

**The Concept of Public Disclosure Approach in Developing
Environmental Regulation of Pollution Control
(Case: Toxic Release Inventory (TRI) in the USA and Program for
Pollution Evaluation and Rating (PROPER) in Indonesia)**

THESIS

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ABSTRACT

Sustainable development refers to the concept of intergenerational equity focusing on the needs of the present without neglecting the future needs. Furthermore, sustainable development is considered in concerning of global environmental changes that should be considered in policy-making process and realized in political action. Indeed, sustainable development must be the core of environmental policy, since sound environmental policies should have a capacity in response the current issues, such as global environmental changes, and the implementation by selection and application of the appropriate instrument. When implementing sound environmental policies, it should be considered efficiency issues as a response of sustainability. Efficiency focuses on preventing wasting environmental and natural resources. Moreover, there was a failure of existing instrument of environmental policy mainly in developing countries. A new approach in environmental policy is needed that have more efficiency, whether it substitute or complement the existing ones.

Public disclosure become is a new alternative instrument that is considered suitables, since they relate to the integration of community and market instead of only between regulators and polluters. Moreover, it supports dynamic efficiency, because the instrument is expected to encourage polluters to reduce the production of waste and promote the cleaner production. The decreasing of waste and increasing the use of cleaner production effect in increasing efficiency and quality of life.

This study presents the implementation of the public disclosure initiative, as a new environmental policy instrument, in developed and developing countries. The case study laid on the successful of Toxic Releases Inventory (TRI) in The United States and Program for Pollution Evaluation and Rating (PROPER) in Indonesia.

The similarities of the public disclosure implementation in both two countries are the focus on the aspect of acting the information and the role of stakeholders involvement. In this context, those aspects are the core in the success of public disclosure implementation. Indeed, the concern can be undertaken on providing the facilities for supporting the application of those aspects. Meanwhile, the differences are comprising mainly on the methods, general context, and government support in providing means for stakeholder participation.

Some lesson learnt are also analyzed from the experience of TRI in the United States to be implemented in improving PROPER implementation in Indonesia. Firstly, encouraging means used by stakeholders to access information. This is increasing the level of transparency in obtaining the information of environmental management. Secondly, there is the possibility to adopt 'stakeholder dialogue' in TRI to encourage community participation in PROPER. Thirdly, there is the possibility to establish

independence institution to monitor the implementation of PROPER. This is increasing the transparency of such public disclosure initiative.

Some recommendations are determined in the last section of this study. The recommendation include the improvement of legal foundation, encouraging the function of a new channels, encouraging technical support, encouraging means for information access, and encouraging socialization in order to increase community education.

Keywords: Sustainability, Environmental policy Instrument, Public disclosure

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CHAPTER 1

INTRODUCTION

1.1 Background

Recently, urban development more concern to promote sustainable city in order to improve the quality of human life. Environmental and infrastructure planning, as stated Linden and Voogd (2004), is related with making decisions in urban development for conservation and sustainable development. Sustainable development in line with the eight Millenium Development Goals (MDGs) represents a vision in the future that provide a frame work of development, in which one of the goals is ensure environmental sustainability in the development. According to Fritz Balkau (2002), the issue in developing environmental policy include a broader sustainable development idea.

The issue of urban sustainability consists of three elements, that are economic, social and environmental sustainability. I quote Linden and Voogd (2004), planning concern on the integration of policy development and implementation. In this term, planning involve many actors that have their own interests. I quote Linden and Voogd, there are three different position of the actors as recognized by Teisman (1992), that are: interaction position, incentive position and intervention position. In the case of the actors laid on incentive position, public authority involve in planning process by providing subsidies in order to support the implementation.

In my point of view, there is a tendency to encourage the incentive position in environmental policies , that will be the base on this research. It's integrated with the issue of sustainability on the specific area in industrial development, in which

most of industrial activities provide a major influence in economic growth. On the other hand, the industrial activities have negative consequences on the environment. The Conflict between economic growth and environmental protection, encourage the integration of environmental issues into planning process and implementation as well as economic one. It's aimed to reach sustainability in urban development and social and economic activities.

This condition has been encouraging the emergence of environmental consideration to be included into planning and decision-making process in order to make balance between socio-economic goals and the sustainability and quality of resources and environment. The issue of environmental planning in industrial development focuses on environmental management rather than the old orientation of material and energy flow. The new approaches emerge by promoting new management and regulation instruments.

There is an evolving of the approach of environmental regulation instrument, from the conventional approach of command-and-control to more proactive approach. The command-and-control approach, that is based on a regulation-based approach, is faced by the limitation and constrain in its implementation. Since the conventional instrument approach is not enough to encourage the effectiveness of environmental policy application, it can be argued that it is important to increase the awareness of polluters by providing incentive. This is related to the argument proposed by Fischhoff and Small (1999) on the existence of the opportunity to find new approaches that could change behavior of polluters in environmental improvement. In measuring environmental policy, as stated Revesz and Stavins (2007), it should consider economic perspective both in normative and positive assessment, as a response of environmental degradation. Command-and-control approaches have a little flexibility in the means of achieving goals because it only focuses on establishing regulation in compliance to environmental pollution

standard. They argue that command-and control has difficulties in obtaining detailed information required to reach cost-effective solutions.

Market-based instrument emerge as the next approach in environment regulation because of its dynamic cost-effectiveness. The approach has other superiority to conventional one in encourage behavior through market force-based rather than regulation-directive-based, cost effectiveness in pollution abatement, information provision and in transfer efficient technologies. However, he also argue that the second approach has difficulties in transferring its concept into practice. As stated by Tietenberg (1998), developing countries have limitations and constraints in regulatory the infrastructure and incapability of its design and implementation. He has presented disclosure strategy as the third approach called 'third wave' in environmental regulation instrument substituting or complementing the first and second waves of legal regulation and market-based instruments.

It is supported by Blackman (2008), that argues developing countries commonly have a weak institution, incomplete legal foundation and limited political will as constraints in the implementation of conventional command-and-control regulation, emerging the tendency in the use of voluntary approach in policy making. He argues that voluntary regulation provide incentive to polluters encouraging the awareness in pollution abatement, furthermore, it will change behaviour of polluters.

The implementation of voluntary regulation includes providing subsidy and determining environmental performance to companies. The use of the approach is also spread out in developing countries, complementing the conventional approaches of command-and-control and market-based. As stated by Blackman (2008), in related to environmental performance, voluntary regulation provide the performance of polluters in managing environment will published to public.

Positive performance emerge positive respect from public promoting the company in increasing sales and access to financial capital and reducing criticism from environmentalists. He presents one of voluntary initiative that is public disclosure, in which the principles of public disclosure are releasing information of environmental performance of industries to public based on the right-to-know of communities and involving community, public and private, in environmental protection.

The main activities of public disclosure comprise of collecting, verifying and disseminating information of environmental performance of industries producing pollution. This approach seems to have many advantages rather than two other approaches, in which it affect to cost effectiveness and pollution control efficiency. Moreover, it involves community, public and private, in monitoring and controlling pollution. Relating with community involvement and participation, I quote Linden and Voogd about the participating city, one of the three complementary focusing on the city of Ecopolis framework of Tjallingii (1995), that the various urban actors have specific responsibilities in the process of city management increasing the awareness of environmental and sustainable issues. In this term, community, public and private, also have their own interests in urban planning and should participate in the planning process and implementation. Public disclosure initiative becomes one of means for communities to participate in sustainable development. The result of this initiative is expected encourage market-forces in controlling pollution and become an effective way to change behaviour of polluters. Eventually, it is important to consider the approach as an instrument of environmental regulation complementing the previous approach of command-and-control and market-based approaches.

This research analyzes the implementation of public disclosure initiative in developed and developing countries. The United States (US) is developed

countries, has developed the use of second approach of economic-incentive in a regulatory approach for pollution prevention. As a response of the Environmental Protection and Community Right to Know Act (EPCRA), US Congress determined The Toxic Release Inventory (TRI). The result comprises of information about toxic released to environment, and publishes to public. Tietenberg presents that from statistical data, there is a reduction in toxic released overtime.

In the tendency to use 'third wave' approach of public disclosure in addition to conventional policy instrument approach of command and control approach, the government of Indonesia response to the issue by announcing voluntary program initiative called PROPER (Program for Pollution Control, Evaluation and Rating). I quote David Wheeler and Shakeeb Afsah (1995), that PROPER encourage the effort to control pollution supported by a mixed regulatory system that involve participation from the actors including community to improve industrial performance. The result of PROPER activities are important for the reputation of companies, in which PROPER result has 5 colors reflecting performance ranging from excellent to poor.

This research is expected to provide some critical points of view in the use of public disclosure concept on TRI and PROPER implementation in US and Indonesia, moreover, it obtain the challenge and opportunity in order to improve the program.

1.2 Research Objectives

The purpose of the research is to understand **the concept of public disclosure** in developing sound environmental regulation, especially for pollution control. The study will explore the concept of public disclosure approach in environmental

regulation in addition to the previous approaches of command-and-control and market-based incentive. Focus of the approach is laid on the releasing of the result to public as environmental information in order to obtain public response and encourage public awareness in involving control pollution. This is based on the assumption that public pressure will change the behavior of industries to comply with the pollution standard and maintain it to be better.

Moreover, this research is done in order to analyze the implementation of two kind of public disclosure initiative in developed and developing countries, that are, Toxic Release Inventory (TRI) in US and Program for Pollution Evaluation and Rating (PROPER) in Indonesia. By analyzing this, I will assess and compare the influencing factors of their implementations based on the concept of public disclosure. Further, I analyze the similarities and differences between them and lessons that can be learned to improve for public disclosure implementation in Indonesia.

1.3 Research Questions

The research focus on the implementation of the public disclosure concept on Toxic Release Inventory (TRI) in USA and Program for Pollution Evaluation and Rating (PROPER) in Indonesia through exploring some research question as follows:

1. What is the concept of public disclosure in controlling pollution and its relation with the broad sustainability concept and environmental regulation?

The question outlines the issue of sustainability concept that is applied in environmental policy for pollution control. It elaborates sound environmental policy in a response to achieve the objective of sustainability. It also explore the basic concept of public disclosure in controlling pollution as a new

instrument approach in implementing environmental policy and its relation to achieving sustainability.

2. *How is the implementation of public disclosure approach in Toxic Released Inventory (TRI) in USA and Program for Pollution Evaluation and Rating (PROPER) in Indonesia?*

This question elaborates the application of public disclosure in developed and developing countries through describing the program initiatives of TRI in USA and PROPER in Indonesia. It describes the environmental issues, influencing factors motivating the adoption, and the principle of stakeholder involvement in implementing the concept.

3. *To what extent the concept of public disclosure is adopted in TRI in the USA and PROPER in Indonesia? What the similarities and differences between the two countries? What lesson can be learned from their experiences?*

The implementation of public disclosure in both USA and Indonesia is explored through this question based on theoretical concept in the first question. The similarities and differences between the two countries are analyzed, including the strengthness, limitations and constraints of the experience in two counties also discussed. Afterward, some recommendations are considered, based on the superiorities of the experience of TRI in USA, as lesson can be learned to enhance the application of PROPER in Indonesia.

1.4 Research Methodology

The research activities follow the framework diagram shown in the figure below, in which the framework consist of data collection both theoretical data and empirical data, literature reviews and analysis, as follows:

1. The Building of Theoretical and Empirical Framework

This research will start with building of the analytical framework based on theoretical and empirical bases. The framework comprise of theoretical side focused on description of:

- The concept of public disclosure, as an appropriate approach of environmental regulation in addition of command-and-control approach and market-based approach, and its relation with the implementation of environmental regulation for pollution control and sustainability;
- The approaches of environmental regulation instruments;
- The principle of public disclosure activities and instrument needed in its implementation; kind of information released and main principle of the result;
- The principle of stake holder involved and the role of stake holder involvement in implementing public disclosure activities, and Impacts could emerged in releasing environmental information to public and participating industries.

The bases are developed from books, scientific journals, research papers and other relevant publications.

2. Collecting Data and Information about The Concept of Public Disclosure as approach in developing Environmental Regulation for Pollution Control for the case of Experiences of Toxic Release Inventory (TRI) in US and Program for Pollution Evaluation and Rating (PROPER) in Indonesia.

The second step will gather some data and information about pollution control instruments in US and Indonesia and its implementation. This research will explore data about:

- The concept and implementation of public disclosure initiatives in US and Indonesia as some of the instruments.
- The data comprising the main concept of public disclosure initiative in US and Indonesia, the implementation of public disclosure initiative in US and Indonesia;
- The role of stakeholder involvement in the initiative, the government empowerment, the impacts of public disclosure initiative to change behaviour of polluters, and the public response to the public disclosure initiative result.

The research use secondary data acquired from some literature including scientific journals, research papers and relevant publications.

3. Narrative-descriptive Analysis 1 of the public disclosure in general overview

The data and information gathered from literatures will be used to describe

- The theory on public disclosure and its principles in general terms;
- The importance of public disclosure approach in developing sound environmental policy;
- The importance of releasing environmental information to public in order to stimulate market forces to change behaviour of industries in compliance environmental regulation;
- The advantages and disadvantages of public disclosure approach in environmental policy compared with the conventional one of command-and-control and market-based incentive; and
- The more detailed concept of the public disclosure in releasing the information of environmental performance. Moreover, it explores stake holder involvement in application of public disclosure.

From the general theory point of view, I'll make analysis on the indicator will be used to analyzing the adoption/implementation of public disclosure in Toxic Release Inventory (TRI) in US and Program for Pollution Evaluation and Rating (PROPER) in Indonesia.

4. Narrative-descriptive Analysis 2 of Toxic Released Inventory (TRI) in US and Program for Pollution Evaluation and Rating (PROPER) in Indonesia overview

In this step, I describe the implementation of public disclosure in Indonesia and USA including the explanation of:

- the main environmental issues in US and Indonesia relating with the issues of environmental regulation implementation for pollution control;
- The general effort to control pollution in US and Indonesia mainly for industrial pollution and their implementations and constraints;
- The use of public disclosure approach in environmental policy for controlling industrial pollution;
- The description of the application of public disclosure initiatives of Toxic Release Inventory (TRI) in US and Program for Pollution Evaluation and Rating (PROPER) in Indonesia;
- The influencing factors in their implementations, the role of stakeholder involvement, the achievements and the impacts emerged as a response of releasing information of environmental performance.

5. Comprehensive Analysis of The Adoption of Public Disclosure initiatives of Toxic Released Inventory (TRI) in USA and Program for Pollution Evaluation and Rating (PROPER) in Indonesia

This step is the main analysis to answer the research question of to what extent the public disclosure is adopted in the implementation of TRI in US and

PROPER in Indonesia. The analysis will use elements of the indicator achieved in step 3 to see the implementation of incentive on voluntary program initiative in USA/India and Indonesia achieved in step 4. This step will assess the similarities and differences of two kind of initiatives. Furthermore, I'll analyze lesson can be learned for developing PROPER in Indonesia.

The flow diagram of research methodology and research framework can be illustrated in figure1 and 2 below.

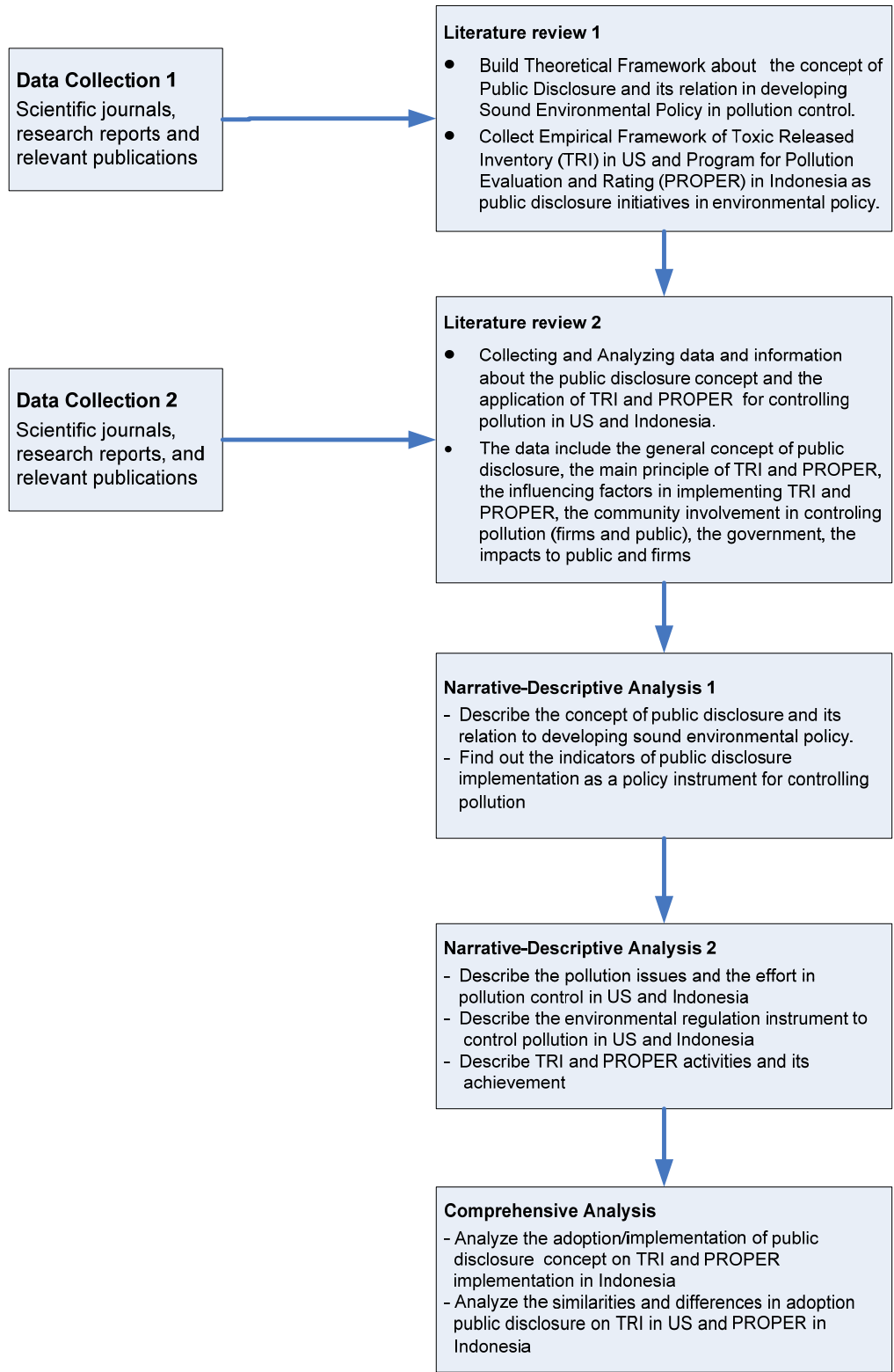


Figure 1. Research Methodology

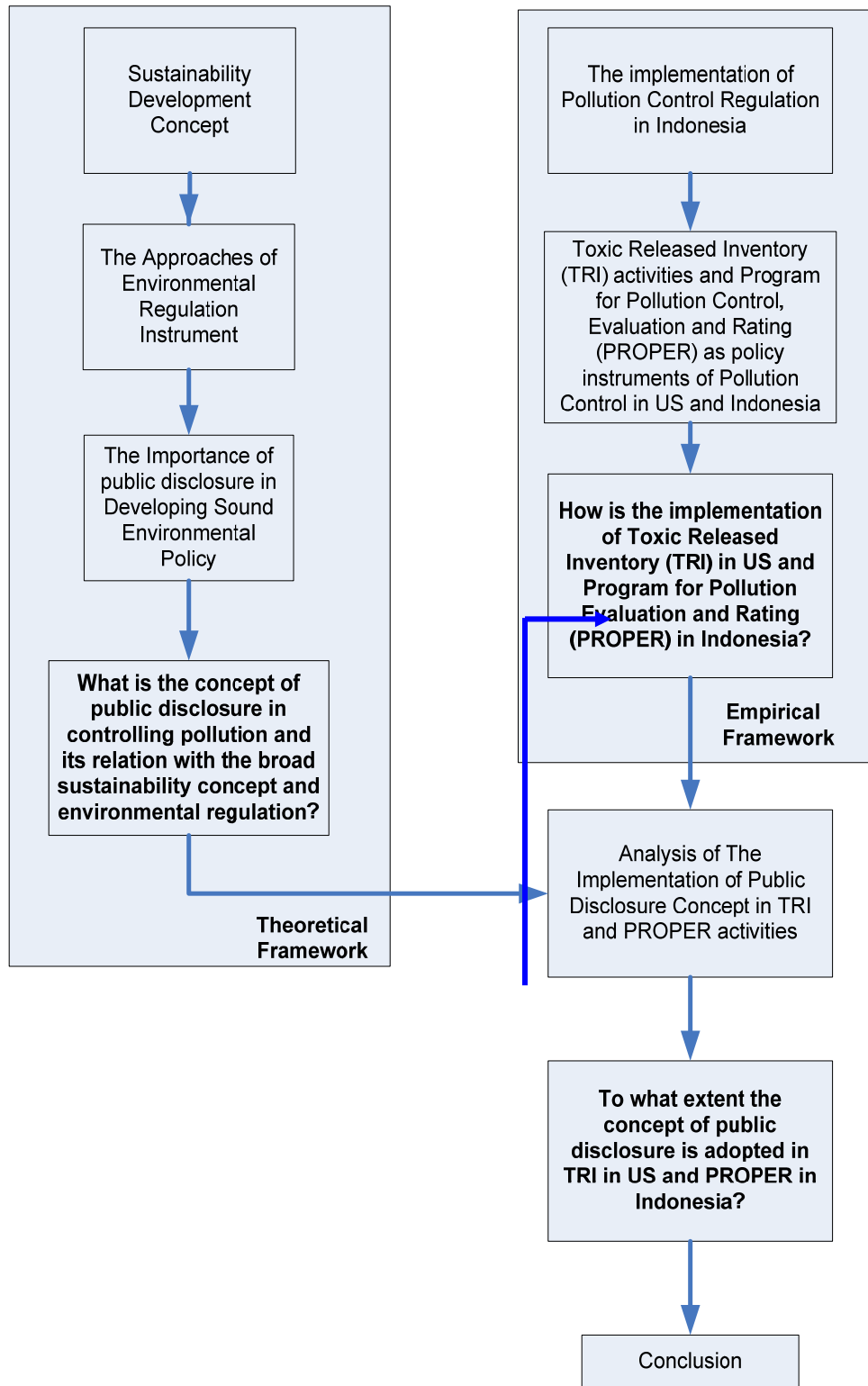


Figure 2. Analytical Framework

1.5 Structure of the Research

Chapter 1. Introduction

Describing the background and the importance of this study in the context of obtaining better understanding on the concept of public disclosure approach in environmental regulation for controlling industrial pollution in developed and developing countries. Moreover, research objective and research question and methodology is explained

Chapter 2. Theoretical Framework

1. Describing the theory on public disclosure and its principles in general terms. This is done to obtain general point of view that releasing information of environmental performance to public by public disclosure activity will emerge market-forces to industries to comply with environmental regulation.
2. Describing the importance of public disclosure in developing sound environmental policy, especially for controlling industrial pollution.
3. Describing the theory of environmental policy in controlling industrial pollution. This covers the Command and Control, Market-based Incentive, Public Disclosure and Community Empowerment. The advantages and the disadvantages of this concept would be also explained.
4. Describing more detail on public disclosure model and its context to change behaviour of industries in complying with the pollution standard
5. Describing the context of public disclosure and its relation with community involvement and empowerment in achieving. This is done for ensuring that the community involvement and

empowerment has significant effect on changing the behaviour of industries in complying with the pollution standards.

