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System Thinking Urgency in Public Policy Analysis

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Abstract--- *System thinking is a process of thinking to understand a problem as a whole. System thinking is very important in the analysis of public policy because through system thinking, it can understand complex policy issues thoroughly, so that appropriate public policy can be taken to overcome these problems. Systems thinking in making a public policy in the form of legislation appears from the contents of its Academic Manuscript. However, many Academic Manuscripts are made haphazardly, so that public policies are made unable to overcome problems or even cause new problems.*

Keywords--- *Systems Thinking, Public Policy, Public Policy Analysis.*

I. INTRODUCTION

The development of science and technology in all fields today is increasingly rapid in line with the development of increasingly advanced human thought. Human nature by birth has been blessed with reason by God where his mind was increasingly developed through various education and experiences gained throughout his life. With his reason, humans are able to think to overcome the various problems of life they face. With his reason, humans are also able to create a variety of science and technology that make life and life more advanced.

Basically, humans in thinking to overcome problems can be done through two approaches, namely a holistic approach and a partial approach. The holistic approach is carried out by examining various causes of the problem as a whole and comprehensively, while the partial approach is done by only examining one of the factors causing the problem. Of the two approaches, a holistic approach is a better approach even though doing it is far more difficult than a partial approach. A holistic approach is carried out by comprehending a problem comprehensively through system thinking.

Systems thinking is needed in all scientific studies, including in public policy analysis. This field is a discipline that can be analyzed from the perspective of public and legal administration. Basically, public policy is a policy set by a government organization to solve a public problem or achieve certain desired goals. In the perspective of public administration and law, public policy orientation in the form of various laws and regulations is intended to regulate and protect in order to realize the maximum welfare of the community. Because it has an impact on the welfare of the community, public policy making must be done in a systemic way of thinking so that the public policy can solve the problem appropriately.

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This paper will discuss the concept of systems thinking, the concept of public policy analysis, the urgency of systems thinking in public policy analysis, and systems thinking in public policy making in the form of laws and regulations in Indonesia.

II. RESEARCH METHODS

Research in order to obtain data for the preparation of this paper was conducted using a qualitative approach. According to Creswell (2014), qualitative research is a method for exploring and understanding the meaning which - by a number of individuals or groups of people - is ascribed to social or humanitarian problems. The data in this study were obtained from literature studies by studying various relevant literature, both in the form of books, scientific journals, legislation and data and information from the internet. Data analysis is performed through data reduction, data display, verification and conclusion drawing.

III. RESULT AND DISCUSSION

The system in general is a unit consisting of several elements or sub-systems, each interacting and interrelated, so that if an element or sub-system is disrupted it will disrupt the entire system. For example, the human body system which consists of sub-systems of blood circulation, digestion, nerves, breathing, reproduction, immunity, and others. If a sub-system or element is disturbed, then other sub-systems and also the whole system of the human body will also be disturbed.

In general, a system consists of elements, namely input, process, output, outcom, feedbac, and environment. A system works through a process to convert inputs into outputs and outcomes, then the resulting output will provide input to the input. In an open system, the process is influenced by the environment but a system can also affect its environment.

According to the Merriam-Webster Dictionary, a system is defined as the orderly or interdependent interaction of a group of items that make up an integrated whole. According to Meadows, the basic principle of a system is that the system is something more than a collection of parts. Following this line of thought, system thinking can be seen as a system. System thinking is literally thinking about the system. Definitions of systems thinking tend to analyze system thinking through reductionist approaches which are generally regarded as non-systemic approaches. The reductionist model does not fully describe or deeply understand new complex and dynamic scenarios(Arnold &Wade, 2005).

System thinking is one of the approaches needed for humans to look at the world's problems more comprehensively, so that decision making and action choices to be made can be made more directed to the sources of problems that will change the system effectively. System thinking is a process for understanding a phenomenon comprehensively and comprehensively, not partial, which only looks at from one side only. Systems thinking is not done by describing complex problems that are simpler but looking at them from a greater distance so that complex links between subsystems can be seen (Bartlett, 2001).

