so that the participative interaction (i.e for the institutional oriented) could not be avoided. Based on the concept of planning-oriented action, those two dimensions (i.e the functional and institutional oriented) would be related to the decision oriented action (i.e organisational oriented). Hence, we have to search an alternative to spatial planning system in Greater Jakarta which stems from an identification process of 'base' of the spatial planning system; that is a decision making process at the planning-oriented action.

According to the empirical situation, the planning-oriented action in Greater Jakarta still refers to the actor-related process that only considers a desired contribution and a potential contribution of the related stakeholders. This condition then causes the spatial planning system in Greater Jakarta tends to ignore the possibility of uncertainty in the future. In other words, the aspect of changing time is not being considered (i.e $t=0$) in the planning-oriented action through the decision making process. Meanwhile, the aspect of time is a crucial element for the urban transformation in a non-linear transition (i.e $t\neq0$, but $t=n$) (see more in chapter 2). In order to respond this situation, we need an innovative solution to the spatial planning system that considers the uncertainty in the future for its planning-oriented action. The innovative solution which should consider the term changing time (i.e $t=n$), because the possibilities of uncertainty in the non-linear transition are hard to be predicted and could not be ignored anymore. It means that the solution must pay more attention to the urban system which evolves through the procesess of self-organization. In other words, the solution that refers to the concept of non-linearity.

One of the alternatives for the innovative solution is by implementing the actor consulting model which not only considers the desired and potential contributions of the related stakeholders, but also an actual contribution. The consideration of these three kinds of contribution (i.e the desired, actual, and potential contributions) indicates that the decision making process in the planning-oriented action has already referred to the possibilities of uncertainty in the future. In other words, the spatial planning system has already considered the changing of time. For the context of Greater Jakarta, the

implementation of this model should be coordinated by the cooperating agency for Greater Jakarta area development (i.e BKSP). Therefore, the empowerment of this agency is needed.

This empowerment could be implemented through the return of the planner's professionalism in the cooperating agency for Greater Jakarta area development (i.e BKSP). It means that the BKSP should be run by professional planners which are neutral and not bound by the political interests. The new form of the BKSP, expects the BKSP to become an appropriate mediator between the central and local governments in Greater Jakarta. In executing this effort, the financial support and delegated power from the central government is needed. Besides, the support and active participation from the related local governments in Greater Jakarta become other important things that should be involved to the effort. By well-implementing this effort, we may hope that the spatial planning problems in Greater Jakarta can be tackled.

5.2 Recommendation

As has been metioned, this study aims to analyze the urban transformation phenomenon in Greater Jakarta which is triggered by self-organizing process within its society and also the role of spatial planning system in facing the phenomenon. The general objective of this research is to identify how the urban transformation process in Greater Jakarta can be examined by the concept of non-linearity and to contribute to a new perspective for the spatial planning system in Greater Jakarta that is able to deal with the non-linear transition process (i.e the urban transformation). This objective results in a research question and several sub research questions. By doing this research, the writer hopes that this study could deliver insights for planners and decision makers to coping with spatial planning so as to be more sensitive with the self-organizing process, that is initiated by the society which could stimulates an emergence of urban transformation. In practice, this study can provide lessons for policy makers on how spatial planning system should be developed in order to be more 'grounded' or easy to be implemented. In particular, it gives policy recommendation for the Indonesian government in arranging spatial planning system within a complex situation. Nevertheless, unfortunately this research still results in several shortcomings.

One of the crucial shortcomings in this research is the bridging process between the self-organization at *micro* level and the spatial planning system at *macro* level. We realize that there is a large gap between the self-organization and the spatial planning system. However, we could not deny that the spatial planning system today is much influenced by self-organization. Besides, as a planner, we recognize that the essential element of a planning process is relied on the stakeholder's interventions or actions. In other words, we could say that the stakeholders play an important role in acting as a 'subject' and also an 'object' of planning process. According to this perception, the writer then tries to bridge the gap between the self-organization at *micro* level and the spatial planning system at *macro* level by identifying the urban development phenomena. The urban development phenomena are assumed as collective results of the self-organization at *meso* level. In the end, the urban

development phenomena then are manifested through the urban transformation process that is clearly identified by the urban land-use change.