6. Make a synthesis on the indicator of public disclosure that will be used in analyzing the adoption/implementation of public disclosure initiatives in US and Indonesia.

Chapter 3. Empirical Framework (Case Study: The Implementation of TRI in US and PROPER in Indonesia)

1. Describing the environmental issues and efforts in pollution control in US and Indonesia, regulation and instrument framework.
2. Describing the approach mainly the initiative of public disclosure approach for controlling industrial pollution.
3. Describing the public disclosure initiatives in US and Indonesia and their achievements to date.

Chapter 4. Analysis of The use of Public Disclosure Approach in Controlling Industrial Pollution in US and Indonesia.

This content of this chapter is the analysis on to what extent the public disclosure is adopted in the implementation of Toxic Released Inventory (TRI) in US and Program for Pollution Evaluation and Rating (PROPER) in Indonesia. This analysis is done by using indicator elements in chapter 2 to see the issues in chapter 3. From this chapter we can conclude to what extent of the public disclosure concept is adopted and implemented in TRI in US and PROPER in Indonesia, and analyze the similarities and differences and lesson can be learned for improving PROPER in Indonesia.

Chapter 5. Conclusion

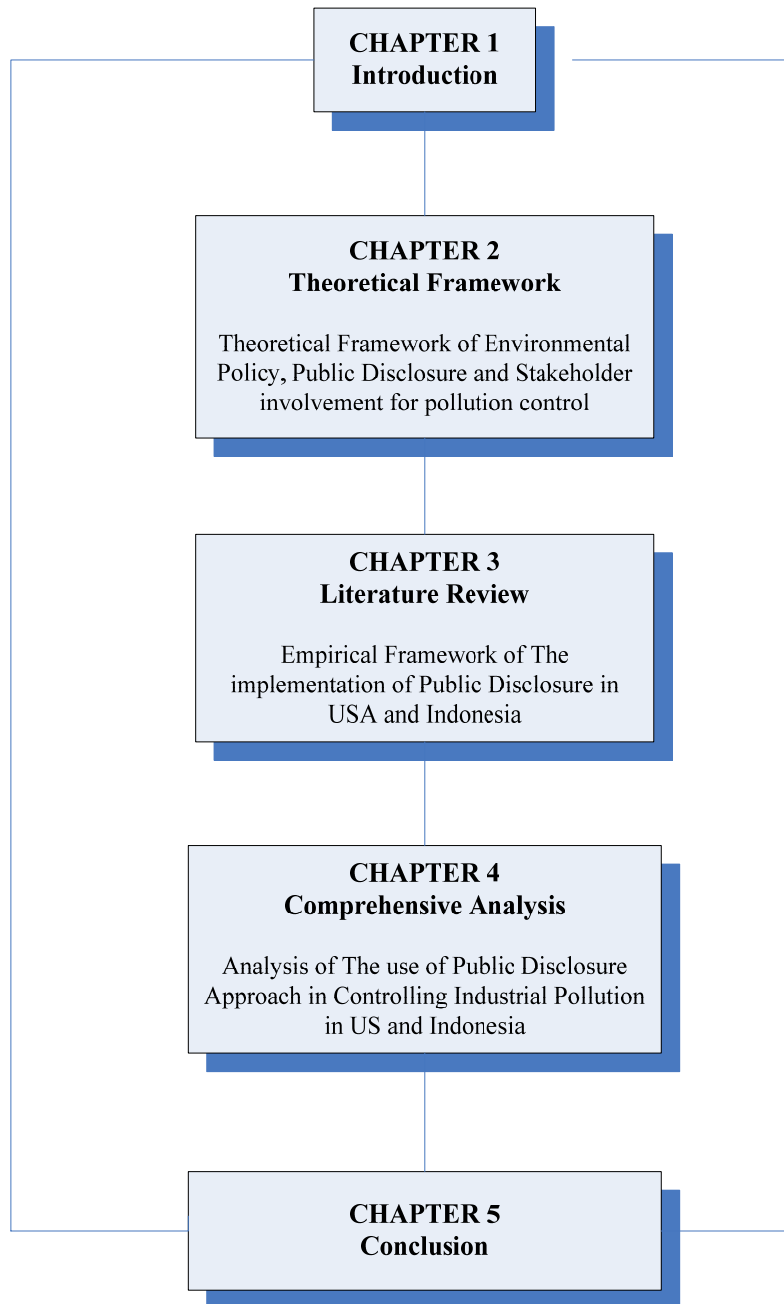


Figure 3. The Structure of Thesis Chapter

CHAPTER 2

THEORETICAL FRAMEWORK

2.1. Environmental Policy for Pollution Control

2.1.1. Environmental Policy for Sustainability

The Concept of sustainability is very popular and used in determining urban development both in developed and developing countries. Sustainability is used as a basic foundation and the main objective for urban development. Regarding to the present issues, Millenium Development Goals (MDGs) state sustainability as one of its goals through ensuring environmental sustainability in order to increase quality of life. The definition of sustainable development recognized by Bruntland Report for United Nation in 1987 is meant as *”development that meets the needs of the present without compromising the ability of future generations to meet their own needs”* (The World Commision on Environment and Development, 1987). Sustainable development, as stated by B. Mitchell (2002), is anthropocentric concept that contains two key concepts of needs and limitations. Needs feature over-riding priority, while limitations refer to carrying capacity for the needs of both the present and the future. Sustainable development refer to the concept of intergenerational equity that emphasize the needs of the present but not neglect the future needs.

The changes in the majority of world’s nation state, as stated by Andrew blowers (1997), has been occured, from greater stability caused by the tension of economic and political system to the increasing of uncertainty and insecurity caused by the tension of environmental changes. Furthermore, the tension more concern on global scale issues and the relation of local and global scale rather than solely

concern on national and regional issues. The concept of sustainable development is considered as a basic thingking as a response of global environmental change, thus, it should be considered in Apolicy-making process and realized in political action. Thus, sustainable development become an essential issue in developing sound environmental policy. The main concept of Sustainable development is the interrelation of social, economic and environment system. The effort in many countries in achieving sustainable development seen satisfy in reducing environmental pollution (water, air, soil, etc), but it's not satisfy enough in environmental policy approach that has long term objective (D.A. Mazmanian and M.E. Kraft, 1999). Indeed, sustainable development should be the core of environmental policy's making and implementation.

Sound environmental policy means should have a capability to response the current issues, as global environmental change, and to implement it through selecting and applying the appropriate instrument. Developed countries have less constraint in implementing regulation, while developing countries have limitations in implementation. I quote Allan Blackman (2008), that the implementation in developing countries is detained by its weaknesses comprising of weak institutions, incomplete legal foundations and limited political will. Furthermore, as stated by Afsah, Laplante ad Wheeler (1996), developing countries have problems of information and transaction cost in its implementations, causing the failure of policy instrument.

They argue that government should involve community and market beside the state to play a role in environmental regulation. They present five key elements in developing sound regulation, which are: (1) information intensity. Regulation needs the availability and quality of data and information and system to manage them; (2) Orchestration, not dictation. Regulation needs programs aimed to increase involvement and capability of stakeholder; (3) Community Control.

Legitimation of diversity in regulation; (4) Structured Learning. Lesson learnt from pilot project scales of innovation programs; and (5) Adaptive Instrument. Regulation should can adapt rapid changes of externalities and manage the impact of the changes (Afsah; Laplante; and Wheeler, 1996).

According to Roth (2001), from economic perspective, environmental policies have goals: increasing pareto efficiency and cost effectiveness. Based on the pinciple of pareto efficiency, optimal pollution abatement is achieved at the equal value of marginal cost and marginal social benefit, while cost effectiveness is achieved at the lowest possible cost. Some problems might be occurred in achieving the goals caused by market or non-market failure. Policy should adapt to the problems and overcome uncertainty might happened and utilize other stakeholder in its process and implementation.

He present the new model of pollution management adopted from a model used by the World Bank and other organization, in which the model involve stakeholder both community and market interacting each other, can shown in figure 4

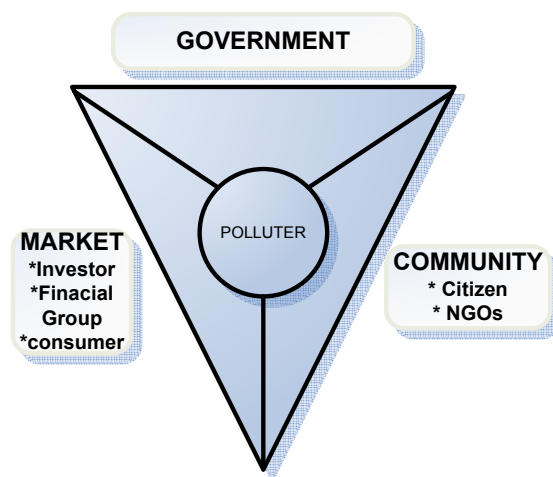


Figure 4 The New Model of Pollution Management

Policies based on the principle can be divided into three instrument approaches: command-and-control, economic-incentive based and voluntary, in which the use of the approaches depend on the degree of government's control, characteristic of policy's implementation, policy's intervention and policy's control (Roth, 2001).

2.1.2. The Instruments of Environmental Policy

In achieving the success of environmental policies should be considered the policy's making and its implementation, in which the goal and instrument chosen are two elements of environmental policy that determine the successful outcome (Stavin, 2002). Many countries have their own approaches in implementing environmental policies through applying a sort of instruments based on the needs and condition each country. Some reasons are considered to choose which instrument used including environmental problem faced and instrument's effect on technological change. Countries have their own environmental problem that is used as basic consideration to determine the objective of the policy made (Harrington and Morgenstern, 2004). The effect on technological change is mainly understood to measure the effect of the instrument on the rate and direction of technological change and the possibility to increase its efficiency (Hartley and Wood, 2005).

Despite national government has determined the environmental standard obeyed by firms, many violations occurred that overburdened carrying capacity of environment. The problem is pushed by two reasons: the use of many kinds of technologies that has undesired effect to environment; and, number of non-point sources of pollution (NPSP) including small scale firms and informal sector that difficult to be reinforced by regulators to comply to the standard because of the lack of knowledge, technology, space and skill in waste treatment. The second reason is one of inflicting aspects to monitoring and enforcement (Katuria, 2001).

a. Command and Control Approach and Market Based Incentive

The common and conventional policy instrument that is used both in developed and developing countries is command-and-control approach. In the approach, government intervention is very strong, in which emission standard is determined and become the main role in the implementation of the approach. Polluters have responsibility to comply environmental policy through minimize the emission below the standard appointed, otherwise, they liable sanction for its violation. The role of government is very strong, including in monitoring and evaluating the implementation. Afterward, some countries especially developed countries has applied the second instrument approach of economic incentive or market based incentive in another word. Market based incentive is popular used based on the weaknesses of command-and-control approach. The position of the approach in each countries vary, whether it's used to substitute or complement the conventional one. The use of both command-and-control and market based incentive, as stated by Harrington and Morgenstern (2004), is vary in each countries depend on environmental problem and firm's behaviour. They present the experience of the application in developed countries such as the United State and many countries in Europe. The United State has used both of the approaches, such as the use of command-and-control approach for the problem of NO₂, industrial water pollution and the use of market based incentive for the problem of SO₂, leaded gasoline, chlorofluorocarbons (CFC) and chlorinated solvents. On the other hand, some of european union (EU) members use command-and-control approach, but some has adopted market based incentive in achieving environmental objective, such as emission taxes in Sweden and France for solving SO₂ problem; Effluent fees in Netherland for solving industrial water pollution, and so forth.

Subsequently, the illustration of command-and-control and market-based incentive with its strenghtenes, limitations and weaknesses is described. The command-and-

control approach is direct regulation that is controlled by government. In the approach government determine emission standard, the abatement methods to achieve the standard, license production sites and apply monitoring and sanction for violation (J. Golub, 1998). In setting and enforcing of firm's compliance, government utilize two principle agents of regulators and the laws (Afsah, Laplante and Wheeler, 1996).

The approach encourage the application of technologies and practices in pollution abatement. Regulator take domination in implementation and easy to control compliance of the firms with the standard in pollution abatement. However, The conventional approach of command-and-control has some weaknesses in its result and implementation causing the failure in achieving environmental sustainability. The approach characterized by its high cost and inefficiencies, the actions of remedy rather than prevention, indicate the failure of policy's implementation (Meiners and Yandle, 1993, cited by Mazmanian and Kraft, 1999). It's exacerbated by the constraints of the lack of budgetary, acceptance in affected industry and local government, political and social supports, the capacity of agency and democratic dialogue (Williams and Matheny, 1995, cited by Mazmanian and Kraft, 1999). It is also argued that there is no flexibility and incentive, and other stakeholder (industry, state and local government) involvement in national environmental policies. Furthermore, as stated by Roth (2001), the approach require high cost for regulator in monitoring action. It motivate an idea for another approach that more appropriate and effective in pollution abatement through changing polluter's behaviour by themselves, emerging the follow instrument approach of market-based incentive. The approach of market-based incentive has been used in many developed and developing countries because little flexibility of command-and control, in which it involve other stake holder in pollution control. The supremacy of market-based incentive laid on the effect to change firm's behaviour through market signal rather than explicit directive to the pollution standards have

determined. Furthermore, it characterized by its dynamic cost effectiveness in the process of pollution abatement, in which it provide incentive for reducing pollution at the cheapest cost, and it don't need the information about compliance cost each firm. The incentive encourage firm to create innovation effort in pollution abatement through cheaper and better technologies. The 4 major types of market-based incentive: pollution charges, tradeable permit, market friction reductions, and government subsidy reductions (Revesz and Stavín, 2007).

Some western european countries has experience in implementing pollution charges with the vary outcomes, for example: carbon taxes in Denmark, Finland, Italy, the Netherlands, Norway and Sweden, but only Swedish and Norwegian that indicate the succesful in reducing pollution (Bohlin 1998; Larsen and Nesbakken 1997; cited by Stavín, 2002). Similarly, in some eastern europe countries and former Soviet Republic rarely success in application of pollution charges. The next type of tradeable permit and market friction reductions have been implemented in the United State and followed by other countries. Eventually, the last type of government subsidy reduction has been applied in developing and transition countries.

According to Lifset and Thomas Graedel (2002), command-and-control regulation become inefficient and counter-productive, that emerge the challenge to find the more effective approach in improving environment. Blackman and Harrington (1999), state that environmental regulation adopts market-based instrument rather than the conventional one for some reasons, such as efficiency, dynamic efficiency and flexibility. However, the two approaches has some constraint to be implemented especially in developing countries for the instrument requirement mainly in the capability of the actions in monitoring and regulatory enforcement. Moreover, financial and institutional capabilities in developing countries make it failure in its implementation.

Anderson (2002) states that the tendency of economic-based approach is difficult to be implemented in developing countries, but it has significant contribution in other cases that rely on market-forces rather than command-and-control tools such as inspection, enforcement etc. Each approach has their own weaknesses in implementation, that emerge the challenge to find more appropriate approaches that are not just based on government-forces or economic incentive but also including a new approach that more voluntary implementation and involve more stakeholders in monitoring and enforcement. It can be argued that the new instrument approach is needed to complement the previous approaches in a response to their weaknesses in their implementation. In other world, the three instruments are used in complementing each others.

b. The Need of Alternative Instrument

The weaknesses and limitations of the instrument approaches of command-and-control and market-based incentive enforce the needs of a new approach that substitute or complement the previous approaches. The second approach of market-based incentive need information program in order to obtain maximal outcomes.

The need of a new appropriate instrument is supported by the theories of sustainability, that the current environmental issues, focusing on global environmental changes, are identified through efficiency issues, becoming the means to balancing between the economy and environment. Furthermore, sustainability also focuses on fairness or justice in addition to efficiency issues. Efficiency focus on preventing wasting environmental and natural resources, while fairness issues focus on the treatment of future generation.

The sound environmental policies adopting sustainability consider efficiency, since the use of resources in sustainability manner pursuing the maximize efficiency

including stating efficiency and dynamic efficiency (Tietenberg, 2003). In overcoming environmental problems related with the issues of efficiency and fairness, the conventional instruments in environmental policies of command-and-control failed to realize the problem, since the instruments only focus on the present outcome rather than the long term objective, and at local level rather than global level. Furthermore, it focus on the compliance of industries to regulation rather than encourage industries to use efficient resources, reduce waste resources and use cleaner production technology to meet resources efficiency.

A sort of information programs has been introduced including Product Labelling and Reporting Requirement. Product Labelling provide a general information, not specific information but signal, to consumer about the product representing firm's awareness to environmental protection such as the use of 'energy efficient'; 'Eco-label' in the European Union; 'environmental choice' label in Canada; and 'environmental labeling' program in Asian Nations. The fellow information program is reporting requirement, firstly based on 'the community right-to know act' in the United State in 1984 and developing the program in the United State followed by applying in European Union members and developing countries (Stavin, 2002).

In the formal regulation, policy makers use the available information in setting regulation relating with social benefits and costs. Regulatory instrument in implementing formal regulation has recognized. Market-based incentive instrument has involved firm in pollution abatement by providing incentive, in which it cover the weaknesses of command-and-control approach. However, as state Wheeler, the use of information system in policy's implementation is useful to make the approach of market based instrument functions effectively. He also argue the importance of stake holder involvement in effective regulation,

moreover, it needs information system for achieving effective communication among them.

He argue that The implementation using conventional instruments in Developing countries encounter some problems, such as the limited of information and high transaction cost. The quality of monitoring and the availability of environmental information is one of failure factors in implementing regulation in developing countries. The other problems concern on the lack of human and technical resources, bureaucracy flow of information and no political support. They argue that the conventional instruments in environmental policy involving the interaction between State and Plant is not enough, so it should be spurred by the additional parties, that are, the community and the market. They argue that the role of community and market can be powerful to change firm's behaviour in environmental protection. They propose a new view of regulation called 'Regulatory Triangle' representing the interaction among intended parties, shown in figure 4. The concept motivate the need of information-oriented approaches and encourage the public participation in environmental protection. Public Disclosure of firm's performance is one of the programs that emerge based on the information-oriented approaches. Information-based approaches is relied to improve firm's behaviour in environmental protection through involving public participation.

They argue that the problems of information and transaction cost common in developing countries in which it obstruct the implementation of traditional instrument in environmental regulation. The capable information is a more powerful and more cost effectively tool to cover the failure of conventional and market-based tool.

I quote Tietenberg (1997) that information strategies are important considered in pollution control since it offer to increase benefits and falling costs mainly in information collection.

c. Legal Framework

The implementation

- The Right-to-know act in USA
- Aarhus convention in European Union (EU)
- Freedom of the Press Act in Sweden
- Public Access Act in Denmark
- Administrative Transparency Act in the Netherland

2.2. The Concept of Public Disclosure

2.2.1. Principle of Public Disclosure

Since information is needed in environmental policy, many countries develop information-based program for pollution abatement through utilizing environmental information of firms that potentially contribute in polluting environment. The disclosure strategies representing the information-based strategies popular is used as a new approach in environmental policy, in complementing the previous approaches of command-and-control and market-based incentive in pollution control. According to Tietenberg (1998), Disclosure Strategies are stated as the ‘third wave’ in environmental policy for pollution control, appearing to complement the first wave of command-and-control and the second wave of market-based incentive.