Systems thinking according to Mononen (2017) is a multidisciplinary approach. In this multidisciplinary discourse, the name Leonardo da Vinci is often mentioned. Leonardo has illustrated that systems thinking is

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described as an embodiment of a mixture of art, humanities, science and technology because of his incomparable abilities. In his day, the rise of the arts, science and technology were not as separate, polarized and specialized as they are today. Instead, they are in harmony with one another. Leonardo's unique synthesis and appreciation of art, science and technology were not valued in his time but were discovered afterwards.

Systems thinking emphasizes the awareness that everything is related to one another in a series of systems. Systems thinking combines analytical thinking (analytical thinking, the ability to unravel the elements of a problem) with synthetical thinking (synthetic thinking, combining these elements into a unity). System thinking is different from systematic thinking and systemic thinking. System thinking is thinking about how things interact with one another, which means thinking about something by seeing how things relate to one another. Whereas systematic thinking is thinking methodicaly, it means thinking about everything based on the framework of a particular method. While systemic thinking is a simple technique for finding systemic focus, meaning simple techniques for finding focus systematically (Bartlett, 2001).

The nature of system thinking according to Senge (1990) is as the most appropriate problem solving tool through its lever. This is different from linear thinking (linear thinking) which starts from the input-process-output. According to Senge (1990), the reason for systems thinking is because:

1. Face complexity.
2. Intense competition.
3. Can change the basic way of thinking.
4. Can encourage the learning process.
5. Problems cannot be solved by thinking that creates problems.

The complexity as stated by Senge is also faced in public policy. In this regard, Ahmed (Waldron, 2014) says that one criticism of contemporary policy development is that the structure for government policy making is too linear for the complexity of modern problems that require policy responses. Whereas according to Ferris (Waldron, 2014), policy generally produces a static final product, although it is dynamic and often changes the context in which these policies are needed and formed. This is because policy making is less based on thinking the system as a whole, comprehensive and holistic that causes the policy to have less of the desired impact. Waldron (2014) exemplifies several social policies in Australia that are paradoxical, for example evidence / facts policies are based on the past while policies are focused on the future, whereas future problems are different from problems in the past.

Public policy is a policy set by government agencies and officials (Anderson, 2000) and government actions aimed at several problems (Peterson, 2003). Public policy is whatever the government's choice to do or not do something (Dye, 1995). Public policy has a "coercive" nature that is potentially legitimate. This coercive nature is not owned by policies taken by private organizations. This means that public policy demands broad publicity from the public. The latter characteristic is what distinguishes public policy from other policies (Winarno, 2011).

Public policy according to Anderson (2000), has several characteristics, namely:

1. Policies always have a purpose or are oriented towards specific goals.
2. The policy contains the actions or patterns of actions of government officials.

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3. Policy is what the government actually does, and not what it intends to do.
4. Public policies are positive (a government action on a particular issue) and negative (the decision of government officials not to do something).
5. Public policy (positive) is always based on certain statutory regulations (authoritative).

Public policy is analyzed through policy analysis (policy analysis). Policy analysis according to Dunn (1994) is an applied social science discipline that uses various methods of analysis (assessment) that are multiple in the context of political argumentation and debate to create, critically assess, and communicate knowledge relevant to policy. The complexity in the analysis of public policy is apparent from the policy problems that underlie a public policy. Complex problems that can not be solved by partial thinking because it will not be able to solve the problem, can even cause new problems that were not predicted before. Therefore, in policy analysis, especially in the formulation of policy problems, it is absolutely necessary to think systems.

Policy analysis is an intellectual and practical activity aimed at creating, critically assessing, and communicating knowledge about and in the policy process (Dunn, 1994). As an intellectual activity, the policy analysis is done by systems thining to solve policy problems that are generally complex by looking at the overall policy problem. Systems thinking in policy analysis is not to simplify complex policy problems but to look at them thoroughly so that the linkages of the elements that form policy problems can be clearly seen.