However, the gap has still remained, and it is yet difficult to identify the exact position of the self-organization at the decision planning process in the planning-oriented action. Therefore, for the future research, the writer recommend a further research about the self-organization from the institutional perspective and how the self-organization is positioned in the decision making process in the planning-oriented action. It means that we need a further research about the decision planning process, in the spatial planning system, which could involve the *micro* level phenomena from the society (i.e the self-organization). In other words, we need to identify the exact decision making strategies at planning-oriented action that involve the changing of time under a non-linear transition. This is very needed because evidently most of the spatial planning system today still ignores the changing of time.

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APPENDIX A: Question Lists

Interviewed: Representative of Ministry of Public Works

Greater Jakarta area is an urban area which grows rapidly. This growth encourages an emergence of urban transformation, which is a phenomenon of shifting structure and patterns of space in some areas. Land-use change is the main characteristics of the urban transformation process. In general, the land-use change can occur because of a process of self-organization (self-organizing) from the community to meet the challenges of national and global development. The process of land-use change is a phenomenon which can be positive or negative impact. Spatial planning is a 'tool' to manage the process of land-use change. One of the most important parts of a spatial planning is a spatial planning process, which is a process that focuses heavily on cooperation among government institutions in formulating general spatial plan (Rencana Tata Ruang Wilayah or RTRW). Therefore, the study about "The linkage between Urban Transformation Processes and Spatial Planning" needs to be done.

1. How large percentage of urban land-use change that occurs in Greater Jakarta?
2. What is the dominant land-use change?
3. Which region has significant land-use change?
4. Recently, does land-use change is still within the threshold of general spatial plan (RTRW)?
5. Does land-use change give a negative impact? Are there any positive impacts from land-use change that can be used as an opportunity in the economic aspects of the development of the region?
6. What are the triggering factors in land-use change?
7. What kind of attempt by the government or local government in managing the positive impacts (e.g through the provision of incentives or disincentives, etc.)?
8. As a development control instrument, how is the general spatial plan dealing with land-use change phenomena?
    - Does land-use change scenario have been considered in the implementation of spatial planning process?
    - What are the underlying aspects of the spatial planning process?
9. As a part of Jabodetabekpunjur, Greater Jakarta is included as a part of a national strategic area (*Kawasan Strategis Nasional* or KSN) which has general spatial plan and strategic spatial plan. According to this, what kind of spatial planning practice in Greater Jakarta, particularly within the institutional cooperation in formulating the spatial planning objectives.
    - Between the central government and the local government in Greater Jakarta?
    - Between local governments?
    - Between local government and other stakeholders?
10. Based on the actual setting, what kind of spatial planning process that is desired for the future?

Interviewed: Representative of National Spatial Planning Coordinating Board (BKPRN)

Greater Jakarta area is an urban area which grows rapidly. This growth encourages an emergence of urban transformation, which is a phenomenon of shifting structure and patterns of space in some areas. Land-use change is the main characteristics of the urban transformation process. In general, the land-use change can occur because of a process of self-organization (self-organizing) from the community to meet the challenges of national and global development. The process of land-use change is a phenomenon which can be positive or negative impact. Spatial planning is a 'tool' to manage the process of land-use change. One of the most important parts of a spatial planning is a spatial planning process, which is a process that focuses heavily on cooperation among government institutions in formulating general spatial plan (Rencana Tata Ruang Wilayah or RTRW). Therefore, the study about "The linkage between Urban Transformation Processes and Spatial Planning" needs to be done.