Disclosure strategies become important considered in pollution abatement since the weaknesses of command-and-control that costly and incapable to achieve policy’s

goal, and the limitations of market-based incentive that deficient in solving environmental problems and subject to corruption in developing countries (Tietenberg, 1998). In other notion, Blackman (2007), state voluntary regulation differing from the conventional one that has principle to provide incentive rather than mandatory command in pollution abatement. In this context, it comprises four types: environmental agreement; public programs; public disclosure initiatives; and unilateral commitments. The use of voluntary program for reducing emission quite popular in developed countries and significantly increase in developing countries.

However, the objective of the voluntary regulation between developed and developing countries is different (Blackman, 2007):

“Policymakers in industrialized countries typically use voluntary regulation to encourage firms to over comply with mandatory regulations; those in developing countries generally use it to help remedy rampant noncompliance with mandatory regulation”

As one of the four types, public disclosure is characterized by the provision of information about environmental performance of potentially polluting firms that could change firm’s behavior through ‘*honor and shame*’ and market forces. It also creates opportunity in better pollution abatement to firm’s management. Furthermore, public disclosure set to involve stakeholder in implementing and responding the result after government publish it, in which the role of government is rather different from the two other approaches (Blackman, 2007).

The implementation of disclosure strategies increase both in OECD and developing countries, since the approach offer the better solution in pollution control through involving firm and other stakeholders. The principle of public

disclosure can be derived from information-strategies based on Coase theorem about pollution control in a symmetry situation, in which inefficient pollution, caused by the marginal benefits of pollution control outbalance the marginal cost, encourage the awareness of the victim to carry out the proactive response (Coase, 1960; cited by Tietenberg, 1998). The victims could be victim in use directly affected and non-use not directly affected but disturbed by the existence of pollution. Therefore, they need better information about pollution performance of firms to take action in controlling pollution. The other basis of public disclosure is 'the community right to know' that is popular in the United State through the establishment of mandatory disclosure of Emergency Planning and Community Right-to-Know Act (EPCRA 1986; Weeks 1998; Greenwood & Sachdev 1999; cited by Peter Sand, 2005) that is operated by Environmental Protection Agency (EPA). It is also set up in Canada followed by the other countries such as Australia, Japan, Brazil, Indonesia and other developing countries. The European Union adopt the idea through establish a mandatory disclosure of European Emission Register (EPER) in 2000 operated by the European Environmental Agency (EEA). Netherland has introduced the first operational system in Europe in 1974, in which the system supports the provision of national environmental data to be delivered to EEA.

Public Disclosure as information strategies in pollution control has the main features in releasing the environmental information and utilizing the information through involving stakeholders in order to encourage polluter's behavior. According to Tietenberg (1997), the information released in public disclosure based on transparency, in which communities can use and access it. The legal enforcement of public disclosure implementations vary since it could be either voluntary or mandatory. Most of the implementations is a mandatory system based on the community right-to-know inflicting all firms should provide their environmental information. The other important principle in the implementation is

the extent of the means used by communities and interested parties to realize noncompliance claims, including monitoring the activities done by regulating authority in addition to access and transparency.

Other characteristics of information strategies based on its functions as stated by T.Tietenberg (1998):

1. *discovering the extent and magnitude of environmental risks;*
2. *The reliability of information;*
3. *Publishing or sharing the information;*
4. *Acting the Information.*

Discovering the extent and magnitude of environmental risks

Some questions to apply of discovering the extent and magnitude of environmental risks:

- Who should invest in the availability of information?
- What incentive do they have?
- How much the substances of the degree of environmental risk?
- How much the degree of exposure to the substances?
- How much the sensitivity of the population to the exposure are all highly relevant considerations?

The reliability of information

The information gathered and disclosed should be accurate and complete one in order to avoid “*a false sense of security, unjustified fears*” and the possibility of deception of environmental information by firms (Tietenberg, 1998). It can be achieved through using standard of collecting methods and enforcement for falsifying information.

Disseminating the information

The most useful information is appeared by means involving community in information provision. Indeed, transparency is the key element through providing means and access to community in obtaining information.

Acting the information

The information released and disclosed is responded by community through providing pressure by means both the existing channels or new channels:

- Product Market. Effective information characterized by providing environmental information clearly to consumer of a certain product achieved by the firms, that provide choices to consumer in choosing friendly environmental product. The pressure come up from communities both directly and indirectly effected that aware to environment and choose the ‘green’ product.
- Capital Market Owner. The pressure come from investor that make a choice to invest through investing capital allocation for companies that have a good record in environmental performance rather than a bad one. This state come up for the reasons: moral reason; cost effectivity in clean up; and more competitive in bussiness.
- Labor market. Companies with a good record have a strong human resource management. Employees interest to work in friendly environmental firms, for reasons: the firms has stable in finance providing security for long run operation; and the firms are regarded have attention to environment and their labor as well.
- Judicial system. The actions can be taken by injured parties: “Tort law” action for directly victim in recovering ‘compensatory damages’; Judicial “oversight” actions for manipulation of public enforcement authorithies; and providing the result of the actions.

- Legislature. Information as additional legislation complementing the existing legislation.

2.2.2. Stake holder Involved

The failure of the conventional approach of policy instruments and the limitation of economic incentive approach, have prompted public disclosure as information-based approach complementing the previous approaches. The approach differs from others since it involve public in its implementation respresenting public participation in pollution control. As stated by Kellyn Roth (2001), sound environmental policy should involve stakeholeders both community and market complementing the state as regulator and the only empowerment in the conventional approach. The new scheme, as illustrated in figure 1, is trusted more effective and efficient in controlling pollution through providing pressure non-compliance's firm into compliance the regulation by themselves.

The effective information-based approach utilize “input from stakeholder” and promote effective communications among them. The stakeholder might involved including polluters, pollutees, interested citizens, academics, scientists, NGO's and so forth (Kellyn Roth, 2001). Informal regulators through community groups or NGOs substitute the formal regulators since it's absent or ineffective (S. Afsah; B. Laplante; and D. Wheeler, 1996).

B.Sinclair and E. Gozlan (2003) also mention that involving stakeholder to participate in implementing environmental regulation raises some benefit to reduce administrative and political cost of enforcement. The precondition for the successful of information disclosure include some elements as follows:

- The access availability of stakeholder in judicial system, it could be supported by the extent of institutional complementary between informational regulation and legal empowerment of private parties;
- Information released should be have a good quality and reasonable, that pay attention in cost of producing, disseminating and processing data. It stipulate the accuracy and the level of information provision and the availability of information disclosure guidelines.

B. Sinclair and E. Gozlan (2003) divided stakeholder into two types depend on their attitude, that are, confident stakeholder and worried stakeholder. The attitudes influence the needs of information disclosure, moreover, it determine the kind of disclosure strategy becoming more mandatory or voluntary disclosure. In the condition with confident stakeholders need mandatory disclosure because they dispute polluters about their activities, in which the condition provokes voluntary disclosure 'very vague and expensive'. On the other hand, worried stakeholders have attitude that pressure polluters to deliver environmental information in order to convince them about polluter activities.

2.2.3. Impacts of The Result

The core of Public Disclosure concept is laid on the information released to public. It encourage public participation in environmental protection. The result of public disclosure shapes information disclosed to public expected to encourage pressure to non-compliance firm. Some impact might occurred in releasing publicly information comprise impact to firm from community and market pressures explaining as follows:

1. Community. Social, political and physical sanction to non-compliance firm
2. Market. Since firm's performance is measured in OECD and developing countries, moreover, it represent the expected gains or losses over time.

Pressure of environmental performance comes from customers, suppliers and stakeholders. (Shakeb Afsah).

Meanwhile, as stated by Blackman (2008), the result of public disclosure as voluntary regulation affect to firms: increases sales, enhances its access to financial capital and avoid criticism from environmentalist; and it provide subsidize in pollution control, both pecuniary (such as grants, loans) and informational subsidy.

2.3. Stakeholders Involvement and Participation in Pollution Control

Public Involvement and participation is popular considered in environmental planning in order to improve the quality of environmental planning itself. Public participation as mentioned by Canter (1996) can be defined as:

“A continuous, two way communication process which involves promoting full public understanding of the processes and mechanisms through which environmental problems are investigated and solved by the responsible agency” (Larry W. Canter, 1996 p.587)

Meanwhile, Priscoli (1993) has defined public participation as:

’Forums for exchange that are organized for the purpose of facilitating communication between government, citizens, stakeholders and interest groups, and business regarding a specific decision or problem (Priscoli, 1993 pp.2).

According to Perkins (1999), public participation has four elements: the purposes of participation; the type of action; the individual involved; and government entity.

Public participation in pollution control encourage public empowerment aimed to pressure non-compliance firms to comply environmental standard. Public Involvement and participation are chategorized term as public/citizen power (Arnstein,1969). The empowerment, as stated by Chamberlin, has key elements comprising of *access to information, ability to make choices, assertiveness and self-esteem*.

There are advantages and disadvantages of public participation in environmental planning. Public has the capacity to express their views, within which it relate with the three functions of public participation, as stated by Crieghton, Chalmers and Branch (1981) cited by Larry W. Canter (1996), as follows:

- Dedicating a mechanism for exchange information;
- Providing a source of information; and
- Assisting the credibility of the planning and assesment process.

On the other hand, disadvantages of public participation underline on the diversity of views each individual or groups.

According to Innes and Booher (2004), public participation has five purposes, that are:

1. Finding out the public preferences;
2. Improving decision;
3. Advancing fairness and justice;
4. Getting legitimacy for public decision; and
5. Fulfilling law requirements.

Public participation motivate the establishing of consensus planning (Woltjer, 2000). Information considered in public participation, as mentioned by Canter (1996), including:

1. Level of public participations;

2. Problems in implementations;
3. General principle of public participation.

Level of Public Participation

The issues of the differences of participation and the real power is analysed by a typology of eight levels of participation in a ladder pattern representing the demands for participation. The level of participation, as stated by Arnstein (1969) cited by illustrated by figure 5, in which it's divided into three kind of participation: firstly, the bottom rung is non-participation that comprise (1) manipulation and (2) Therapy. The objective is encourage powerholders to 'educate' or 'cure' the participant. Secondly, 'tokenism' with higher participation than the first one since public in this level can hear and have a voice, including (3) Informing; (4) Consultation; and the higher level of tokenism (5) Placation. Finally, citizen power represent the increasing degrees of participation that comprise of (6) partnership; (7) Delegated power; and, (8) Citizen control. (S.R.Arnstein, 1969).

| | |
|--------------------|-----------------------------------|
| 8. Citizen control | Real Participation |
| 7. Delegated power | |
| 6. Partnership | |
| 5. Placation | Tokenism 'symbolic participation' |
| 4. Consultation | |
| 3. Informing | |
| 2. Therapy | Non-participation |
| 1. Manipulation | |

Figure 5. Arnstein's Ladder of Participation
 (Source: Arnstein (1969) cited by J. Woltjer (2004) p.41)

According to M Johnston (1982), the level of participation aims to determine appropriate goals in community-based programmes in order to encourage human development to participate in appropriate level of participation based on their responsibility. It can be identified six levels of responsibility in participation as mentioned By Mary Johnston (1982) p.202 , as follows:

1. Participation is response to an order or to force

The lowest level of participation, in which merely regarding with predetermined plans, such as material, labour , etc

2. Voluntary participation stimulated by a reward

In this level, Community have a choice to attend the activities or not

3. Voluntary participation prompted by awareness

Level of participation based on the awareness of the importance of a certain activities, that more responsible than the previous one.

4. Participation by giving suggestions and making criticisms aimed at improvement of an activity.

The level give opportunity to communities to participate through providing their views about the activities.

5. Participation by taking initiative

The responsible in this level laid on taking the initiativefor a new activities.

6. Participation through creativity

The highest level of participation in which community have a full responsibility in their own activities.

Problems in Implementation

In implementing public participation/involvement, there are some problems faced, as mentioned by D. Priscollii (1981) cited by L.W.Canter (1996), as follows:

1. Coordination

It emphasized on problems from different governmental unit and level.

2. Control

Community participation relating with decentralizing concept, so that, there is a tension between the centralized needs and decentralized interest of communities.

3. Representativeveness

Someimes public involvement represents special interest. Indeed, it should develop multiple links where community involved.

4. Dissonance

It occurred from the conclift between political and technical interests, that encourage community participation. It should established a view the importance of community participation will increase the tension between technical and political concern.

The principle of stakeholders involvement/public participation

The principle of stakeholder involvement/public participation based on practical observation in Canada, as stated by L. W. Canter (1996):

- Public involvement must have two way communication;
- Most decision processes will benefit from some public involvement;
- A public is any person or group of people with distinctive interest or stake in an issue;
- The interested public will be different from every cases;
- Use multiple techniques for public involvement;
- Senior management need to be involved in supporting and reviewing the public involvement program;
- For open communication to develop with the community, open communication is needed within the organization;

- Monitor 'current issues' of public concern, as 'an early warning system';
and
- If consensus is to be achieved, early public involvement is essential.

(L.W.Canter, 1996 p.592)

Stake holder Involvement in Public Disclosure

The principle of Public Disclosure is laid on the stakeholders involvement in pollution control, in which, public disclosure is a means that encourage stakeholders to participate in both implementation and decision making process. The role of government in encouragin stakeholders participation is providing a means in process to adopt the concept of stakeholder involvement in public disclosure implementation.

Stakeholders involved in public disclosure based on incentive each stakeholders to participate in pollution control. Generally, some stakeholders involved with their incentives including:

- **Communities**: legitimizing public perception about environmental issues. Public disclosure as a means for communities to participate in pollution controll through complaint action directly or indirectly
- **NGOs**: Empowering capacity with superior information. Public disclosure as a means to find out environmental risk occurred by industrial activities and as a reasonable foundation to pressure firms to comply or over comply with regulation
- **Government**: encouraging their capacity and credibility in improving the level of environmental quality as one of goals environmental management.
- **Bussiness sectore**: establishing credibility and strategic alliance.

- **Media:** Promoting social responsibility and educational journalism.

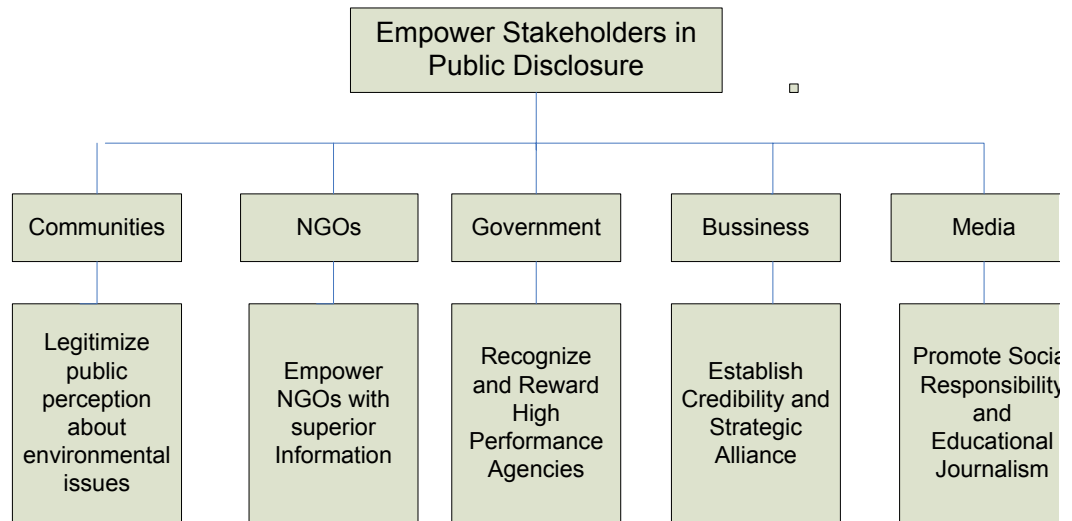


Figure 6. Stakeholders Involvement in Public Disclosure
(Source: H. Roosita, 2004)

Effectiveness in Public Disclosure

Information disclosure as an alternative instrument in implementation of environmental policy becomes an effective tool that is expected to complement the other instruments. The implementation of command and control is costly, because environmental agency needs high costs for apply monitoring and evaluating activities. One of the elements considered in determining environmental policy alternatives is monitoring and enforcement. In implementing environmental policy, it should consider the cost of monitoring and enforcement, as stated by Mc Kean (1980) cited by Mark A.Cohen (1998), high cost of enforcement and imperfect compliance indicate ineffective regulations.

The administration cost to operate enforcement of command-and-control regulation per case is very high covering costs for surveillance, investigation, legal brief, trial, appeal to high court, appeal to supreme and court (Roosita, 2004). It can be argued that the use of public disclosure offers the reducing such cost, since the concern of law enforcement in the implementation of command-and-control will be focused on the activities that have worse performance.

The use of disclosure as a regulatory instrument, as stated by Well (2002), is more adapted to economy since it focuses in changing behavior of polluters in environmental management through flexible and easier way than other instruments. He argue that it become a retreat from the regulation, dealing with the initial conditions and the evolution of those benefits and costs as a response to disclosure system, implementing through transparency in environmental information.

According to Well (2002), there are three metrics that have to be improved as a function of the benefits and costs, to meet the sustainable system over time, as follows:

1. Increasing the use of information disclosed;
2. Increasing the accuracy or quality of information disclosed;
3. Increasing the scope of information disclosed.

2.4. Concluding Remarks

The last part of this chapter present some concluding remarks based on the discussion of theoretical analysis above, as follows:

1. The concept of public disclosure is focused on the releasing environmental information to public. It utilizes community and market pressure in changing firms behaviour in environmental management. Furthermore, it encourage stakeholders participation in controlling pollution as an effective way to influence the improving environmental performance.
2. Public disclosure is an important instrument in implementing environmental policy, for some reasons:
 - a. Public disclosure complements the previous instruments of command-and-control and market-based incentive based on the limitation of such previous approaches;
 - b. Public disclosure represents democratization in pollution control, since it involve stakeholders and encourage stakeholder participation.
 - c. Public disclosure offers efficiency through reducing transaction cost. In this context, public disclosure utilizes stakeholders in monitoring environmental management whether in their surrounding area or not. Government has a role as a facilitator to realize it through providing an appropriate means for stakeholders to access such information and response the result directly or indirectly.
3. Public disclosure represents the developing sound environmental policy. It appropriates to the five key elements in developing environmental policy, presented by Afsah, Laplante and Wheeler (1996). It can be explained as follows:
 - a. Information intensity. Public disclosure offers the availability and quality of environmental data and information about environmental management and environmental risk in a certain area.

- b. Orchestration, not dictation. Public disclosure influences environmental behavior of business activities (polluters) in voluntary way, through the use of ‘honor and shame’ and market forces.
 - c. Community control. Public disclosure is used as a means for promoting community in involving pollution control, through utilize some tools provided by both government and media for access such data and information. As a result, communities response due to their own incentives both directly and indirectly responses.
 - d. Structured learning. Public disclosure is started from pilot project scales supported by World Bank for the implementation in developing countries and initiated by themselves for implementation in developed countries.
 - e. Adaptive instrument. Even there are no strong relation that public disclosure can adapt rapid changes of the externalities, the evaluation and correction every year of the implementation can be argued to answer the changes of externalities and manage its impact.
4. The public disclosure promotes the achieving of sustainability goals in responding global environmental changes. Furthermore, it is in line with sustainability concepts of fairness and intergenerational. It can be argued that public disclosure promotes the equity in natural resources availability and environmental quality for both present and future generations.
5. The main aspect as core principle in Public Disclosure is stakeholder involvement. The stakeholders involved in public disclosure comprise of:
- **Communities**, that has incentive to legitimize public perception about environmental issues.
 - **NGOs**, that has incentive to empower capacity with superior information.

- **Government**, that has incentive to encourage their capacity and credibility.
- **Business sector**, that has incentive to establish credibility and strategic corporation.
- **Media**, that has incentive to Promoting social responsibility and educational journalism.

The level of participation can be used to understand the situation of public participation. Based on their level of participation in Arnstein (1969) cited by J. Woltjer (2004), it can be argued that stakeholders involved in public disclosure occupy level of ‘tokenism’ and ‘partnership’ participation. In ‘tokenism’ level applied by NGOs, communities and media, such involvement is encouraged through provide the information of a certain activities of planning issues and the means for response the information, both oral and written. The ‘partnership’ participation is applied by business sector through the role of market pressure.

According to the discussion of theoretical framework, there are two general elements used as basis in empirical and comparative analysis, that are:

1. The implementation of public disclosure initiative.

In this context, some detail elements will be compared to see the implementation of public disclosure initiative of PROPER in Indonesia and TRI in the United States, including:

- a. The general context of public disclosure initiative.

This element is useful to understanding the purpose and objective of public disclosure initiative. In this element, it compares the general context of public disclosure initiative in both two countries, including the background

condition of environmental concerns as a basic thinking that spurring the need of public disclosure initiative.

b. Legal foundation.

This element is important to explain the governmental support and commitment in the implementation of public disclosure. This elements elaborates the legal foundation for public disclosure initiative in both two countries, including the context of public disclosure based on such legal foundation

c. General principle.

This element is described to explain the general concept of public disclosure implementation, in order to elaborate the similarities and differences in both two countries. Moreover, those descriptions elaborate the strengths and weaknesses of implementation in both two countries. The comparison in this element includes the objectives, main concepts, procedures, selection of participating firms, general principle of stakeholder involvement in the process, the design of the result

d. Effectiveness.