According to Dunn (1994), policy analysis combines five general procedures commonly used in thinking for problem solving which consist of:

1. Definition; which generates information about conditions that create policy problems.
2. Prediction; which provides information about the future consequences of implementing alternative policies, including if not doing something.
3. Prescription; which provides information on the value of the consequences of alternative policies in the future.
4. Description; which generates information about the present and past consequences of implementing policy alternatives.
5. Evaluation; which assesses the usefulness of alternative policies in solving problems.

Dunn (1994) suggests that the policy methodology provides useful information to answer five questions namely what is the nature of the problem? What policies are being or have they been made to address and what are the results? How meaningful are these results in solving problems? What policy alternatives are available to address the problem and what results can be expected? The answers to these questions give rise to information about policy problems, future policies (expected outcomes), policy actions (prefered policy), policy outcomes (observed outcomes) and policy performance.

The policy analysis methodology according to Dunn (1994) combines five general procedures commonly used in problem solving namely definition, prediction, prescription, description and evaluation. But in the context of policy analysis, the five procedures are referred to by other specific names namely:

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1. Problem structuring (problem structuring = de fi nition), produces information about the conditions that cause policy problems.
2. Forecasting (forecasting = prediction), provides information about future consequences (expected outcomes) from the application of alternative policies, including not doing something.
3. Recommendation (recommendation = prescription), provides information about the relative value or usefulness of the consequences in the future (prefered policies) of a problem solving.
4. Monitoring (monitoring = description), produces information about present and past consequences (observed outcomes) from the application of policy alternatives.
5. Evaluation, which has the same meaning as the term used daily, provides information about the value or usefulness of the consequences of problem solving (policy performance).

Dunn (1994) describes the interrelationship of elements in the policy analysis process oriented to the policy problem as follows:

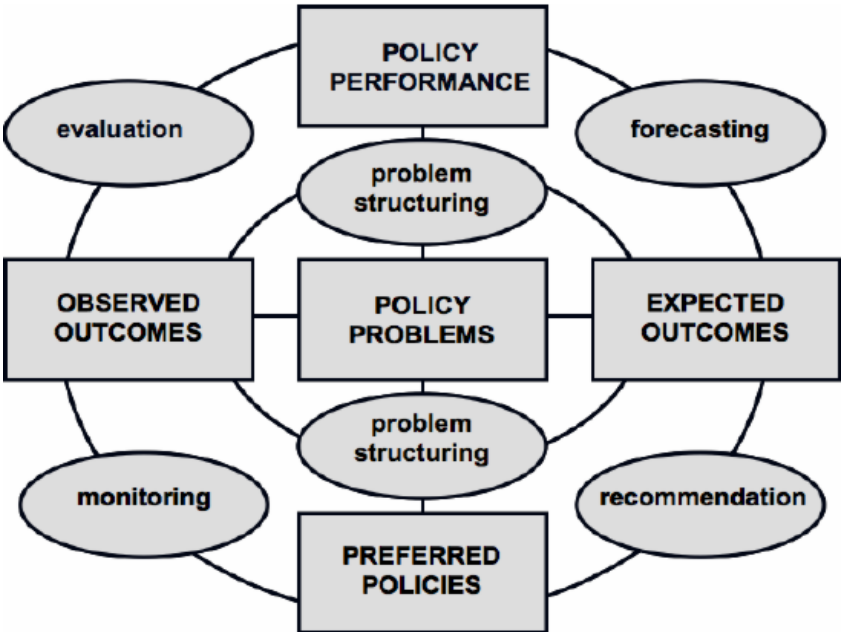

Figure 1: The Interrelationship of Elements in the Policy Analysis Process

Dunn (1994) asserts that the five problem-solving procedures are parallel with the five stages in public policy making namely:

1. Agenda setting, i.e. placing policy issues on the public agenda.
2. Policy formulation, namely formulating policy alternatives to overcome the problem.
3. Policy adoption, which is an alternative policy chosen and adopted with the support of the majority and / or institutional consensus.
4. Implementation of policies, namely implementing policies that have been taken.
5. Policy evaluation, which assesses whether the policy making institutions and policy implementers have met the specified requirements.