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    - Does land-use change scenario have been considered in the implementation of spatial planning process?
    - What are the underlying aspects of the spatial planning process?
9. Based on the actual setting, what kind of spatial planning process that is desired for the future?

Interviewed: Representative of BKSP Jabodetabekpunjur

Greater Jakarta area is an urban area which grows rapidly. This growth encourages an emergence of urban transformation, which is a phenomenon of shifting structure and patterns of space in some areas. Land-use change is the main characteristics of the urban transformation process. In general, the land-use change can occur because of a process of self-organization (self-organizing) from the community to meet the challenges of national and global development. The process of land-use change is a phenomenon which can be positive or negative impact. Spatial planning is a 'tool' to manage the process of land-use change. One of the most important parts of a spatial planning is a spatial planning process, which is a process that focuses heavily on cooperation among government institutions in formulating general spatial plan (Rencana Tata Ruang Wilayah or RTRW). Therefore, the study about "The linkage between Urban Transformation Processes and Spatial Planning" needs to be done.

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    - Does land-use change scenario have been considered in the implementation of spatial planning process?
    - What are the underlying aspects of the spatial planning process?
9. As a part of Jabodetabekpunjur, Greater Jakarta is included as a part of a national strategic area (*Kawasan Strategis Nasional* or KSN) which has general spatial plan and strategic spatial plan. According to this, what kind of spatial planning practice in Greater Jakarta, particularly within the institutional cooperation in formulating the spatial planning objectives.
    - Between the central government and the local government in Greater Jakarta?
    - Between local governments?
    - Between local government and other stakeholders?
10. Are general spatial plans of Greater Jakarta effective enough for land-use control? If it is not yet effective, what are the causing factors?
    - Is the outline of the general spatial plan effective?
    - Has the general spatial plan between related regions in Greater Jakarta in sync?
11. Based on the actual setting, what kind of spatial planning process that is desired for the future?

Interviewed: Representative of Bappeda Province/Regency/Municipality in Greater Jakarta (Jabodetabek)

Greater Jakarta area is an urban area which grows rapidly. This growth encourages an emergence of urban transformation, which is a phenomenon of shifting structure and patterns of space in some areas. Land-use change is the main characteristics of the urban transformation process. In general, the land-use change can occur because of a process of self-organization (self-organizing) from the community to meet the challenges of national and global development. The process of land-use change is a phenomenon which can be positive or negative impact. Spatial planning is a 'tool' to manage the process of land-use change. One of the most important parts of a spatial planning is a spatial planning process, which is a process that focuses heavily on cooperation among government institutions in formulating general spatial plan (Rencana Tata Ruang Wilayah or RTRW). Therefore, the study about "The linkage between Urban Transformation Processes and Spatial Planning" needs to be done.

1. How large percentage of urban land-use change that occurs in Greater Jakarta?
2. What is the dominant land-use change?
3. Which region has significant land-use change?
4. Recently, does land-use change is still within the threshold of general spatial plan (RTRW)?
5. Does land-use change give a negative impact? Are there any positive impacts from land-use change that can be used as an opportunity in the economic aspects of the development of the region?
6. What are the triggering factors in land-use change?
7. What kind of attempt by the government or local government in managing the positive impacts (e.g through the provision of incentives or disincentives, etc.)?
8. As a development control instrument, how is the general spatial plan dealing with land-use change phenomena?
    - Does land-use change scenario have been considered in the implementation of spatial planning process?
    - What are the underlying aspects of the spatial planning process?
9. As a part of Jabodetabekpunjur, Greater Jakarta is included as a part of a national strategic area (*Kawasan Strategis Nasional* or KSN) which has general spatial plan and strategic spatial plan. According to this, what kind of spatial planning practice in Greater Jakarta, particularly within the institutional cooperation in formulating the spatial planning objectives.
    - Between the central government and the local government in Greater Jakarta?
    - Between local governments?
    - Between local government and other stakeholders?
10. To what extent the influences of land-use change to the implementation of spatial planning process? Does land-use change become major consideration in the implementation of spatial planning process? How does the mechanism of spatial planning process work?
11. Are general spatial plans of Greater Jakarta effective enough for land-use control? If it is not yet effective, what are the causing factors?
    - Is the outline of the general spatial plan effective?
    - Has the general spatial plan between related regions in Greater Jakarta in sync?
12. Based on the actual setting, what kind of spatial planning process that is desired for the future?