This element is important to analyze the effectiveness of the public disclosure initiative as an instrument of environmental policy in both two countries. The effectiveness of the public disclosure initiatives is compared based on the impacts of the result on environmental behavior of business activities, state and environmental agency and other stakeholders involved, and on cost effectiveness.

2. The adoption of public disclosure concept.

The comparative analysis of the adoption of public disclosure is based on some criterias of information strategies stated by Tietenberg (1998). Moreover, the role of stakeholder involvement in both two countries is analyzed. The elements consist of:

a. Discovering the extent and magnitude of environmental risks.

This element is important to analyze the stakeholder support in public disclosure implementation in providing adequate information in order to determine environmental risk. The extent and degree of environmental risk should be determined in obtaining environmental information. For the purposes, the role of polluters and government are important. The procedure to determining the degree of environmental risk is not considered in the comparative elements since it's a technical aspect. The elements considered can be seen in the elements as follows:

- the roles of polluters and government
- the sensitivity of community in providing additional information

b. The reliability of information.

This element is used to analyze the accuracy data and information gathered.

The reliable information can be seen from the elements:

- the existing of methods for collecting data; and
- the existing of the enforcement for falsifying data and information.

c. Publishing or sharing the information.

This element is used to analyze the degree of transparency in the implementation of public disclosure in both two countries.

The information released is usable for community can be seen from the criteria of:

- the involving community, through the existing means for community to access the information and the possibility for monitoring the program
- transparency of information, can be seen from some criterias as follows:
 - o The existing access for information, information released should be in a form can be used and accessed;
 - o The type for regulatory binding for information provision, the obligation for information provision could be voluntary or mandatory;

- The accessibility of mandated periodic report to public, can be seen from the availability the means for public to access mandated-periodic report.

d. Acting the Information;

This element is used to analyze the awareness of stakeholders in responding the result and government's support in providing the channels for stakeholder involvement. The elements analyzed to understand the acting to information released, include:

- The existence of pressure from stakeholders, in responding the result;
- The existence of the means and channels, that are used by stakeholders to respond the result both existing channels or new channels.

e. Stakeholders involvement.

This element is important to analyze the role of stakeholders involvement in public disclosure initiative in both two countries. Stakeholders involvement is seen from the role of stakeholders including:

- the actors/stakeholders involved, public disclosure involves community, NGOs, government, business and media.
- Stakeholders position in public disclosure, mainly the main role of stakeholders in responding the result.
- The means of stakeholders involvement, can be seen on the existence of means for stakeholders to participate in public disclosure

The elements determined above will be used as guidance in empirical framework of public disclosure initiative in Chapter 3. The empirical analysis in both two countries will be compared in chapter 4 due to the comparative elements of the implementation of public disclosure initiative and the adoption of public disclosure concept in Indonesia and The United States.

In fulfilling such information required in comparative analysis, the following chapter 3 presents some information about the implementation of PROPER in Indonesia and TRI in the United States, including:

1. General context in Environmental Policy implementation in Indonesia and the United States.

It explores the environmental condition, environmental problems faced and the existing approaches in overcoming such environmental problems. The information is used to understand the general contexts of both Indonesia and the United States. They explain the fundamental reasons for the needs and the purposes of public disclosure initiative.

2. The implementation of PROPER and TRI as public disclosure initiatives in Indonesia and the United States.

It explores the concept, program design, stakeholder involved, the impact, success of the initiatives, selection of polluters, effectiveness and limitations. These information are used to determine the general concepts, the implementations, and the adoption of public disclosure concept on such public disclosure initiatives. Furthermore, the information is useful in measuring the similarities and differences, and the strengths and weaknesses in each country.

The comparative elements explained above that will be used for analysis in chapter 4 can be summarized in table below.

Table 1

Summary of Elements for Comparative Analysis

| Elemets | Description | Relation with Analysis |
|---|--|--|
| The Implementation of Public Disclosure Initiative | | |
| General context of public disclosure initiative | Describing the basic condition of environmental concerns | Explaining the purpose and objective of public disclosure initiative |
| Legal foundation | Describing the legal foundation of the implementation of public disclosure and the context of such legal foundation | Explaining the governmental support and commitment in the implementation of public disclosure |
| General principle | Describing the main concept, procedure, selection of participating firms, general principle of stakeholder involvement and design of the result | Explaining the general concept of public disclosure implementation, in order to elaborate the similarities and differences in both two countries. Moreover, those discriptions elaborate the strengths and weaknessess of implementation in both two countries |
| Effectiveness | Describing the impact of the result to business activities (polluters), government and other stakeholders. Moreover, the impact on cost effectiveness also described | Explaining the effectiveness of the public disclosure initiative as an instrument of environmental policy in both two countries. |
| The Adoption of Public Disclosure Concept | | |
| Discovering the extent and magnitude environmental risk | Describing the roles of polluters and government and the sensitivity of community in information provision | Understanding the stakeholder's support in public disclosure implementation in providing adequate information in order to determine environmental risk |
| The reliability of Information | Describing the methods for collectin data and information, and the existing enforcement for the falsifying data | Understanding the accuration data and information gathered |
| Publishing or sharing the information | Describing the means for community involvement, the existing access on the result and mandated-periodic report, and the type of regulatory-binding for providing information | Understanding the degree of transparency in the implementation of public disclosure in both two countries |
| Acting the information | Describing the existence of pressure from stakeholders in responding the result and the existing channels in responding the result | Understanding the awareness of stakeholders in responding the result and government's support in providing the channels. |
| Stakeholder involvement | Describing the actors/stakeholders involved, the existing means used by stakeholders | Understanding the role of stakeholders involvement in public disclosure initiative |

The Framework of Analysis can be seen in figure below.

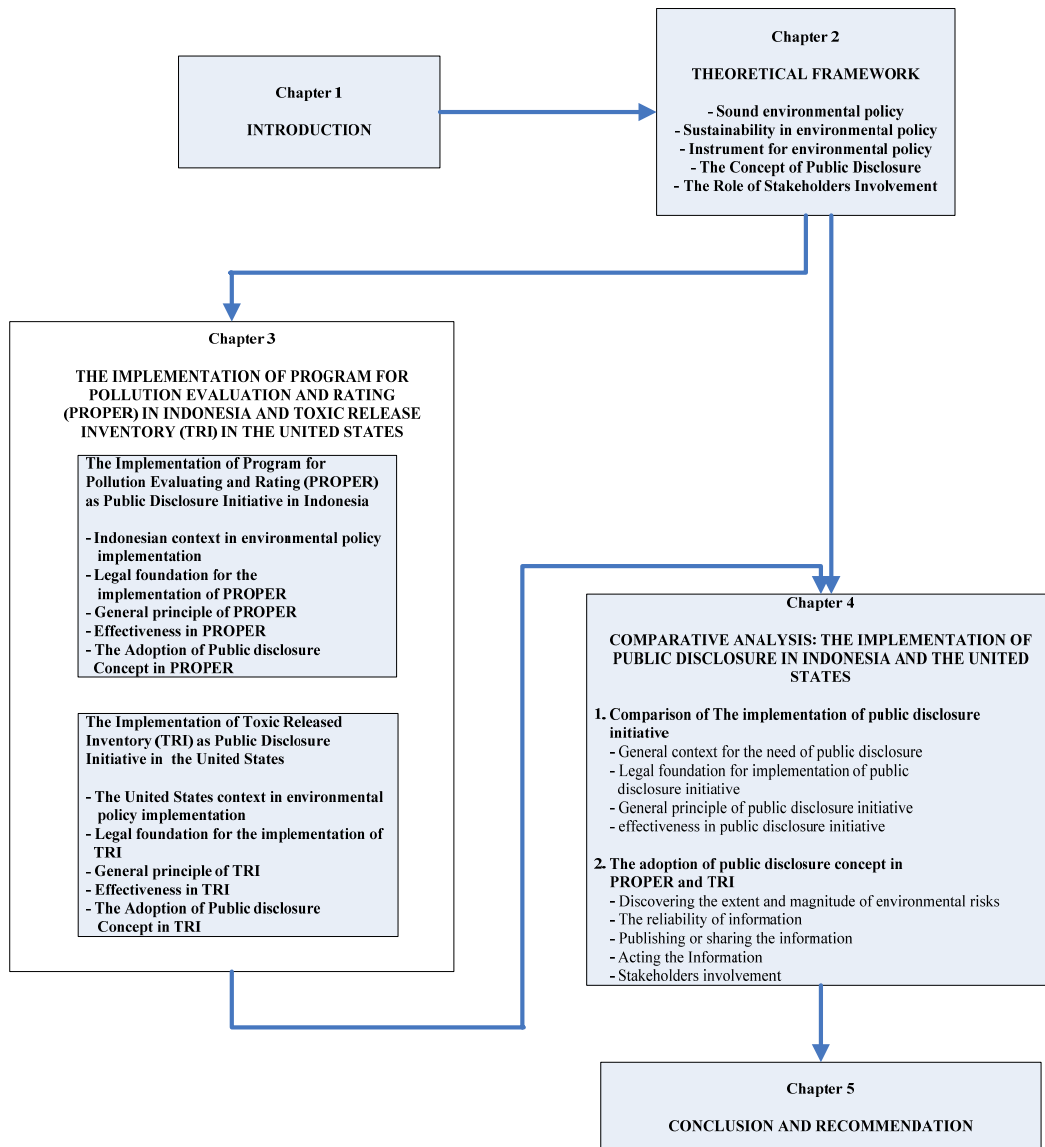


Figure 7. Framework of Analysis

CHAPTER 3

THE IMPLEMENTATION OF PROGRAM FOR POLLUTION EVALUATION AND RATING (PROPER) IN INDONESIA AND TOXIC RELEASE INVENTORY (TRI) IN THE UNITED STATE

This chapter presents the implementation of Program for Pollution Evaluation and Rating (PROPER) in Indonesia and Toxic Release Inventory (TRI) in the United States. The description based on information required for comparative analysis, determined in the previous chapter. The implementation of such public disclosure initiatives is used as empirical information analyzed in the chapter 4 based on the elements determined in chapter 2.

3.1 The Implementation of PROPER as Public Disclosure Initiative in Indonesia

3.1.1. Introduction

As a developing country, Indonesia has measured efforts in overcoming environmental problem through the implementation of environmental regulation. The regulation-based approach usually applied in developing countries has been faced by many constraints including limited fund; and the lack of institutional capacity and man power. The constraint of environmental policy since crisis era at 1990's laid on its enforcement and monitoring whereas manufacturing sector was increased around 10% influencing Indonesia's economic growth followed by the decreasing of environmental quality (S.Afsah, B.Laplante and D.Wheeler, 1997).

Indonesia's Environmental Control Agency (BAPEDAL) has responsibility in overcoming environmental problems comprising of pollution control and

environmental degradation since the 1990's. Some efforts was initiated in implementing environmental policies through innovative approach complementing even substituting conventional approach of command-and-control (regulatory-based approach) as a respon to its weaknesses. The two innovative programs adopted were success in reaching BAPEDAL's goals including ADIPURA and PROKASIH. ADIPURA is the award given as appreciation for the cleanest city. 58 town and cities has participated in this program since the beginning of the implemetation of the program in 1993. This program reached the success through providing reputational incentives to the cleanest city even the community. In bussiness level, pollution control program was interpreted in PROPER-PROKASIH program which afterward known as PROPER. (Ministry of Environmental Agency, 2005)

BAPEDAL introduced the public disclosure initiative in Program for Pollution Control, Evaluation and Rating (PROPER) in 1995's. Ininitially, PROPER was focused on water pollution in river basin area. It becomes wider evaluation for other pollution sources including air pollution and toxic chemical waste. This initiative was intended to increase the effectiveness program in pollution abatement, upon which it offers cost effectiveness of formal enforcement and encourages the use of cleaner technologies through providing incentives. Ininitially, the program just concerned to water pollution caused by industrial activities, upon which it basically was voluntary program.

PROKASIH needs firms to participate in the program through negotiation and sign the "*pollution-reduction agreement*" made by regulators and firms. As stated by S. Afsah and J.R. Vincent (1997), PROKASIH has no legally binding since it wasn't have regulatory consequences for violation of agreement, moreover, the information of the result wasn't disclosed to public so that there wasn't involve other stakeholders rather than regulator and firm in pollution control. However,

The evidences of Proper's effectiveness have been appeared by the pollution-reduction as the impact of the rating's result. Ministerial Agency of Environment stated that the implementation of PROPER-PROKASIH from 1995 to 1997 indicated the successful of the program upon which pollution-reduction was pointed by the compliances of 9,4 % of participating firms in the program (KLH, 2005). A world Bank study, as stated by S. Afsah (1997), water-pollution reduction is occurred in 24 river basins of 34 river basins that was measured in the program. It can be argued that the program promote such water-pollution reduction. However, the success is not solely caused by the program. It is also supported by law enforcement from regulators to non-compliance firms.

The Program for Pollution Evaluation and Rating (Proper) is the improvement of PROKASIH program developed in 1989 in which it concern on controlling of water pollution caused by firm's activities influencing water quality in some specific rivers in Indonesia. PROPER was initiated by Makariem, Deputi for Pollution Control at BAPEDAL.

PROPER make up information about environmental performance of polluters (firms). The result will be reported at national-level. This means that PROPER is implemented for a certain area but the information is proceed by Environmental Agency. The information released consumed by stakeholders not only in surrounding such area but also in other area. PROPER is an alternative approach proposed as a response of the limitation of command-and-control approach. PROPER aims to encourage firm's behaviour in compliance with environmental standard, support the use of 'cleaner production' technology and encourage environmental management. The key elements in public disclosure of accountability, transparency and community participation denote the strengths of the approach compared with the other approaches.

a. Environmental Problem in Indonesia

Indonesia, with 17,504 islands, has total area of 5.180.053 km² consisting 1.922.570 km² land area and 3.257.483 km² sea area. Indonesia is the fourth of the most populous countries in the world with 237 million people (source: <https://www.cia.gov/library>). Central of activity concentrate in the main islands such as Java, Sumatra, Kalimantan, Sulawesi, and Irian Jaya. These areas are also as concentration of Indonesia population and location of most of Indonesia economic activities.

Various environmental problems are being faced by Indonesia, with the main problems is deforestation and illegal logging of forest causing the environmental degradation. Another main problem is pollution of water, air and dangerous toxic elements (B3) from industrial and mining disposal in the industrial concentration area and also generally in urban area. Other problems are also occurred, such as pollution as result of fire forest, permanent forest fire, dismissal of garbage without separation beforehand, problem as result of mud blast in Sidoarjo, East Java and so forth. (http://id.wikipedia.org/wiki/Geografi_Indonesia).

Indonesia is included in international treaty concerning environment which is part of international agreement regarding biodiversity, climate change (Kyoto Protocol), desertification, threatened species, dangerous garbage, and protection of ozone layer.

Indonesia's income per capita reaches \$ 3,700, with manufacturing sector has the highest contribution in Indonesia's GDP growth about 6,3 %. The contribution of manufacturing sector increase due to the industrial growth in developing economy activities in most main regions. GDP in Indonesia by 2007 is contributed by agriculture sector (13,8 %), industry sector (46,7 %) and Services sector (39,4 %).

Industrial development in Indonesia grew significantly in the year between 1980 and 1990. During that time, Indonesia was conceived as one of miracle economies in Asia with increasing 10 % per year of economic growth. This condition is followed by lowering the level of poverty during that period from 60% in the year 1970 becoming around 11 % in the year 1996. The growth was around 75 % which overall concentrated in Java Island. It affects the increasing level of pollution as a result of very high industrial development activities in this island, which is around 25 % to 50 % total pollution load in the rivers of the island (World Bank 1994, cited by J G Lopez, tee Sterner and Shakeb Afsah, 2004).

The environmental problems arising was become worse with powerless of institution and law enforcement by environmental protection authority. To solve that challenge, Ministry of Population and Environment makes program which named clean river program (Program Kali Bersih or PROKASIH) in 1989 aimed to handle environmental problem.

This program have the characteristic as semi-voluntary based on pollution reduction agreement between provincial vice-governors and polluting firms that was not legally binding aiming to increase awareness of polluters in increasing environmental management. In parallel with the increasing of governmental interest at this environmental problem, hence in 1990 government has formed environmental authority called BAPEDAL. This board has tasks as follows:

- Correct its institutional capacity in environmental protection, management, training and education, including development of information system in environmental protection;
- Develop and enforce environmental protection regulation;
- Develop market mechanisms and economic incentives for pollution control;

- Develop a tripartite system of enforcement concerning strategic sharing with nongovernmental organizations (NGOs)

The challenge of BAPEDAL based on its limitation in pollution control implementation, that are:

- Lacks experience in monitoring and responding to environmental problems;
- The mandate to control pollution and environmental degradation was not followed by a clear authority.

The challenges become the opportunity to the agency to create a new approach based public information that complement command-and-control instrument in implementing environmental policy regulation (Makarim and Butler, 1998). BAPEDAL recognized PROPER as information program to control emission in industrial sector following the success of ADIPURA (President's Award for Cleanest City) and PROKASIH (Waste Water Management).

b. The Approach of Pollution Control

The Ministry of Environment Agency uses the different approaches in implementing environmental regulation to overcome environmental problems. As for dealing with the environment, in general, Ministry of Environment had two viewpoints in dealing with the problem of the environment, which are public policy side and environmental management system side. From the side of public policy, there were two approaches in dealing with the problem of the environment, that is a rational approach and incremental approach. Rational Approach is concern on ecological function in dealing with the problem of the environment through the assessment of the ecological study in implementing environmental regulation. This approach is the ideal approach, but many obstacles faced in its implementation, such as the complete information regarding the

condition of the environment, the environmental capacity in the absolute standard that is permitted. Incremental approach focused on practical aspect in the implementation of the public (environmental) policy. The main point on the approach is laid on the process to overcome environmental problem, that is the focus of continual improvement in the implementation of the regulation which is based on technology not the ecology.

PROPER is based on the fellow approach of incremental approach, whereby the participating firms in PROPER intend to improve their performance in environmental management incrementally step by step. The second perceived of environmental management system, there are two approaches, that are, input control and output control. Input control was invoked in concern on the need of technical requirement that should be obeyed by a certain activities plans such as EIA study, technical requirement in the permit and so on. Whereas the output control more emphasis on results that were achieved through the efforts / activities related to the compliance the technical condition that must be met by the efforts / this activity, such as firms compliance to wastewater standard. The Proper's implementation was one of the forms output control, because the Proper's assessment carried out was based on what was achieved by the company in respect of the conditions to be fulfilled (Ministrial Environmental Agency, 2005).

c. The Application of Public Disclosure in Pollution Control

The application of Program for Pollution Control, Evaluation and Rating (PROPER) based on Environmental Regulation 23/1997 and Decree of Environmental Ministry 127/2002. The key principle of PROPER is encourage industrial compliance through providing reputational incentive and disincentive of firm's activities on environmental performance. The performance cathegorized into

three level: compliance; non compliance; and over compliance, represented in to five colours rating: blue for compliance; red and black for non compliance; and gold and green for over compliance. Government has determined the objectives of PROPER Program as follows:

- a. encouraging sustainable development;
- b. encouraging stakeholder's commitment in environmental protection;
- c. encouraging sustainable environmental management;
- d. encouraging bussiness behaviour in compliance with environmental regulation;
- e. encouraging environmental regulation compliance through community participation;
- f. Minimizing negative impacts of firm's activities.

The implementation of PROPER includes democratization in environmental protection through applying transparency and community involvement. Communities have a broader opportunity to participate in environmental protection both in a group and individual. It also adopt the principles of Good Environmental Governance (GEG) including transparency, fairness, stakeholder involvement and Accountable in order to legitimate inormation released to public. (KLH-2005).

3.1.2. The Implementation of Public Disclosure in Indonesia

a. Legal Support

The implementation of PROPER program based on some regulation including legal foundation both for its implementation and of environmental standard for determining firm's compliance.

Acts for its implementation:

1. Act No. 23/1997 concerning on the basic principle in environmental management;

2. Decree of Ministry of Environment No. 127/2002 concerning on the basic foundation of Proper's implementation;
3. Decree of Ministry of Environment No. 97/2005 concerning on the formation of "the consideration council" for implementing stakeholder involvement in determining firm's performance ratings.

In the Proper's process, compliance requirement in determining performance based on:

1. Government Decree No. 82/2001 concerning water quality management and water pollution control;
2. Government Decree No. 18/1999 jo. Government Decree No. 85/1999 concerning toxic waste management;
3. Government Decree No. 27/1999 concerning Environmental Impact Assessment;
4. Government Decree No. 41/1999 concerning Air pollution Control.

b. The concept

In the first public disclosure initiative, PROKASIH is based on the information disclosure without involving communities in environmental management even though it had mentioned in environmental law 1982. Moreover, markets are neither involved nor mentioned in Environmental Law 1982. Both stakeholders have incentives in improving firm's environmental performance. In the further stage, the concept is adopted in the broader program of Proper's disclosure laid on the release of environmental information to other stakeholders (communities and markets) rather than just the interaction between regulator (Bapedal) and polluters (firms). The results of PROPER disclosed to public reveal firm's performance in pollution control, furthermore, the use of honor and shame encouraging the effort for better environmental performance. It's caused by a combination of community

pressure, including the media, local governments, NGOs and other community organizations, and market pressure that consider environmental performance.

c. Program Design

Principle of PROPER is that information released must be easy to be understood by stakeholders as a mean to facilitates expected response from the stakeholder because the execution of this PROPER is done through involving of multi stakeholders. For the purpose of this goal, hence the result of announced PROPER is categorized in the form of performance rating which divided into 5 (five) colour rating, those are: gold, green, blue, black and red and "releasing a simple one-page checklist on the environmental performance of the participating firms". Participating firms on "Proper" is addressed for companies which care about their reputation based on the stakeholder's point of view (Ministrial Environmental Agency, 2005).