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Dunn (1994) describes the parallel nature of the problem-solving procedure with the stages in making public policy mentioned in the table as follows:

Table 1: Parallel nature between policy analysis and policy making steps

Policy Analysis	**Policy Making**
Problem structuring	Agenda setting
Forecasting	Policy formulation
Recommendation	Policiy adoption
Monitoring	Policy implementation
Evaluation	Policy evaluation

Formulating the problem is a very important initial stage because it affects almost the entire policy analysis process. If the formulation of the problem is not right, the resulting policy will not be able to solve the problem or even cause new problems. According to Dunn (1994), a policy problem departs from the results of a thought made in a particular external environment or condition, so it is important to distinguish between problem situations and policy problems. Problems are abstractions that arise from the transformation of experience into human judgment, so it is very likely to be subjective. Whereas the policy problem is a product of subjective evaluation but can be defined as an objective social condition. Meanwhile, according to Jones (1996), the problem is the human needs that still have a solution. Whereas public problems are human needs that cannot be handled individually. There is also the term issue which is a general problem that is controversial.

Dunn (1994) groups policy problems into three categories, namely simple (well structured) problems, moderately structured problems, and ill structured problems. This grouping depends on the level of complexity, the extent to which a problem is related to one another. However, policy issues are generally complicated or complex problems. When referring to the opinion of Senge (1990), this complexity is one of the reasons that drives system thinking.

Systems thinking is very important in public policy analysis because through system thinking, it can comprehend complex policy problems thoroughly, so that appropriate policies can be taken as a solution. In addition, system thinking is very important because of the interdependence of various policy issues. Policy problems are not stand-alone problems but are usually part of a whole set of problems that are related to one another. With systems thinking, the problem is seen as a whole and inseparable from one another.

In a policy system, a public policy is determined by the actors or policy stakeholders who have their own values and frames of reference that will influence the public policies they take. Public policy as a solution to a problem can also change, so that the same public problem may not be solved with the same public policy, especially when the context of the environment is different. The same public problem may not be solved by the same public policy, especially if the time context is different. Public policy as a solution to problems can also become obsolete even though the problem itself is not obsolete.

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Based on the description above, there is a link between the three elements, namely the actors or policy stakeholders, public policy, and the policy environment. Dye (1995) described the interrelationship of the three elements in the policy system as follows:

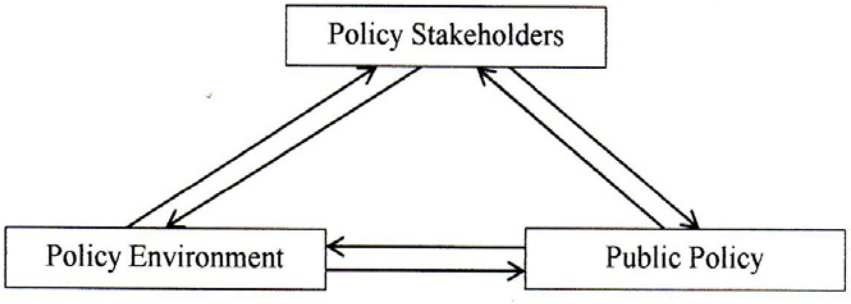

Figure 2: The Interrelationship of Elements in the Policy System

In a policy system, public problems are part of a policy environment that seeks to be solved with a public policy made by actors or policy stakeholders. Public problems that are generally complex must be identified and formulated through systems thinking. However, often public policies are taken in a hurry without using systems thinking. As a result, the resulting policy is a bad policy. If a bad policy is implemented, it is certain that it will lead to bad implementation. This bad policy can be avoided through systems thinking in formulating public policy.

In a legal perspective, public policy making means making laws and regulations. According to Law Number 12 of 2011 concerning the Formation of Legislation Regulations, the formation of Legislation Regulations is the making of Legislation Regulations that cover the stages of planning, drafting, discussion, ratification or enactment, and enactment. Types and hierarchies of legislation in Indonesia consist of:

1. The 1945 Constitution of the Republic of Indonesia.
2. Decree of the People's Consultative Assembly.
3. Government Act / Regulations in Lieu of Law.
4. Government regulations.
5. Presidential decree.
6. Provincial Regulations.
7. Regency / City Regulations.