APPENDIX B: Table of Typology of Planning-Oriented Action

Degree of complexity of planning issue	Orientation towards object Effectiveness of planning	Orientation towards rationality Choices relating to efficiency and effectiveness of planning	Orientation towards intersubjectivity Efficiency in planning
	A. What has to be achieved?	B. How can it be achieved?	C. Who is involved?
	Scope of goal and action structure Emphasis on effects and decision stages	Justification of decisions Emphasis on choices	Actors and institutional links Emphasis on interaction
	Goal-oriented action	← Decision-oriented action →	Institution-oriented action
Relatively straightforward	• Emphasis on constituent parts of the whole (closed system) • Fixed goal (blueprint planning) • Liniear mechanical regulation process • Fixed decision stages • Decision-making process has clear beginning and end	• Full of extensive knowledge • Few or no uncertainties • All-embracing • Control of the whole • Functional rationality • Direct causal (causa proxima) relationships predominate • Strongly delineated issues • Main aim is predictions and solution strategy	• Central governance • Vertical network • High degree of formalisation, standarisation and routine • Policy-maker is decision-maker • Hierarchical interdependence • For a collective that is not actively involved • Tightly controlled institutional links with clearly defined tasks and responsibility
Relatively complex	• Emphasis on whole and constituent parts in an open system • Shifting goals (iterative planning) • Linear phased cycling planning process with feedback, correction and self-regulation • Decision stages are process-dependent • Beginning and end of decision making process varies	• Knowledge insufficient; limited and selective availability • Uncertainty due to continuous assessment and discontinued feedback • Selective scope • Co-ordination in terms of the whole • Bounded rationality • Behavioural interpretation • Holism • Diffuse delineation of issues • Strong emphasis on problem definition and problem selection	• Decentralised shared governance • Local network • Mix of formalisation, standardisation and specialisation • Role of policy maker is part of collective decision making • Symmetrical interdependence within context framework • Collective, local and individual interests are given equal consideration • No hierarchical local autonomy, but shared responsibility and commitment

Degree of complexity of planning issue	Orientation towards object Effectiveness of planning	Orientation towards rationality Choices relating to efficiency and effectiveness of planning	Orientation towards intersubjectivity Efficiency in planning
	A. What has to be achieved?	B. How can it be achieved?	C. Who is involved?
	Scope of goal and action structure Emphasis on effects and decision stages	Justification of decisions Emphasis on choices	Actors and institutional links Emphasis on interaction
	Goal-oriented action	← Decision-oriented action →	Institution-oriented action
Relatively very complex	• Emphasis on whole, on constituent parts and contextual environment • Linked or integrated problems, solutions and goals (multiple objective approach) • Information cycles • Decision stages as a dynamic, interactive part of ongoing process • Nature of decision making process is continuous	• Knowledge acquisition in a dynamic and interactive ongoing process • Uncertainty is a constant, together with autonomous variable factors • Context-dependent • Adapt to context • Communicative rationality • Interpretative analysis (causa remota) is predominant • Expansionism • Issue is part of a larger whole • Problem co-ordination / integration and bundling of strategies	• Interactive governance • Horizontal network • High degree of specialisation and flexibility • Role of policy maker is 'socialised' • Symmetrical interdependence, varying interests • Local and individual interests are basis for development • Highly variable and problem based institutional links with reponsibilities that are difficult to identify

Source: De Roo, 2003