PROPER based on "five-color code", where every participating company joining this program will get color rating due to its environmental performance. Design of this program made in such a manner so that understandable and easy to gives enough and appropriate information. Given information expected to be able to influence behavior of "participating firms". "Five-color code" is designed to give fairness for the firms in the effort of their environmental management rather than just giving simple indicator" in compliance or out of compliance", especially for company which has done a very good effort or for company that has been less under boundary compliance (Makarim and Butler, 1998). Each color in "Five-color code" awarded to "participating firms" has criteria as follows:

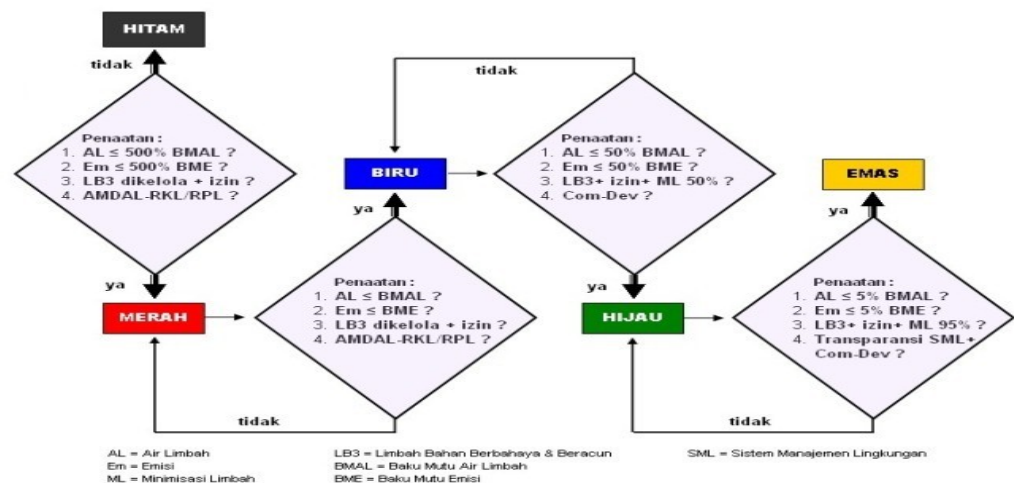
"Gold" is given to company which has done control of contamination effort excellently accordance with international standard, using clean production technology, doing waste minimization and pollution prevention activity

"Green" is given to "proactive companies" which has done control of contamination effort with good result that exceeds minimum standard which determined by law and regulation and has good equipment maintenance, reporting and environmental work.

"Blue" is given to company which has done to control of contamination effort with the result matching with minimum requirement determined by rules and regulation and has "frequent reasonably reporting".

"Red" is given to company which has done control of contamination effort but has not reached determined minimum standard and has "insufficient reporting"

"Black" is given to company which has not done control of contamination effort at all.



Notes: Hitam:Black; Merah:Red;Biru:Blue;Hijau:Green;Emas:Gold

Figure 8. Flow Diagram of Proper's Procedure
(Source: Ministerial Environmental Agency, 2005)

Principles from public disclosure in PROPER consisted of three steps (World Bank, 1998), those are: gathering and verification environmental data, data analysis and determination of rating colour. The performance rating process covers some steps as follows:

- selecting participating firms;
- gathering data;
- verifying and inspecting plants;
- developing database;
- analyzing data at BAPEDAL;
- verifying data at BAPEDAL;
- obtaining rating from the advisory board;
- obtaining rating approval from the Environment Minister;
- reporting ratings to the President; and
- releasing the information to the press.

The next step is that press (media) publish the result to public both for compliance and non-compliance results. The publication encourages stakeholders response to the result through the existing channels due to their incentives including capital market owner, judicial and legislature channels. Government also responses the result through focusing the enforcement concern on non-compliance industry.

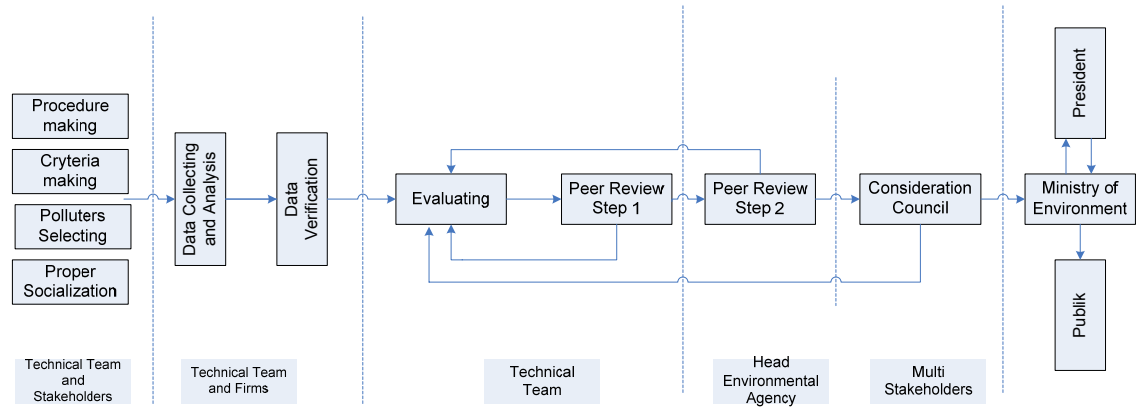


Figure 9. Flow Diagram of Rating's Evaluation
(Source: Environmental Agency, 2005)

BAPEDAL has implement PROPER due to the procedure which has been specified, however, BAPEDAL faced some obstacles in its implementation, as follows (World Bank, 1998):

a. Credibility that was critical to sustain public

BAPEDAL responded through:

- Evaluating and subjecting information received;
- Use computerized modelling techniques and group-based analysis;
- Consider the historical pollution data;
- Ensure greater data accuracy.

b. Uncertainty from the bussiness community's reaction to the result, that is caused by the possibility of disagree the conversion of environmental compliance to rating color code.

BAPEDAL responded by:

- intergrating the design efforts of a technical team from Australia, Canada and the World Bank

c. Selection of polluters

BAPEDAL anticipated by: consider the availability data in selecting polluters.

d. The lack of adequate media coverage, cause not all firms with worst environmental performance are published by media.

BAPEDAL take the opportunity to obtain political support, encourage willingness of the community to participate in this program, and building on the experiences.

The success of the Proper's program is influenced by some factors as follows:

- Strong political support for the program;
- The willingness of community to participate in the program for responding the result;
- Information quality
- The dissemination mechanism;
- Provision of incentives; and
- Market pressure.

The result of the PROPER implementation in period 2004-2005 can be seen in figure below.

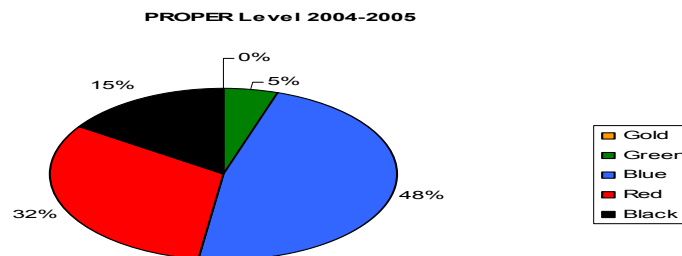


Figure 10. The percentage of PROPER rating result (Source: PROPER Reporting 2002-2004)

In period 2004-2005 PROPER is joined by 466 firms, in which the result for compliance firms (green and blue color ratings) was 53% and non-compliance firms (black and red color ratings) was 47 % with most result of red color rating

d. Stakeholder Involved

PROPER represents the implementation *Good Environmental Governance* through involving multi stakeholder. PROPER is applied through both technical process by Ministerial Environmental Agency and decision making process involving multi stakeholder. The process can be explained through some steps (KLH, 2005) as follows:

- a. ***Preparing and Implementation Plans***, socialization to multi stakeholder including related sector, local government and NGOs.
- b. ***Determining Environmental Performance Ratings***, comprising of:
 - *PROPER technical team* (Environmental supervisors, heads of Environmental Agency) from Ministerial Environmental Agency, performing technical evaluation;
 - *the Consideration Council* (government, credible citizens figure, environmentalist, college institution and NGOs), providing reasonable consideration for determining firm's environmental performance rating
- c. ***Disclosing the Results***, the result disclose to public and other stakeholder in order to obtain their responses due to their capacities.

Stakeholder participation in pollution control through the program, based on the advantages the program to each stakeholder, as follows:

1. *Benchmarking* instrument for firms to measure their environmental performance compared other firms at national level;
2. *Media* to find out firm's compliance to environmental standard;

3. *Clearing House* for multi stakeholders, including investors, financial banking, communities and NGOs, to find out firm's environmental performance;
4. *Promotion Tool* for environmental friendly firms to encourage their reputation in market sector;
5. *Information* for specialists of environmental friendly technology;
6. *Reputation level* of firms to obtain positive view and trust from stakeholder;
7. *Participation room* for stakeholders to directly participate in pollution control.

The means supporting communication in Proper's Public disclosure program comprise of:

1. Disclosure of companies rating:
 - through Press Conference
2. Information of the PROPER:
 - Booklet
 - Leaflet
3. Socialization to local governments and industries.

e. Impact

Impact to firms

The impact of Proper's disclosure laid on the tendency in improving environmental performance indicated by the improvement disclosure ratings. In the initial period of Proper's disclosure implementation, in June 1995, according to World Bank report (1998), 65 percent of the 187 factories categorized non-compliance firms, five firms were awarded green rating and six firms were awarded a black rating. None of participating firms was awarded gold rating. By December 1995, twenty firms followed the program through voluntary program and the 50 percent were awarded black rating. World Bank stated that eighteen months after full disclosure there was a 40 percent reduction in pollution. The participating firms increased in the fellow periods of PROPER implementation up to 466 firms by 2004-2005. The experience of the increasing of firm's compliance can be seen in the figure below

showing the rating result of 251 companies in period 2003-2004 and period 2004-2005.

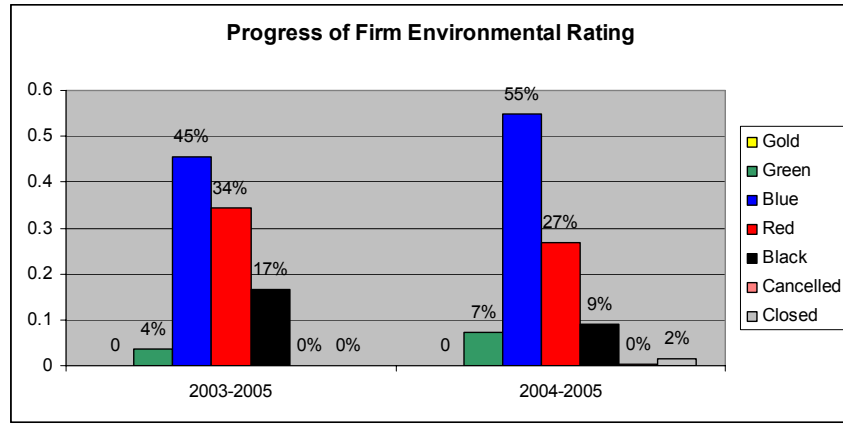


Figure 11 The improvement of PROPER Result 2003-2004 and 2004-2005
(Source: PROPER Report 2002-2004, Ministerial Environmental Agency)

Figure 10 exhibit the improving Proper's rating in which the increasing occurred for compliance firms indicated by green and blue color codes and the decreasing occurred for non-compliance firms indicated by red and black color codes.

Impact for Cost Effectiveness

World Bank stated that PROPER as public disclosure initiative become cost effective instrument that reduced transactional costs, because some reasons follows:

- It mobilize external agency and utilize public to pressure firms to compliance the standard;
- It influence power to control pollution;
- It has allowed firms to evaluate costs and benefits in pollution abatement by compliant behavior. The empirical analysis by Suratno, Darsono and S.

Mutmainah (2006) show that firms with a good environmental performance is a good news for investors, in which they give a positive respon to that firms through fluctuation of firms market stock. Furthermore, the results become rationally considered criteria in decision making of a certain investment by investor

- It becomes instrument to informing firm owners especially information ignored before;
- It raise environmental awareness of owners, managers and employees;
- It promotes firms that have a good ratings and obtain market benefits;
- It reduce monitoring and law enforcement cost through concerning for the worst polluters.

Impact to Government

- It exposes BAPEDAL to public inquiry increasing its technical capability and its operations;
- It promote clean technology through the use of reputational incentives;
- The impact to firms encourages BAPEDAL to improve data collection and analysis.
- It encourage regulators to create report standard for accountability and transparency

f. The Success of PROPER

The success of Proper's public disclosure, because of the key elements empowerments that enforce the pressure to firms for complying environmental standard. According to World Bank, the key elements comprise of following elements:

1. Access to Information

BAPEDAL has succeeded in empowering stakeholders comprising of local communities, NGOs and the press in environmental protection through releasing environmental information to public afterward utilize public pressure firms with poor performance to change their behavior.

The high quality and reliable environmental information release is facility and power of stakeholders to depress and negotiate with polluters to fulfill environmental standard which determined by firm. It has been proved with the behavior improvement which shown with the change of performance rating from non-compliance becomes compliance after following this program.

Released information can be used for the purpose of consideration for the investors who prefer to invest on environmental friendly company, so that it pushes firms to increase their performance appropriate to the farther specified standard with applying clean production technology. BAPEDAL has specified strategy in execution the Proper, which are:

- Adopting sound data-analysis methodology in order to avoid error and elimination hesitation;
- Working collaboratively with external agencies in its operation;
- Providing information that accessible and easy to understood by stakeholders to eliminate misconstrue the information.

2. Inclusion and Participation

The application of PROPER is applying a new approach "collaborative regulatory mechanism" rather than single regulatory body. It provides a substantial degree of responsibility to community stakeholders. Stakeholders involving consist of "local community groups, NGOS and the media". Each stakeholder makes information given and has importance to participate in pollution control as follows:

- The information encourage substantial power to communities to voice their opinion;

- The information encourage BAPEDAL to negotiate with facilities in complying environmental standard;
- Responses from stakeholders and negotiation with polluters as a part of decision-making process, partnership enhancement and the promotion of transparency;
- Collaborative regulatory mechanism encourages the awareness for pollution control and compliance, for example, encourage a number of voluntary participating firms in Proper.

3. Accountability

PROPER represent the implementation of good governance through integrating various stakeholders in pollution control. It encourages accountability on both the regulators and the regulated. As mentioned by World Bank that, “While regulating agencies have been able to exert pressure for compliance and improvement in the firms’ performance level, transparency in the control system makes it mandatory that the agency to subject itself to public scrutiny” (World Bank, 1996 pp. 5). It requires a good process in implementation and reliability and welltested data. Furthermore, factories are accountable for their performance level, in which Level of their performance will give impact to their performance among business publics.

The accountability of Proper’s implementation, there are some indicator for Proper’s implementation as follows:

- Decreasing environmental pollution load caused by firms activities;
- Decreasing level of environmental pollution and degradation;
- Increasing environmental quality;
- Increasing stakeholder reliance to the Proper’s result.

g. Selection of polluters

In the early of PROPER execution, choosing the company which participates in PROPER was based on its contribution to "rivers pollution loads". The number of PROPER participants involved was 187 plants with the result announced to public at December 1995 and at regular interval afterward. PROPER participant increases in the next years, where in 1998 was reached 324 plants. The involving of PROPER participant can be compulsory for selected firms and also voluntary for additional firms.

Based on strategy set in PROPER by the Ministry of Environment, company joined in this program is majored by company that having impact to environment and be aware to its reputation in the stakeholder point of view. The awareness of the polluters will determine successfulness of the PROPER (Ministry of Environment, 2005). Due to the limitation of existing resource and the impact of the Proper, hence execution of PROPER is done step by step by prioritizing company with criterion as follows:

- Company having important impact to environment;
- Company having big environmental contamination or damage impact;
- Company contaminating and destroying the environment and or has potency to contaminate and destroy the environment;
- Inscribed public company at capital market either domestic or foreign market;
- Export-oriented company.

Type of industry which given high priority in assessment of PROPER is as follows:

1. Manufacture, Infrastructure and Service, those are: Pulp and papers - Textile - Cement - Automotive - Forge of Iron and Steel - MSG - Alcohol - Base Chemistry Industry - Other industrial Area and other similar type;
2. Mining, Energy, and Gas and Oil, those are: Mineral Mining - Coal mining - Energy Generating - Exploration and Production, Processing and Distribution of Oil and Gas and other similar type;
3. Agricultural and forest production, they are:: Processing of Palm Oil - Sugar mill - Plywood - Rubber (crumb rubber) - Tapioca and other similar type.

According to type of investment of participating firms, Foreign investment firms have a greater attention to environmental awareness than other types of investment (state firms and domestic firms). It can be seen from figure below, in which group of foreign investment firms were awarded green and blue rating colors more than other investment and awarded less for black rating color. It can be seen that foreign investment firms pay attention to their reputation than the others.

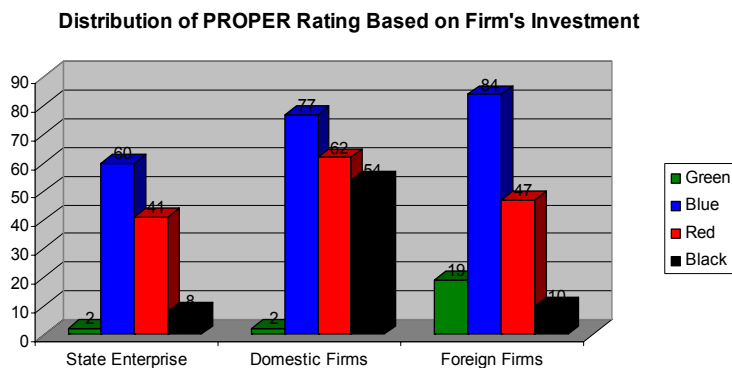


Figure 12. Distribution of PROPER Rating Based on Firm's investment

(Source: PROPER Reporting 2002-2004, Ministerial Environmental Agency)

h. Effectiveness

Effectiveness of the implementation of PROPER can be apparent from the progress of the level of the environmental performance of the company for the control of pollution, efficiency of natural resources exploitation, involvement of the firm in community relation and development. Effectiveness of implementation of PROPER visible on the evaluation of the implementation in the periods 2003-2004 and 2004-2005, as shown in Figure 10.

From figure 10, it can be seen comparison the Proper's result between the period 2003-2004 and 2004-2005 for the 251 participating companies. The improvement of the company, showed 13.5% of the firms level of environmental performance rating of "blue" and "green" colour code reach from 24 companies (49%) in the period 2003-2004 to 156 companies (62.15%) in 2004-2005. The reaching of the level of environmental performance indicates the effectiveness of the program as an instrument to change firm's behaviour. Such firms behaviour changes in line with the result. It is mainly occurred on firms awarded non-compliance rating (red and black). Such firms become the regulators concern on the action of monitoring, evaluating and enforcement by means the use of the existing regulation. Furthermore, the market pressure is come from capital owner (investor) influences firms performance. The awareness some firms in pollution control improve from non-compliance status (red and black rating color) to compliance status (blue and green colour). However, no firms that can achieve excellent rating of "gold" colour, might be caused by the high cost of technology and that is not become the firm's priority

Public disclosure schemes, as stated by Lopez, Sterner and Afsah (2004), have a characteristic in low cost of implementation that becomes considered instruments by policymakers to choose the instruments. Low cost is caused by the need of a properly managed and relatively small infrastructure in collecting and

disseminating data that cheaper than monitoring in regulatory-based approach. From the experience, PROPER need cheaper cost in implementation of pollution control for firms. For example, in the first year PROPER launched and operated since June 1995, it was needed about US \$350 per firm per year.

From experience, it was appeared that PROPER has cost effectiveness showed by the administration cost per case to enforce regulation-based approach is \$US 31,400 per case, much more when comparing with PROPER program that needs \$US 2,342 per industry. From the experience, about 60 % participating firms in PROPER program improve their environmental performance using that budget (H.Roosita, 2004). It can be argue that PROPER more effective in enforcing firms to comply with environmental standard rather regulation-based approach.

Limitation

1. PROPER more/only effective for large scale industries because they are concern with image to market
2. PROPER cannot apply to all scale of industries.
2. PROPER is complementary instrumen in controlling pollution to other environmental law enforcement program.
3. Indonesia still needs strong environmental agencies.

3.2. Toxic Release Inventory (TRI) as Public Disclosure Initiative in the United States

3.2.1. Introduction

The initiative of information disclosure of environmental performance is adopted in the United States through the implementation of the disclosure program of Toxic Release Inventory (TRI). The disclosure initiative is inspired from industrial

disaster in Bhopal, India by 1984, in which more than 3000 people die as a result of the disaster

The disaster was the worst industrial disaster in the world. Moreover, by the existence of this tragedy, a large number of countries began to consider the possibility of the occurrence of contamination with dangerous materials that were caused by industrial activity.