Systems thinking in forming a statutory regulation appears from the contents of its Academic Manuscript. According to Law Number 12 of 2011, Academic Manuscript is a script of research results or legal studies and other research results on a particular problem that can be scientifically justified regarding the regulation of the problem in a Draft Law, Provincial Regional Regulation, or Draft Regulation District / City Region as a solution to the problems and legal needs of the community.

According to Law Number 12 of 2011, the contents of the Academic Paper consist of:

Chapter I Introduction

Chapter II: Theoretical Studies and Empirical Practices

Chapter III Evaluation and Analysis of Related Legislation

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Chapter IV Philosophical, Sociological and Juridical Foundations

Chapter V Reach, Direction, and Scope of Content of Laws, Provincial Regulations, or Regency / City Regulations

Chapter VI Closing

System thinking on the whole problem in the contents of Academic Texts is mainly found in the Study of Empirical Practices and Philosophical, Sociological, and Juridical Foundations. However, a lot of the contents of the Academic Paper have not been done using systems thinking, so the analysis of policy issues in the Academic Paper is less comprehensive. This is very unfortunate because the Academic Manuscript is the raw material needed in making the Draft Law, Provincial Regional Regulation, or Regency / City Draft Regulation.

In addition, in Article 56 paragraph (2), Act Number 12 of 2011 affirms that "The Draft Provincial Regulation as referred to in paragraph (1) shall be accompanied by an explanation or statement and / or Academic Paper". Inclusion of the "and / or" clause has an impact on the absence of an obligation in making Academic Manuscript in the process of drafting Regional Regulations (*Raperda*). This is very unfortunate because the Academic Manuscript should be seen as crucial, not as a partial matter of the process of making a draft regulation because in making the Academic Manuscript will contain carefully the philosophical, sociological and juridical basis as a good basis for a *Raperda*.

In addition, several problems encountered in the preparation of Academic Manuscripts in Indonesia are:

1. Local governments in general do not have sufficient budget, so that it is not possible to make a truly quality academic paper.
2. Academic Paper Making is not always done by people who are experienced and competent in the fields that will be regulated by Regional Regulations.
3. Academic texts are often made by copy paste from other regions which are not necessarily suitable to be applied in an area.
4. Discussion of Academic Paper with related parties is often formal in nature, that is, it is done to simply abort obligations.
5. Academic drafting is often done to pursue the number of regional regulations because the more number of regional regulations produced, the performance of the Regional Representative Council (*DPRD*) will be considered better. This can be understood because one of the functions of the *DPRD* is the function of the formation of Regional Regulations.

Some of the problems above cause the making of Academic Paper in Indonesia is not always done by using systems thinking. Though thinking this system is very important in the preparation of Academic Texts as material in the formulation of public policies in the form of Regional Regulations. As a result, public policies in the form of Regional Regulations made have not been optimal in solving a public problem in the region. In addition, many District / City Regulations were canceled by the Central Government because their contents contradicted the higher level of legislation or were feared to cause turmoil in the community. Based on data (www.setkab.go.id), in 2016 there were 3,143 Regional Regulations that were canceled by the Central Government because they contradicted the

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1945 Constitution of the Republic of Indonesia and higher laws and regulations which were not in accordance with the spirit to maintain the diversity and unity of Indonesia.

IV. CONCLUSIONS

Systems thinking (system thinking) is a process of thinking to understand a problem as a whole. Systems thinking is not to simplify complex problems but to see them as a whole, so that the linkages of the elements that make up the problem can be seen clearly. Systems thinking is very important in the analysis of public policy because through system thinking, it can understand complex policy problems as a whole, so that appropriate public policy can be taken as a solution to overcome these problems. Systems thinking in making public policies in the form of laws and regulations appears from the contents of its Academic Manuscript. However, many Academic Manuscripts are made haphazardly, so that public policies are made unable to overcome problems or even cause new problems.

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