The Toxics Release Inventory (TRI) is a publicly available EPA database. This database contains information on toxic chemical emissions and waste management activities annually by certain industries, as well as the federal facilities (the U.S. EPA, 2008).

The program discloses information through the accumulation and dissemination of toxic releases from manufacturing plants. This disclosure program is in line with the guidelines determined by EPCRA, to report emissions and transfer more than 300 toxic chemicals on an annual basis in those reports are due to both the states and the EPA on July 1 of the following calendar year (Patten, 1998).

The United States also took part in paying attention to this problem, considering the existence of the issuing of the dangerous chemical by industrial activities. According the United State Environmental Protection Agency (US EPA) in accordance with the existence of the release of the chemical hazardous substance the relevant industry in West Virginia, raise the pressure from the public and the environmental organization to the industries to provide information about the dangerous chemical substance which has been issued. This will make community know whether chemical substance that was released in accordance with the standard established or not. In response to the issues, the US Congress established the Emergency Planning and Community Right-to-know Act (EPCRA) in 1986

through the creation of the Toxics Release Inventory (TRI) of the adding Section 313 of the Emergency Planning and Community Right-to-know Act (EPCRA). Such response also comes from Netherland through establishment the risk map as a tool to make risk information in an easy reading language. The tool is aimed to understand the risk of major accident presented by means geographical tool. The responsibility for 'risk map' is implemented at provincial level, in which the national database as data sources (Basta, Neuvel, Zlatanova and Ale, 2006).

EPCRA is aimed to provide information about the use of the chemical substance that was dangerous by requiring the company to report that the chemical substance has been issued, including the location and quantity. It requires EPA and the state to transfer data of chemical substance released from industrial facilities to publish that information to public through Toxic Release Inventory (TRI). In the next period, the US Congress enacted Pollution Prevention Act by 1990 in which data reported should be completed by data of waste management and source reduction in a certain industrial activity (U.S. EPA, 2008).

The advantage of TRI is in the aspect of providing the information of toxic chemicals released through empowering citizen to control businesses and accountability of local governments.

The most important aspect of TRI was the existence of collecting and providing the data to the public. In this case, public can access this information easily. Several instruments were used to wider public access to this data, such as TRI Explorer, Envirofacts, RTKNet, and Scoreboard. The RTKNET was developed by Unison Institute while scoreboard was developed by Environmental Defense. This program developed rapidly in the industrial production using power-controlled community in accountability the company and gave the point to be considered in

managing toxic chemical. It was intended to stem the rise of the environmental management system that was implemented by the company.

a. Environmental Problem in U.S.

The United State is developed countries that is stated as the world's third-largest country by size after Russia and Canada that is 9,826,630 sq km and by population after China and India that is 303,824,646 (CIA, 2008).

The economy of the United State is characterized by the condition of steady growth; low unemployment and inflation; and rapid advances in technology. GDP per capita in the US reach \$46,000 that influenced by market oriented in economy. In this case, private individuals and business firms become predominant in market place. The US business firms have greater flexibility than in Europe or Japan in expanding plant, employment, and developing new products. US firms become the pioneer in the use technological advances. Since 1975, practically, all the gains in household income have gone to the top 20% of households. The GDP growth rate reach 2,2 % (2007) contributed by agriculture sector (0,9%), industry sector (20,5%) and services sector (78,5%). The increasing of GDP in 2004-07 was caused by substantial gains in labor productivity. Long term problems in the US include inadequate investment in economic infrastructure, rapidly rising medical and pension costs of an aging population, sizable trade and budget deficits, and stagnation of family income in the lower economic groups (source: <https://www.cia.gov/library>)

Environmental problem in the US, occurred including air pollution by industries, effected acid rain in th US itself and Canada. Other pollution problems were occurred as a result of carbon dioxide emmission from burning of fossil fuels, water

pollution from run off of pesticides and fertilizers, lack of natural fresh water resources and desertification.

In global level, the US joined in the world's effort to overcome global environmental problem through signing environmental international agreements. Such agreements including Air Pollution, Air Pollution-Nitrogen Oxides, Antarctic-Environmental Protocol, Antarctic-Marine Living Resources, Antarctic Seals, Antarctic Treaty, Climate Change, Desertification, Endangered Species, Environmental Modification, Marine Dumping, Marine Life Conservation, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber⁹⁴, Wetlands, Whaling Air Pollution-Persistent Organic Pollutants, Air Pollution-Volatile Organic Compounds, Biodiversity, Climate Change-Kyoto Protocol, and Hazardous Wastes.

b. The Application of Public Disclosure in the US Pollution Control

The emergence of “the third wave” instrument in the implementation of environmental policy is characterized by the development of its disclosure initiative. In the United State, the initiative is known as Toxic Release Inventory (TRI). This program stresses the provision of information concerning the emissions and pollution caused by industrial activities, which is conducted annually. This program aims as stipulated in the principle of information disclosure that is the monitoring, transparency, citizen empowerment and accountability. The impact caused by the existence of this program make this program get special attention in the international world, especially because the provision of the rise of environmental performance through environmental democracy and community empowerment (S.V.D. Burg, 2004).

Environmental information regarding SVD Burg (2004) is important based on the attractiveness of *transparency, accountability and disclosure* in environmental discussion and policies. It's supported by some international agreement such as *Rio Declaration* and *Aarhus Convention* that provoke the disclosure information to public. Such disclosure represents democratic environmental governance. The occurrences of the explosion of a fireworks factory in Enschede, the Netherlands by 2000 or the SARS-outbreak by 2003, pressure the need of information and transparency for the reasons of both pressuring companies in pollution abatement and fulfilling the willingness of citizens to the risk that might be faced (Fortun, 2001; Anonymous, 2003 cited by SVD Burg, 2004).

3.2.2. Implementation of Public Disclosure Initiative in the US

Legal Support

The implementation of TRI disclosure by the US EPA based on the regulation foundation due to EPA (2008), as follows:

1. Emergency Planning and Community Right-to-know Act (EPCRA) at 1986, that arranged about the need to make TRI's report for business sectors including the locations and quantities of toxic chemical used and reported it to state and local governments, afterward can be used by communities in preparing the possibilities of chemical spills and similar emergencies;
2. Pollution Prevention Act (PPA), that arranged about the need to report the data about waste management and source reduction activities in TRI;
3. Other regulation, such as the Federal Administrative Procedure Act (APA), that provide "*Each agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule.*"

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b. The Concept

TRI is the initiative program that becomes the pioneer in the disclosure of information as the new approach in implementing environmental policies. The TRI developed by the EPA in the United State as stated in EPCRA. It's based on the tragedy of Bhopal, India by 1984, followed by similar tragedy happened in West Virginia, where industry experiences leakage of toxic chemical causing some people must be brought to hospital. It emphasizes the importance of EPCRA to facilitate emergency planning, to minimize the effects of potential toxic chemical accidents, and to provide the public with information on releases of toxic chemicals in their communities.

This program based on the community right-to-know "where the community was entitled to know the condition of the environment, in particular that was issued by the industrial side. Just as it was stated by M. Graham and C . Millers (2004), The

results of TRI was shown that disclosure initiative "right-to-know" provision was a tool that was effective in combating pollution especially in the reduction of toxic pollution.

The principle of TRI laid on gathered and disseminated information on toxic emissions from the industry especially in the form national database that may be necessary to be accessible to the public. Database of such information including 650 toxic chemicals, which were dismissed by some 23.500 facilities that came from disposal or other releases, recycling, energy recovery or treatment (fig.1). Some industries reported toxic releases in TRI program including manufacturing, metal and coal mining, electric utilities, commercial hazardous waste treatment, and other industrial sectors.

Public can access the data collected through internet and other facilities. After EPCRA, TRI-performance was triggered by the establishment of Pollution Prevention Act (PPA) in 1990, which dealt with regarding the obligation to provide information toxic release through TRI. In PPA, toxic chemical substances that have been treat on-site, recycled and burned for energy recovery of the facilities of certain industry is collected and reported annually thereafter that is handled by the EPA in the form national national database that is accessible to public. The types of data collected in TRI chemicals can be shown in figure 12 below.



Figure 13: Information Collected Under TRI
 (Source: EPA, 2008)

The figure explains that the upper left quadrant shows disposal or other releases that appear on the site to surface water, air, land and underground injection. Meanwhile, the upper right quadrant shows other waste that occurs in the area including recycling, energy recovery and treatment. The bottom left quadrant shows the disposal or other releases for transfer to off-site facilities, including off-site transfers to underground injection, land, and publicly owned wastewater treatment plant - metals. The lower right quadrant shows other waste management for transfer to off-site including off-site management of waste for recycling, energy recovery, treatment, and publicly owned wastewater treatment plant - non-metals (EPA, 2005).

In its implementation, TRI has some significant limitations as follows:

- TRI just cover manufacturing and seven non-manufacturing industries, whereas many other industries release toxic chemicals into environment.
- The TRI data, covering over 600 toxic chemicals by 2004s, doesn't represent all chemicals used by all industries.

- The toxic releases reported doesn't consider the frequency or duration but only total annual. It doesn't enough to measure the impact of toxic released.
- TRI's data about toxic releases mostly based on estimation, depend on the availability monitoring data. Unavailability monitoring data causes the use of estimation that vary among reporting facilities.
- TRI data summaries must be interpreted with care, in the case of measuring the problem caused by the effect could emerged from the volume and level of toxicity of chemicals released.
- TRI report just contains information of toxic chemicals released. Indeed, the impact of information released when it expose to environment is rather difficult to understand by public.

c. Program Design

The overview of the United State represent that TRI is designed in the United State as developed country that has high education level of community and high quality of life. It encourages environmental awareness and the demands to gain environmental information to know the possibility environmental risks happened in their surrounding life, especially caused by industrial activities. Thus, TRI designed using "score card" system will be acceptable and relatively understandable by public in the United State, through using internet and high cyber methodology.

d. Stakeholder Involvement

The main principle in TRI laid on stakeholders involvement to encourage the quality of environment as stated by Kim Nelson (2003), Assistant Administrator and Chief Information Officer, Office of Environmental Information, cited by EPA (2005) as follows:

"Given the community focus of the TRI program and the broad and varied uses of the TRI data, we believe that stakeholder involvement in assessing the future of the TRI program is critical to continued success."

Database, issued by TRI, is used by stakeholders due to their different interests. Based on the EPA (2005), the stakeholders who used database of TRI consist of the public including the community, environmental NGOs, researcher, journalist and health professional (Balbus interview cited by EPA, 2005). The nuisance concerned on the system of scoreboard is used to make information released understandable, but this information by such system is still confusing because very technical and specific knowledge is needed. According to TRI data in the annual report of the EPA (2005), it can be seen that TRI was not at all in the eyes of its own community, but it will be useful when starting to see information on the local pollution level proven by the information visitor accessing scorecard in TRI reach 40000 per month (interview Balbus, Pease interview cited by EPA, 2005). Environmental NGOs had the importance for the development of the program on toxic use reduction based on the current Tri-database. Journalists who have used the data to write articles at the height of polluters and local issues and companies that actually sell environment use of the databases to identify potential customers (interview Pease cited by EPA, 2005).

One of the features of TRI that it can bring environmental information to public through utilizes form and electronic media. In the last 15 years it has been proved as a key tool of environmental journalism. Journalism is one of materialization from existence of stakeholders involvement in succeeding result of TRI. Some journalist from New York Times has written about TRI and gives comment about what special of the program as investigative tools. Some famous journalists written and respected to TRI, as stated by J.A. Davis (2004), include Phil Shabecoff (New York Times), Christine from Washington Post (prize-winning science writer), Russell and so forth.

According to J.A. Davis (2004), one journalistic use of TRI publishes the ranked or listed the companies or facilities (locally or nationally) that released the highest amounts of toxics. As a result, companies will avoid to be the top-ranked on those list even stay out from the spotlight in the worst possible way. Emerging constraint for the fact is complaint from companies about accuracy, meaningfulness, and interpretation of the data. It tended more to be done by environmentalist research group and less by media. By 1990s, a couple thought and talented investigative reporters or TRI teams used as a basis for award-winning journalism, with the ground truthing, other forms of reporting, and understanding of local ecosystems, economy and politics. J Brugger in Louisville Courier-Journal, on July 13, 2003, wrote the story of TRI data in Louisville, which was analyzed as *“an important piece in a large mosaic of the coverage of the area of the toxic air pollution problems by Brugger and other reporters”* (J.A. Davis, 2004).

In order to encourage stakeholder participation in TRI program, EPA has launched a TRI “Stakeholder Dialogue”. J.A. Davis stated that “Its purpose, as stated in various documents at the time, was to "improve," "modernize," "re-engineer," or "streamline" the program.

However, the time for launching the project came at critical time that is in October 2002, in which it became the beginning of a new administration's efforts on EPA's information program after the upset of 9/11. Moreover, at that time, TRI was being attacked with unprecedented intensity.

This program is not firstly remembers EPA has done thing which much the same to in the year 1997/1999 at the time of will adapt new industries in TRI list. The superiority from Stakeholder Dialogue 2002 is remarkable transparency by exploiting electronic media. EPA has dare to do new transparency system by exploiting way of cybernatic, even in era where government looks into internet with suspicion as a means of potential applied by terrorist.

Procedures 2002 Stakeholder dialogue consisted of a biphasic that Phase I is executed by more than one year while phase II started on november 2003. Phase I focus on data collection and process, analysis and releases of the EPA's TRI data and to help companies submitting data. Phase II focused on "reducing the burden on companies submitting the data. EPA began each stage of the publication of" white papers "on the topics under discussion. Then threw open consecutive online" virtual public meetings "in which everyone can offer and to respond to comments

e. Impact

The community-right-to-know of information about the environmental risks in the United State was applied by EPA and sponsored by the related departments. According to the empirical study, as stated by SV der Burg (2004), it can be seen that the disclosure has positive consequences, both in increased performance of the environment from industrial plants and democratization. The change of environmental performance, carried out by the industry, was affected by the existence of pressures from various sources, both internal and external sources.

These pressures, which emerged from various sources (stakeholders) both the government, the public and internal management, was caused by the effects that were estimated to bring forward the existence of toxic chemical released. So if each had its separate interests in giving the pressure to the company in accordance with the possibility of the negative effect that might be experienced and the positive impact that possibly was accepted. TRI was based on the empirical evidence caused the pressure created in companies itself to reduce toxic emissions that followed the new concept in their inefficiency production (Gottlieb et al, 1995 cited by SVD Burg, 2004).

- Impact to Firms

The TRI result has impact to firms to reduce toxic chemical released and maintain their reputation, as showed by figure below.

Table 2. **Comparison of 2004 and 2005 TRI Data**

| Comparison | 2004 Amount* | 2005 Amount | Change |
|-------------------------------------|--------------------|--------------------|--------------|
| Releases to Air | 127,291,556 | 126,419,513 | -0.69% |
| Releases to Water | 8,003,965 | 6,925,974 | -13.5% |
| Deepwell Injection | 22,549,771 | 24,468,117 | 8.51% |
| Releases to Land On-Site | 49,719,468 | 62,536,283 | 25.78% |
| Discharges to POTW | 18,578,002 | 19,688,942 | 5.98% |
| Off-Site Disposal / Treatment | 70,788,896 | 82,530,299 | 16.59% |
| Total Releases and Transfers | 296,931,658 | 310,368,358 | 4.33% |
| Energy Recovery On-Site | 84,152,450 | 82,091,319 | -2.45% |
| Energy Recovery Off-Site | 35,417,011 | 35,875,676 | 1.30% |
| Recycling On-Site | 153,979,455 | 134,798,507 | -12.5% |
| Recycling Off-Site | 145,897,716 | 144,195,013 | -1.17% |
| Treatment On-Site | 379,343,836 | 338,583,652 | -10.7% |
| Number of Chemicals Reported | 304 | 306 | 0.6% |
| Number of Facilities Reporting | 1,622 | 1,604 | -1.11% |
| Number of Form Rs | 5,450 | 5,490 | -0.7% |
| Number of Form As | 717 | 709 | -1.1% |

Source: Annual Report OHIO's TRI, 2005

Comprehensively, the result From 2001-2006 can be seen that total production-related waste managed decreased by 10 percent and the number of facilities reporting decreased by 11 percent (EPA, 2007).

- Impact on State, Government-federal and local government

The result impacts to government in encouraging the capacity, capability and changing administrative procedure.

1. TRI information impacted to State in spending on the environmental and natural resources program through imposing new administrative load on states. The evidence is showed by the state requirement in emergency and planning, stated in EPCRA in section 301-305, to establish state emergency response commissions (SERCs) and local emergency planning committees (LEPCs).
“Both SERCs and LEPCs are [needed for the process] received information [on] companies for emergency planning, and [they are obliged to facilitate] public requests for this information (Wolf, 1996 p. 222 cited by D.M Patten, 1998 p.371).” Furthermore, finding funding sources for these administrative burden, estimated by the EPA at \$ 24 million to \$ 34 million per year, was a major concern of the states at the beginning of the program (Wolf, 1996 p. 241 cited by D.M Patten, 1998 p.371).
2. TRI impact on enforcement action, as stated by D.M. Patten (1998), the program encourage the state efforts to establish the stronger investigation and enforcement activities. As cited by D.M. Patten (1998), *“[the] data are being used by many states in pollution prevention activities, discharge permit development, compliance reviews and inspection targeting, and regulatory programs”* (EPA, 1991, p. 311 cited by D.M. Patten, 1998, p.371). It also describe the necessity of carrying out the inspections, as

shown by the evidence in Texas, determine the need for the program and activity, followed by the increase in expenditures.

3. TRI program trigger changes in environmental policy concerning program for pollution prevention. As stated by Wolf (1996) cited by D.M. Patten (1998), TRI disclosures have been used by environmental and public interest groups to educate both “*the public and [state and local] policy makers about toxic pollution issues,*” and to compel the policy makers to act on issues relating to substances that are toxic” (Wolf, 1996, p. 287 cited by DM Patten, 1998, p. 371). the Illinois General Assembly mandated the state EPA to establish a program to regulate toxic air industrial pollution through the establishment of the Toxic Pollution Prevention Act of 1989 (Kim and Miller, 1990 cited by DM. Patten, 1998)

- Impact to Investor

The implementation of Toxic Release Inventory (TRI) also increase the pressure from investors, upon which the investor will have a good response to companies with a good environmental performance, and otherwise. The impact of Toxic Release Inventory (TRI) at the fair return was not significant appeared in earlier apply to 1989. However, the implications are significant occurred in 1990-1994, in which the negative reactions of investors had been revealed from the negative market exchange for the companies deteriorated over time and compared to others. The important insights will increased, as a result of the TRI, is encouraging new programs that can be designed in the future to be effective as the signaling mechanisms for the companies.

Firms also suffer the losses in the market values affecting their effort to reduce their on-site toxic releases later and positive impact on waste transfer site. Efforts

to reduce on-site emissions is done by applying for recycling and energy recovery, so it may reduce the net risks associated with toxic waste and the emergence of positive net benefits to society. Along with this was explained on how environmental information will impact on the industry to increase efforts in reducing toxic releases caused by the existence of the pressure, that was the reaction of the investor into the TRI result.

The result affect investor

An efficient capital market can be displayed on the daily stock prices that the present value of the stream of profits that a company expects to earn in the future. The investor had the view that the level of pollution by the company showed profitability of this company. Because providing information on the environmental performance of the company will affect the stock of this company, especially as this as opposed to information that was requested by the investor. The significance of the relationship between the degree of pollution and the profit is the main issue for investors when considering which firm will be invested.

Pollution levels, the investor point to qualify for investment in certain company, are caused by various reasons related to the credibility of this company. The investor increasingly considers good environmental performance from one company showing well management firm at a whole. Poor performance in pollution abatement showed poor management and performance of the company. In line with this case, the company's expenditure connecting to the management of pollution, increased in relation to the discharge, the cost for its environmental management and the cost for the use of technology. Moreover, the company with the less level of waste releases, will face major risks in the field of law enforcement that was conducted by the EPA again the danger was much more influenced by the case of the law (M Khanna, W.Rose H and Dora Bojilova, 1998).

Pollution levels become consideration for investor for investing in certain firm, because of some reasons concerning firm credibility. Investor assumes more and more good environmental performance from a firm shows good of management firm as a whole. Bad performance in pollution abatement shows bad management and performance of company. In line with the thing, company expenditure relating to pollution management to increase concerning discharge permit, cost for management of its(the area and also cost for usage technology).

Investor reactions on firms

There were relations between the level of the release of emissions and the increase in market value, with increasingly high level of the release of emissions at first still higher than the figure that was hoped more than ever the market value will decrease. This was caused by the existence which was fine with the existence of the increase in waste generation and the existence incentive for waste reduction efforts. Reduction of toxic chemical release obtained by reducing the production or increase the efficiency of the production process through the use of environmentally friendly technology. This motivate company to improve the control of pollution in order to reduce toxic chemical release and greater efficiency (Madhu Khanna, W.Rose H and Dora Bojilova, 1998).

f. The Success of TRI's disclosure

The success of disclosure program of TRI in the US, is analyzed by S V der Burg (2004), that is obtained from literature study and interview of relating respondents. He describe some conclusions and argumentation about the success of TRI's disclosure, as follows:

1. TRI's disclosure generate new information for company that is used for improving firm's environmental performance (Howes, 2001a cited by SVD Burg, 2004);

2. The environmental information represent the effectiveness of company's work and the cost risk in the future. It is used by shareholder (Lynn & Kartez, 1994 cited by SVd Burg, 2004), that result in stock value (Hamilton, 1995 cited by SVd Burg, 2004);
3. The disclosure is used by communities and environmental organizations as a consider matter in estimating pollution level in order to make pressure through lawsuit and negotiation with local government and company.
4. The transparency of TRI's result provide the "reputation effect" to companies that encourage environmental performance efforts by companies (Stephan, 2000 cited by SVd Burg, 2004);
5. The involvement of different actors in measuring the firm's performance and focus their actions (Lynn Kartez, 1994 cited by SVD Burg, 2004).

The advance of disclosure is the fact that the various actors to quickly identify the worst polluters, and therefore their actions (Lynn Kartez, 1994 quoted by SVD Burg, 2004). The impact of the publication is not in the first place was through litigation and direct action. The achieved reductions are largely the result of companies seeking to reduce use of toxic because they want to be one step a head of conflicts with environmental organizations and citizens, a decline in the share holder value, a bad reputation, unfavorable news coverage, etc.

g. Selection of polluters

In TRI-program, each facility which uses toxic chemical have to report the use and the release of the chemical each year. Provisions intended here was to be required to send the good report through Form A or Form R in accordance with the category of facilities respectively. Form R was addressed to "*all buildings, equipment, structures and stationary objects which are located ounce an ounce site or contiguous or adjacent areas and which are owned or managed by the same*

person". Form R was used to report the number of listed toxic chemical substance used, both released and that was not. Whereas Form A is certification statement that in more detail than the form R. Form A, is aimed at facilities which are used less than one million pounds of a listed toxic chemical a year and had less than 500 pounds of toxic chemicals, which said that if the number was reported, which was released to the environment, treated, recycled or used for energy recovery (OHIO EPA Annual Report, 2004).

In Ohio Annual Report (2004), was appointed concerning facilities that were obligatory to report the use and the issuing toxic chemical, where these facilities had the characteristics as follows:

1. Had 10 or more full-time employees or be equal to 20,000 working hours per the year;
2. These facilities was used by manufacturing industry and non-manufacturing industry including metal mining, coal mining, coal and oil-fired electricity generating facilities, commercial hazardous waste treatment facilities, chemicals and allied products, petroleum bulk stations and solvent recovery services.
3. Facilities from manufacturing, importing, processing or other facilities that used toxic chemical exceeded the current limit each year, that is 25.000 pounds for the three first categorized facilities and 10.000 pounds for other facilities.

g. Effectiveness

The disclosure initiative that was developed by the U.S. EPA was new instrument that was regarded on as global trends upon which its implementation depends on political and social culture in response to changes in the environment (SVD. Burg, 2004). The success of TRI disclosure as initiative in America was based on the

condition that the political culture. The condition for the implementation of the government in the U.S. pointed to the importance of the strength of the community and the social organization was compared implementation and enforcement of government itself.

In increasing the community participation, the condition political culture like in the US encourage a different mechanism from the traditional ways of democracy mechanism including a process of deliberation, consultation, participation and discussion. Based on the experience of the public disclosure implementation in the US, democracy was carried out stressed in a diversity of mechanism of the use of the published environmental information about toxic release and the pressure of communities that could influence performance the company. It can be done through giving the response in writing to the company to increase score card. The effectiveness from the implementation public disclosure in enhance empowerment and environmental reform from the community in pollution control, made disclosure as considered instrument in the implementation environmental policy.

Other advance of the implementation public disclosure in the US was that environmental information disclosure the use of the public pressure in order to enhance societal reflection and participation. The application of instrument like this in the other Country that had legal system that was different like Netherlands for example, made hesitate will be effective.

To explain the impact of TRI, figure below presents the result's progress in 10 years period.

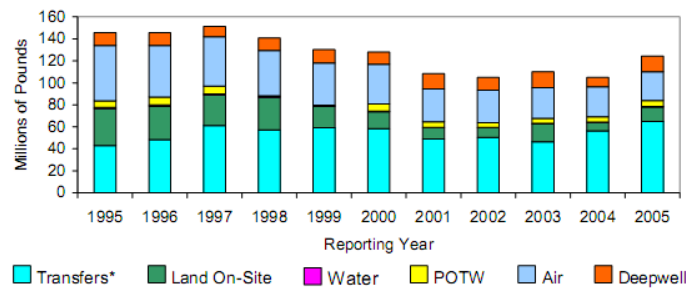


Figure 14. The Trend of TRI's Result for 10 years
(Source: Annual Report OHIO's TRI, 2005)

The increased level in 1997 is caused by the increasing of facilities used. However, it significantly decrease afterward. By 2001, the result tend at constant level at OHIO. However, at total result at the United States, the toxic released decreases up to 10 %.

h. Technical Support

Some instruments are set in supporting the implementation of TRI used by the polluters and communities in reporting and access to information (EPA, 2008):

1. The Toxics Release Inventory-Made Easy (TRI-ME), the tool is a software used to access facilities of the TRI data from both current and previous years. Also helping to define and determine TRI data due to EPCRA PPA and then reported to the EPA. The TRI-ME includes TRI-MEweb and TRI-MEdesktop that the coverage of TRI reporting experience. The devices are easy to apply because the use via the Internet connection and require no downloading or installing.
2. Collection of Information Request (ICR), a series of documents which public to access the data from TRI with a view to the use and the responsibilities of information through the offer to comment on the TRI information available. The document consists of the reporting, record keeping, survey and other information from TRI.

CHAPTER 4

COMPARATIVE ANALYSIS: THE IMPLEMENTATION OF PUBLIC DISCLOSURE IN INDONESIA AND THE UNITED STATE

This chapter analyze the public disclosure initiative implemented in Indonesia and The United State, in which it divided into two sub chapter about the general comparison of the general comparison of public disclosure initiatives in Indonesia and The United State and the detail comparison of the initiatives in both two countries. The chapter will be enclosed with the lesson learned as a result of the point found from the comparison of two countries. The structure of comparison is presented through the explanation of the differences and similarities between two countries and the presenting of the comparison result on table afterward.

4.1. The Comparison of the Implementation of Public Disclosure Initiative in Indonesia and the United State

Public Disclosure as Environmental Policy Instrument in Indonesia and The United State

The needs of public disclosure in both two countries are influenced by the environmental problem faced two countries. The implementation of PROPER in Indonesia based on the environmental problem in Indonesia, that are, water pollution that resulted from industrial waste become the second priority issued as environmental problem after deforestation. Moreover, air pollution in urban areas also become the serious problem in Indonesia, since industrial activities contribute in the increasing of air pollution, coming from fuel used for generate production

process, in addition to the air pollution coming from transportation. Like other developing countries, government concern on industrial development showed by the Indonesia's industrial growth rate reach 4,7 %, much more in The United States that relatively stabil 0,5 %. This is influenced by the need of Indonesia's government to encourage Industrial activities to support Indonesia's economic activities, since GDP percapita in Indonesia is low (\$3,700) whereas industry potential to increase GDP because it occupy the first contributing sector on GDP (46,7 % in 2007). Meanwhile, Indonesia also set to attend on environmental concern through participate in international environmental agreement, such as Kyoto Protocol, Hazardous Waste agreement, desertification etc, thus, Indonesia need to pressure industries to comply with the environmental regulations especially for pollution control. As a result of the challenges, Indonesia's government take serious effort through establishing environmental agency called BAPEDAL with the goals to overcome the environmental problems and achieve sustainability in environmental and economic sides. Public disclosure initiative emerge based on the weaknesses of BAPEDAL capacity in achieving the goals, that are: Lacks experience in monitoring and responding to environmental problems; and no clear authority to enforce pollution control and environmental degradation. Moreover, there is limited funding in implementing (monitoring and evaluating) pollution control. The initiative of Program for Pollution Evaluation and Rating (PROPER) emerge through adopt public disclosure concept, in which it's utilized stakeholder's empowerment to change firm's behavior to comply the regulation. PROPER becomes a part of pollution control approach determined by Ministry of Environment as explained in previous chapter, in which PROPER including *Incremental approach* because it improve environment compliance step by step; and *Output approach* it based on the firm's result in compliance to regulation. Meanwhile, the need of public disclosure is not solely to overcome environmental problems faced in the country, since it can reduce monitoring and evaluating cost in regulation-based approach.

The implementation of PROPER also based on the effort of Indonesia's government in achieving sustainable development, in which it can be appeared from the strategic level, in which one of the objective the program is encouraging sustainable development. Moreover, some stakeholders are involved including community, NGOs and market.

The general condition of the United State is much more advanced than Indonesia, in which as developed countries, GDP reach \$ US 45,800. It has market-oriented economy, in which provide the independence to private individuals and business firms make their own decisions and the flexibility in expanding capital plant, laying off surplus workers and developing new products. Industry become the second sector influence the GDP (20,5 %) after services. Although industries occupy the second place, it contribute to environmental pollution, it become government's concern since the large environmental problems in this country include air pollution, carbon dioxide emission and water pollution contributed by both urban activities and industrial activities. State concern in overcoming environmental problems through participate in international agreement such as Air Pollution Agreements, Kyoto Protocol, Ozon Layer Protection, and so forth. As a result, The US become pioneers in the implementation of new approach in environmental policies through public disclosure.

The need of public disclosure initiative in The United State based on:

- environmental problem occurred, in which there is industrial disaster in Bhopal, India by 1984 causing thousands people died, encouraging international attention to the possibility of contamination of dangerous materials. Moreover, the attention also laid on the existence of the releases of the chemical hazardous substance the relevant industry in West Virginia.

- the pressure from the public and the environmental organization to the industries to provide information about the dangerous chemical substance which has been issued.
- The enactment of the Emergency Planning and Community Right-to-know Act (EPCRA) in 1986.

Legal foundation and General Principle

The implementation of PROPER in Indonesia is voluntary program, in which the participating firms is determined by regulator but no clear legally binding for firms to joined the program. Legal enforcement is impinged for the firms that is not comply to environmental standard like the usual law enforcement. It is also joined by other participant voluntarily. The implementation based on Ministerial Environmental Decree No. 122/2002 concerning on PROPER implementation and Ministerial Environmental Decree No. 97/2005 concerning the application of stakeholder involvement through forming “the consideration council”.

The implementation of TRI is semi mandatory program. Actually, TRI is followed in volunteering, but with the existence of governmental regulations, communities have rights to know environmental risk, stated in Emergency Planning and Community Right-to-know Act (EPCRA) section 313, so industry must give information intended the to public through TRI. Other regulation is Pollution Prevention Act (PPA), that arranged on the need to report the information about waste management and source reduction activities in TRI. Sanctions/penalties will be applied for failing facilities that are not give a timely report, by fining up to \$ US 27,500 per day.

The general principles in both two countries focused on the releasing information through the use of the interaction of multi stakeholders in order to utilize public

and market pressure. The differences in each principles laid on the objective of two countries between two countries is different. PROPER focuses on encouraging industrial compliance, while TRI focuses on encouraging industry to over comply. It related with the fact that industrial sector is important in economy of Indonesia, in which such sector has high contribution on GDP per capita. Indeed, the industrial growth is very high and tends to focus on economy rather than environment. Furthermore, the condition is worse by the lack of environmental awareness of firms, lack of law enforcement, lack of funding and weak institution capacity in Indonesia.

PROPER uses a simple form of five colour-code rating rather than TRI. However, five colour-code rating is lack of transparency for public and lack of fairness for firms. Public only understands the final result without know the real information. Moreover, the methods is lack of fairness for firms, since it just consist of five colour-code rating. In this context, the different between two colours could be very slightly. Thus, it has high risk in determining compliance (blue) and non-compliance (red and black).

The effectiveness of Public Disclosure in Indonesia and The United State

Impact of PROPER:

- The impact of PROPER on firms significantly seen rather than TRI program. It can be argued that the objectivity of TRI is to encourage industrial over-compliance, thus, the impact is quite similar every year. PROPER focused on encouraging industrial compliance. Thus, the result is followed by the law enforcement to non-compliance industry. Such law enforcement influences the increasing of environmental performance in non-compliance industry.

The impacts of Public disclosure initiatives between two countries are rather different, in which there is the significantly improvement of environmental

performance in PROPER implementation. The evidence is appeared when comparing the evaluating of Firms compliance through PROPER program in two different period for the similar participating firms, in which there is environmental performance improvement reach 13,5 % in period 2004-2005 compared with the previous period of 2003-2004.

- The impact PROPER on cost effectiveness is proved by reducing in transactional cost.
- The impact PROPER on regulators lain on the increasing of its technical capability and its operations, and as a tool in promoting cleaner technology.

The Impact and effectiveness of TRI:

- **Firms**, from 2001-2006, total production-related waste managed decreased by 10 percent and the number of facilities reporting decreased by 11 percent
- **States:**
 - Spending on the environmental and natural resources program through imposing new administrative load on states
 - encourage the state efforts to establish the stronger investigation and enforcement activiti
 - trigger changes in environmental policy concerning program for pollution prevention.es
- **Investor**

The investor is increasingly considered good environmental performance from one company showed him well management firm on the whole.
- **Impact to Public**
 - Educate public about toxic chemical releases and potential risks.
 - Encourage the understanding of their local environment

- Implement democracy system through: participating in local and national debates about the choice being made that may affect to their health, influencing the outcome of the debates

The summary of the general comparison will be presented by table below.

Table 3.

**Comparison of the implementation of Public Disclosure
in Indonesia and the United States**

| Elements | Indonesia | the United State |
|---|---|---|
| The Implementation of Public Disclosure as Environmental Policy Instrument | <ul style="list-style-type: none"> - Put attention on internal environmental problems - Serious concern on overcoming environmental problems through establishment BAPEDAL in 1990s - Implementation of PROPER to overcome environmental problem and a respon of the lack of BAPEDAL capacity in pollution control, in 1995's | <ul style="list-style-type: none"> - Put attention on external environmental problems in Bhopal India in 1984 - Serious concern on environmental risk contamination by industrial activities on 1986's through establishment EPCRA - Implementation of TRI to find out environmental risk caused by facilities and apply community-right-to know in 1986's |
| Legal Foundation | <ul style="list-style-type: none"> - voluntary regulation - penalties is based on regulation-based approach - The Proper's implementation based on Ministerial Decree Kep- 35 A/MENLH/7/1995 jo Ministerial Decree 127/2002 Ministerial Decree 97/2005 | <ul style="list-style-type: none"> - semi mandatory regulation - there is penalties for violation and late report - The TRI's implementation based on EPCRA 1986 section 313 and PPA 1990 |
| General Principle | <ul style="list-style-type: none"> - Encouraging industrial compliance - determining environmental performance of polluting industries and disclosing to public - Using five-color rating to determine in compliance (blue), out of compliance (red and black) or over compliance (green and blue) - main procedure: gathering data, analyzing data, determining rating colors and disclosing to public - Data collected based on self-reported and monitored dat by regulators - Focusing on interaction among stakeholders rather than just between regulators and polluters - Integrating community and market pressure with government enforcement in the existing environmental regulation especially for firms with the worst performance - there is no clear cryteria for selection of participating firms - Based on the principle of Good Environmental Government: fairness, stakeholders involvement, transparency and accountability | <ul style="list-style-type: none"> - Reducing Environmental Risk in order to avoiding environmental hazard - determining environmental risk by industrial activities and disclosing to public - using score card presenting toxic chemicals released - main procedure: gathering, improving data with additional information and disclosing to public - Data collected based on self-reported by firms - Focusing on stakeholders empowerment, government as facilitator and enforce for the non compliance in providing information by firms - there are clear cryteria for participating firms |
| Effectiveness | <ul style="list-style-type: none"> - Significantly affect firms through improving performance rating reaching 13,5 % from 2003-2004 to 2004-2005 - Reducing transactional cost, both in reaching industrial compliance and in reducing operational cost by regulators since they focus on the non-compliance firms - Improving BAPEDAL's technical capability and operations - Promoting cleaner production - Increasing 'green' investor | <ul style="list-style-type: none"> - Sigificantly affect firms through reducing toxic chemicals released (10%) and facilities used reaching (11%), in period 2001-2006 - TRI will cut cost and improve operations. It also increase cost-effective in reporting facilities - Imposing new administrative load on State - encourage the state efforts to establish the stronger investigation and enforcement activities - trigger changes in environmental policy concerning program for pollution prevention - Increasing 'green' investor |

Source: Analysis, 2008

4.2. The Comparison of the Adoption of Public Disclosure Concept

This sub chapter presents the detail comparison of public disclosure implementation in Indonesia and The United State. The elements compared based on the characteristic of information strategies presented by T. Tietenberg (1998) described in previous chapter, comprising of:

- a. Discovering the extent and magnitude of environmental risk;
- b. The reliability of information;
- c. Publishing or sharing (Disseminating) the information;
- d. Acting the information.

Table 4.

Comparative Elements of the Concept of Public Disclosure

| Elements | Description |
|--|---|
| Discovering the extent and magnitude of environmental risks | |
| - Who should invest in the availability of information? | The polluters as the main source of data provision. |
| - How much the sensitivity of the population to the exposure are all highly relevant considerations? | The possibility voluntarily source for supporting data provision |
| The reliability of information | |
| - methods of collecting data | specifying acceptable collection instrument and procedure |
| - enforcement for falsifying information | There is a penalties for firms that falsify data |
| Disseminating the information | |
| - involving community in information provision | the extent of the means used by communities and interested parties to realize noncompliance claims, including monitoring the activities done by regulating authority in addition to access and transparency |
| - information transparency - Access to Information | Information disclosed in a form can be used and accessed |
| - The type of regulation-binding for The information provision | there is mandatory regulation in providing information |
| - The availability of mandated periodic report accessible to public | there is means to access periodic report |
| Acting the information | |
| - Pressure from stakeholder | there are the pressure from other stakeholder in responding the result |
| - The existence of the means/channel | The availability channels used by community to respon the result, both the existing channels and the new channels |
| Stakeholders Involvement | |
| - Stakeholder involved | stakeholder involved in Public disclosure: communities, NGOs, bussiness sectore and media |
| - Stakeholders position in Public disclosure | The main role of stakeholder involvement in public disclosure is their role in respond disclosure information to influence firm's performance |
| - Means of Stakeholders involvement | there are an adequate means for stakeholders to participate in public disclosure including legal foundation, dialogue facilities, media for information |

ce: T. Tietenberg, 1998)

Following presents the adoption of the concept of public disclosure based on the characteristics in implementation of PROPER in Indonesia and TRI in The United State.

Discovering the extent and magnitude of environmental risk

This element cover the technical characteristics of public disclosure in which information should consist of general information about environmental risk, and it should be defined a socially acceptable level of risk. However, I focus on the role

of polluters and government in the provision of adequate information, whether both two countries apply the role or not in each public disclosure program.

- The role of Polluters: provide access to information of specific components of the risk they are used.
- The role of Governments: identify the general elements of the risk.

In PROPER, data gathered from self-reported by firms and monitoring data from the agency in order to reduce falsifying data. Government determines the criteria evaluation and technical procedure. However, there is no other sources data come from communities that is used to complement data of both PROPER or TRI programs.

TRI data gathered and disseminated through the reporting data by firms releasing toxic chemical. It is done by fulfilling in report form provided by EPCRA section 313, and submitting to EPA. The role of government (EPA) is gather data from firms and wraps data with additional information. The other important role is make the list of toxic chemical and make the changes depending on the evolving toxic chemical released.

The reliability of information;

- methods of collecting data
 - specifying acceptable collection instrument and procedure
- enforcement for falsifying information
- There is a penalties for firms that falsify data

In PROPER implementation, BAPEDAL concern on the way to provide accurate information through determine the procedure of collecting data and verify data for technical process. Further, it specified the criteria for determining rating used in decision making process. However, there is no clear legal sanction for falsifying data.

On the basis of TRI data in the annual report of the EPA (2005), was obtained that TRI was not at all in the eyes of its own community, but it will be useful when starting to see information on the local pollution level was proven with the visitor information accessible information scorecard in TRI reached 40000 per month (interview Balbus, Pease interview cited by EPA, 2005). For violation information submitted, EPA enacts penalties for firms doing the violation including for falsifying data, with fine up to \$ 27,500.

Disseminating the information;

- involving community in information provision:
- the extent of the means used by communities and interested parties to realize noncompliance claims, including monitoring the activities done by regulating authority in addition to access and transparency

Both in PROPER and TRI there are no clear the means for community to monitor the activities in the technical process. The stakeholders involvement is limited on decision making process and utilizing the result.

One of the features of TRI that it can bring environmental information to public through utilize form and electronic media. In the last 15 years it has been proved as a key tool of environmental journalism.

Transparency,

The adoption of transparency of public disclosure laid on the extent of access to information, that can be indicated as follows:

- Information disclosed in a form can be used and accessed;
- The type of regulation-binding for the implementation (voluntary/mandatory);
- The availability of mandated periodic report accessible to public

PROPER has been used five-color code to make the understandable information to find out environmental performance of the participating firms, afterward provide respon on the result. The methods is easy to understand environmental performance limited in whether compliance or non-compliance firms. However, it is less transparency than TRI do.

Type regulation binding is combination of voluntary and mandatory. The selection of participating firms is determined by BAPEDAL that is choosed based on the criteria in PROPER, Some of firms join the PROPER voluntarily. Mandated-periodic report not accessible to public, it only can access and utilize by regulators especially technical team in PROPER.

TRI use score card system as a form that can be accessed by various stakeholder. However, it still confusing for community to understand because very technical and need knowledge to understand. The type of regulation is semi mandatory based on community-right-to know in which there is a penalty for late reporting up to \$US 27,500 per day.

Acting the information.

- The existence of the means/channels that are used stakeholders to pressure firms: the availability channels used by community to respon the result, both the existing channels and the new channels

The important pressure from stakeholders in PROPER comes from regulators, bussiness sector, NGOs, media and community. The pressures are used through the existing channels and new channel as described on previous chapter. The existing channels that are used stakeholders in responding the result including:

- capital market, in which firms with bad rating obtained negative respon from investor.

- Judicial system, in which communities around the plant use the information to pressure firms through demonstration, even suing the firms based on the result.
- Legislature, in which PROPER use community support because of inadequate legislation for regulators to enforce the firms.

The new channels also available, but seldom be applied, including:

- The community right to know environmental information has been stated in regulation No.23/1997, section 5, concerning community right in environmental management, moreover, as mentioned in article 1 that “Each and everyone has equal right to healthy and good environment” and in article 2, “*Each and everyone has rights to information of environment related to the role of in management of environment*”, communities have rights to pressure firms in complying with regulation. However, limited knowledge of communities makes the regulation seldom be applied to pressure firms.

The important pressure in TRI comes from communities and NGOs based on community rights for good quality environment. In responding the result, TRI use the existing channels and new channels:

- existing channels: product market, capital market and judicial system.
- new channels: the new channels stated in EPCRA and PPA.

Stakeholder involvement;

- PROPER involves multi stakeholder representing ‘good environmental governance’. It can be seen in process of PROPER that is divided into two processes, that are, technical process and decision making process. Stakeholders participate in decision making process that is done in some steps:
 - preparing and implementation plans;

- determining environmental performance ratings; and
 - disclosing the result.
- Government also determine ‘the consideration council’ by ministerial environmental decree No 127/2002. The council consist of multi stakeholder (government, credible citizens figure, environmentalist, college institution and NGOs) that involve in the second steps to provide reasonable consideration for determining the rating.
 - The core of the information provision is generating stakeholders empowerment. Pressure in PROPER is revealed from some stakeholders:
 - Environmental performance influence the financial performance of the firms. The empirical study show that firms with bad environmental performance (black and red) receive negative respon.
 - Law suit by BAPEDAL to firms with the worst performance rating (black and red) in two periods.
 - PROPER’s result is used by some department to enforce firms to comply with regulation.
 - Means supporting stakeholders involvement in PROPER including Press Conference (in disclosure of environmental ratings), Internet for access the current PROPER's database and Booklet/Leaflet.

Like in PROPER, TRI also adopt the main concept of public disclosure that utilize stakeholders in empowering the firm’s compliances. Stakeholders that has involved in TRI’s program based on Balbus interview cited by EPA (2005) including:

1. the communities, the information disclosed still confusing them.
2. environmental NGOs, had the importance for the development of the program on toxic use reduction is based on the current Tri-database.
3. researcher

4. journalist, Journalists who have used the data to write articles at the height of polluters and local issues and companies that actually sell environment use of the databases to identify potential customers (interview Pease cited by EPA, 2005)

Journalistic involve to publishes the ranked or listed the companies or facilities (locally or nationally) that released the highest amounts of toxics. As a result, companies will avoid to be top-ranked on those list even stay out from the spotlight in the worst possible way.

5. health professionals, they criticize firms with worst performance from health side.
- The stakeholders involve through the use of “scorecard” form and utilize electronic media. Further, EPA launched a TRI “Stakeholder Dialogue” aimed to improve, modernize and streamline the program that are encourage transparency system through exploiting way of cybernetic. The main principle is open online “virtual public meeting” by which everyone can offer, respond and provide comments.
 - Government provide some means for accessing TRI, that are:
 - The Toxics Release Inventory-Made Easy (TRI-ME), the tool is a software used to access facilities of the TRI data from both current and previous years.
 - Collection of Information Request (ICR), a series of documents which public to access the data from TRI with a view to the use and the responsibilities of information through the offer to comment on the TRI information available.

The comparison is summarized in table below

Table 4

**Comparative Analysis the Adoption of Public Disclosure Concept
in Indonesia and the United State**

| Elements | Indonesia | The United State |
|--|--|--|
| Discovering the extent and magnitude of environmental risks | | |
| - Who should invest in the availability of information? | - the availability of information based on self-report data from firms and monitoring data from regulators | - the availability of information based on self reported data submitted by firms. Regulators only include additional information |
| - How much the sensitivity of the population to the exposure are all highly relevant considerations? | - There is no other source data | - There is no other source data |
| The reliability of information | | |
| - methods of collecting data | - gathering and verification environmental data, data analysis and determination of rating color | - gathering data from firms, developing with additional information and disclosing to public |
| - enforcement for falsifying information | - there's no clear legal enforcement for firms that falsify data | - there's penalties for violation in the program |
| Disseminating the information | | |
| - involving community in information provision | - there is no clear the means of community to monitor the activities in technical process | - there is no clear the means of community to monitor the activities in technical process |
| - information transparency - Access to Information | - used five-color code to make the understandable information | - use score card system as a form that can be accessed by various stakeholder |
| - The type of regulation-binding for The information provision | - voluntary, selection of participating polluters consider the availability adequatedata | - mandatory, there is penalties for submitting the report not at time |
| - The availability of mandated periodic report accessible to public | - It's not accessible to public | - there is accessible to public |
| Acting the information | | |
| - Pressure from stakeholder | - The important pressure comes from bussines sectore that is investor in determining capital investment | - The important pressure comes from communities and NGOs |
| - The existence of the means/channel | - The existing channels: capital market, judicial system and legislature - The new channels: No.23/1997, section 5. However, it seldom used as a basic foundation to pressure firms | - The existing channels: product market, capital market and judicial system - The new channel: the new channels stated in EPCRA and PPA |
| Stakeholders involvement | | |
| - Stakeholder involved | - Stakeholders involved based on their important role in PROPER: media, bussiness sectore, government, communities and NGOs. | - Stakeholders involved based on their important role in TRI: communities, NGOs, media, bussiness sectore and government |
| - Stakeholders position in Public disclosure | - In preparing and implementation plans - In determining environmental performance ratings - In disclosure of the result | - In implementation plans - In disclosure of the result |
| - Means of Stakeholders involvement | - "The Consideration Council" based on Ministerial Decree 97/2005, involving in determining environmental ratings - Press Conference (in disclosure of environmental ratings) - Internet for access the current PROPER's database - Booklet/Leaflet | - "Stakeholder Dialogue" from 2002, online dialogue that is exploit cybenatic technology - The TRI-ME, facility to access TRI data from both current and previous years - ICR, a series of documents can accessed by public consisting reporting, record keeping, survey and other information |

The score of comparison each elements is present in table below.

Table 5.

**Comparative Analysis the Adoption of Public Disclosure Concept
in Indonesia and the United State**

| Elements | Indonesia | The United State |
|--|-----------|------------------|
| Discovering the extent and magnitude of environmental risks | | |
| - Who should invest in the availability of information? | +++ | +++ |
| - How much the sensitivity of the population to the exposure are all highly relevant considerations? | + | + |
| The reliability of information | | |
| - methods of collecting data | +++ | +++ |
| - enforcement for falsifying information | + | +++ |
| Disseminating the information | | |
| - involving community in information provision | + | + |
| - information transparency - Access to Information | ++ | ++ |
| - The type of regulation-binding for The information provision | | |
| - The availability of mandated periodic report accessible to public | | |
| Acting the information | | |
| - Pressure from stakeholder | +++ | +++ |
| - The existence of the means/channel | ++ | +++ |
| Stakeholders involvement | | |
| - Stakeholder involved | +++ | +++ |
| - Stakeholders position in Public disclosure | ++ | +++ |
| - Means of Stakeholders involvement | ++ | +++ |

Notes: + : not met
 ++ : partly met
 +++ : fully met

Table above presents the adoption of the concept of public disclosure in Indonesia and The United State, in which generally both two countries are not fully adopt the concept public disclosure. However, The United State more strength in adoption the

concept. It can be argued that Indonesia less adopted for many constraint faced such as funding, law enforcement and technology.

CONCLUDING REMARKS: The similarities and differences

The implementation of public disclosure initiative in Indonesia and The United State have some similarities and differences. Some of which become the superiority to each other, otherwise, the other become the weaknesses to each other. Some similarities can be resumed as follows:

- Some similarities on the implementation of Public disclosure between two countries laid on the general principle, the role of stakeholder involvement and the effectiveness both in promoting environmental quality and enforcement cost compared with the conventional of command and control approach;
- Both Indonesia and The United State have evidence for the positive impact occurred through implementation of public disclosure, in which the evidence showed the instrument effective in changing firm's behavior to improve environmental performance in environmental management. Moreover, the program reduce transactional cost in monitoring and evaluating through utilize multi stakeholders empowerment.
- The principle of public disclosure in two countries is to empower multi stakeholders to pressure firms changing environmental behavior. Public disclosure as a means for providing chance for multi stakeholders to participate in pollution control. The stakeholders involved including communities, NGos, business sector, media and government.
- Both Indonesia and The United State adopt the concept of public disclosure to meet better environmental quality through reducing environmental risk by means of different ways.

- The need to adopt public disclosure in two countries based on the challenge to implement the more effective instrument in environmental policy to complement the conventional instrument of command-and-control.

Some differences of public disclosure initiative in Indonesia and The United State can be summarized as follows:

- Indonesia and The United State have different background conditions that influence the objectives and ways in implementing public disclosure initiative in reducing environmental risk. Indonesia provokes by the need to balance between economic and environmental purposes. On the other hand, as developed countries, The United State concern on global environmental issues and community rights on good environmental quality.
- The role of stakeholder involvement on public disclosure initiative in the United State much stronger than in Indonesia. The superiority in the United States laid on the community's willingness to aware in environmental. It trigger by governmental support through providing means, channels, advanced technologies and legal foundation.
- TRI has a weaknesses in understand and utilize information released since the result is provided detail and need adequate knowledge because difficult for communities to determine environmental risks due to TRI information. PROPER using a simple means can be used as indicator industrial compliance.
- As developed countries, The United State implement transparency more than Indonesia through the broader provision of means to access TRI data

including mandate periodic report of firms. Some obstacles faced in Indonesia related with the weaknesses: inadequate data, weak institution, and lack of law enforcement for violation of mandate-periodic report.

- The differences of public disclosure implementation is influenced by firm's behavior in developed and developing countries is different, in which firms in developed countries have high awareness in environmental concern causing the communities awareness to environmental quality. As a result, public disclosure is aimed to reducing environmental risk, through changing firm's behavior to over comply with regulation. On the other hand, firm's behavior in developing countries are bad since consumer seldom concern on environmental requirement from firms. Generally, the degree of environmental concern based on the type of capital investment and product oriented. Firms with foreign investment and export oriented more concern on environment than firms with domestic or private investment, since there is the environmental requirement for export quality product, moreover, foreign investment firms pay attention to firm's reputation. It can be argued from the evidence in PROPER result, that non-compliance performance for firms with foreign investment less than other type of investment over year.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

This chapter analyzes the conclusions of this study based on the objectives and research questions. Some lessons learnt are explored due to the possibility of the implementation of public disclosure concept implemented in TRI in order to improve the implementation of PROPER in Indonesia. Some recommendations are elaborated for the application of lessons learnt to improve PROPER in Indonesia.

5.1. Conclusion

The study is aimed to explore the concept of public disclosure and the adoption of such concept in Program for Evaluation and Rating (PROPER) in Indonesia and Toxic Released Inventory (TRI) in the United States. The conclusions is analyzed based on such objectives and research questions, explained below.

a. The Concept of Public Disclosure in Controlling Pollution and Its Relation with The Sustainability Concept and Sound Environmental Policy

The concept of public disclosure focuses on the use of environmental information in implementing environmental policy. Furthermore, such information is released in order to encourage environmental performance through utilizing public and market pressure. In this context, transparency in environmental management becomes the basic framework of the concept. Moreover, stakeholders involved determining the success of its implementation. The instrument is a means for stakeholders to involve and participate in controlling pollution. The result of such

instruments is expected influencing behaviour of business activities in environmental management.

Public disclosure is an important instrument in complementing the conventional approach of command-and-control and market-based incentive. It has some strengths in promoting democratization in pollution control and offering efficiency.

The Public disclosure promotes the developing sound environmental policy. In this context, it represents the application of five key elements in developing environmental policy, including: (1) information intensity; (2) Orchestration, not dictation; (3) Community control; (4) Structured learning; and, (5) adaptive instrument.

Principally, the adoption of the public disclosure concepts promotes sustainability, since the impact of the result that encourages the urban sustainability through integration between economic, environmental and social elements. The concept maintains that industrial activities support urban economic activities, without decreasing environmental degradation and maintain quality of life. The result promotes cleaner production, encouraging the use of efficient raw material and the use of environmental friendly technologies. Moreover, the concept empower stakeholders as the main elements that make it a success, thus, it becomes stakeholders arenas to participate in pollution control.

Furthermore, sustainable development should be the core of environmental policy's making and implementation. Sound environmental policy should have a capability to response the current issues, as global environmental change, and to implement it through selecting and applying the appropriate instrument. Public disclosure offers as a tool to promote in overcoming environmental problems.

The Public disclosure represents an important tool for environmental policy in responding global environmental changes as environmental problem in sustainability context. Public disclosure is expected to change behaviour of business activities in environmental management. Furthermore, it promotes the abatement of pollution waste and the use of natural resources efficiently. Public disclosure encourages the effort to use friendly environmental technology in order to reduce waste and use resources efficiently, for example, by the use of recycling, reuse and recovery technologies. Such behaviour is in line with the sustainability concepts of fairness and intergenerational. In this context, the present use of environmental and natural resources should consider their availability and quality for future generation. It based on the right of both present and future generations to obtain the equity in natural resources availability and environmental quality.

It can be argued that there is the relation between the concepts of public disclosure with planning, as follows:

- a. The implication of public disclosure on spatial planning is the influencing of the result in measuring 'pollution loads' of a certain area. Such implication determine the environmental condition of a certain area including pollution loads representing carrying capacity of that area. Regarding to this condition, the development of a certain area is in line with the carrying capacity that influence the type and scale of development allowed. For example, in PROPER implementation, the result can be used in determining the pollution loads in river basin area. In this context, such pollution loads influences the planning in surrounding area of such river in line with the existing pollution loads. The new industrial development in such area should consider its polluting waste production regarding pollution loads in that area. Indeed, pollution loads is useful to determine water waste discharge allowed in the development permit and water waste permit.

- b. The principle of Public disclosure is to determine environmental risk in a certain areas. Such environmental risk principally becomes the indicator for the condition of ground layer in Environmental Layer Concept. The ground layer concept affects the resources used by human ecosystem. The environmental risk assess the natural condition of ground layer, used as main consideration that is useful in the beginning of a certain project.
- c. The result of public disclosure can be a reasonable consideration for government to determine the environmental policy making. For example, the application of the concept of “environmental zoning” in urban spatial planning strategies, that has principle to separate environmentally intrusive activities such as industry and traffic from sensitive activities such as housing (Gert de Roo, 2004). The results of public disclosure especially in TRI, detailly presenting the level of environmental risk in a certain area, can be argued as a reasonable consideration to determine the level of environmental risk in environmentally intrusive activities areas. Hence, it can be argued that the result can be used to evaluate urban planning that is used the concept of “environmental zoning” since the result represent the measuring of environmental risk annually.

b. The Implementation of The Public Disclosure Concept on PROPER and TRI

The adoption of the concept of public disclosure initiative in Indonesia and the United States is based on different objectives and different contexts. Environmental issues in Indonesia is influenced by internal environmental problems, while the United States is influenced by external environmental problems and the need for community-right-to know. The role of stakeholder involvement in PROPER lies on the stakeholder participation in determining the result and responding the result. However, in the determining the result only

involve limited stakeholders that is not become the stakeholder representative in a whole. Meanwhile, the result in TRI fully delegate stakeholders to response the result. The implementation of public disclosure in both two countries can be illustrated in two general principles in each country by following descriptions. The general principle of the implementation of PROPER, as follows:

- *Encouraging industrial compliance* through providing reputational incentive and disincentive of firm's activities by determining environmental performance, that is categorized into three level: compliance; non compliance; and over compliance.
- *Using five colors rating for the result, hence, easy to understand and reaching fairness for firms.* The five colours rating: blue for compliance; red and black for non compliance; and gold and green for over compliance. PROPER also adopts Good Governance Concept of transparency, fairness, accountability and stakeholder involvement.
- *Focusing on the interaction multi stakeholders* (community, NGOs, media, local government, community organization) rather than between regulators and polluters.
- *Relying on community and market pressure* to empower PROPER's success.
- *Applicating the PROPER's process methods:* gathering and verification environmental data, data analysis and determination of rating color. It's formulated in some steps in PROPER proces, in which data collected based on self-reported and monitored data by regulators.
- *Selecting participating firms* mainly for firms that care about their reputation. For example, Foreign investment firms is accentuated rather than domestic investment firms.

The general principle of TRI:

- The main principle of TRI is Reducing Environmental Risk in order to avoiding environmental hazard through determining environmental risk by industrial activities and disclosing to public
- The use of score card presenting toxic chemicals released in disclosure the result.
- The main procedure in TRI: gathered and disseminated information on toxic emissions from the industry especially in the form national database that may be necessary to be accessible to the public
- The collecting data process based on self reported by firms about the quantity of the release and other waste management of listed chemical, in which the report form is provided by EPCRA section 313 (Form R) that is classified by Standard Industrial Classification (SIC) codes to classify economic activity by industry. Afterward, the report should submit to the US EPA, state and local governments. The form is evolved, for example, there is additional data in form PBT etc in the fellow years.

EPA has a mandate to include additional information on toxic chemicals in waste and on source reduction methods, before it disclosed.

Government responses the result through both direct and indirect action, explained as follows:

1. Enforce non-compliance firms by the existing regulation in PROPER implementation;
2. Enforce violation in information provision by carrying out penalties through performing fine up to \$ 27.500 in TRI;
3. Evaluation of the implementation of TRI every year in order to improve the result implication on environmental quality.

In my point of view, the commitment of government is important especially in Indonesia as a developing country, that is has a weak institution, in responding the result.

c. The Adoption of the Public Disclosure Concept on the PROPER and TRI

The Adoption of public disclosure concept on PROPER in Indonesia and TRI in the United States have similarities and differences, in which some finding can be concluded as follows:

- Both two countries have partly adopted the concept of public disclosure presented by T. Tietenberg (1998) in their public disclosure initiative. It can be argued that they are not fully adoption because they pay attention mostly on the aspects of acting of information and the role of stakeholders since the aspects is the core in the success of public disclosure implementation. Hence, the government's support much more concern to provide facilities supporting that aspects. However, it can be argued that the other aspects also important in influencing the success and promoting transparency and accountability of public disclosure initiative.
- The implementation of public disclosure in Indonesia will be effective to improve non-compliance behavior toward in-compliance, but it's not effective to reach firm's behavior toward over comply, in which the evidence since the first time program implement, there is no firms that award the highest rating (gold). To encourage motivation for firms, government should provide incentive to firms awarded overcomply performance (gold and green), and give penalties to firms continually obtaining the worst performance.

- Public Disclosure Approach has adopted sustainable development concept. It can be argued that the main concept of public disclosure is emerging new strategy in environmental policy through collaborative among stakeholders involved (regulators, polluters, communities, NGOs, media) with their own incentives. It also utilizes market forces in complying to regulations. Furthermore, the implementation of stakeholders involvement adopt the concept of fairness, transparency and accountability in addition to stakeholders involvement;
- The implementation of PROPER initiative in Indonesia has adopted public disclosure concept partly, because some public disclosure concept haven't implement in the initiative. There are some obstacles faced in the implementation, such as lack of enforcement, community education level, the utilization of the existing and new channels and limited government support in stakeholder involvement;
- The effectiveness of public disclosure significantly appeared when it implemented in developing countries, where regulation enforcement commonly weak, so the instruments effective to bring firms in-compliance with regulators than bring them to court. The effective monitoring through multi stakeholders empowerment promote cost effectiveness in pollution control. It appropriate with the constraint of funding to enforce environmental regulation in developing countries.
- The effective application of public disclosure in developing countries is reached when it applied with regulation-based approach for firms continually awarded bad performance.

The strengths of the PROPER:

- PROPER uses the simple means of five colour-code rating that understandable by stakeholders in any level of knowledge and education.

- PROPER promotes cleaner production technology.
- PROPER is effective in encourage non-compliance firms to improve their environmental performance, when it is combined with regulatory-based approach. The instruments become complementary each other.

The weaknesses of PROPER:

- However, it becomes the weaknesses of PROPER since it less transparency in information provision. The five colour-code rating is less transparency because it only presents the final result of the information gathered. However, public can not perceive the exactly pollution waste discharged. Furthermore, it lack of fairness for firms since the result just focus on five level of environmental performance pointed out by five colour code rating. It is mainly occurred for firms at the frontier point between two colours. The evaluating result is rather subjective depending on the decision of PROPER teams and consideration council. The other stakeholder opinion might be different with the result disclosed.
- Lack of stakeholder participation because of the limited means and the less awareness of public
- It cannot be applied in any scale of firms. The application only effective for the application at large scale firms mainly for firms with foreign investment and export oriented..

The strengths of TRI:

- Focusing on global environmental problems. It is in line with the concept of sustainability that the sound environmental policy in sustainability context has a capability to respond the global environmental changes rather than local environmental changes.
- The implementation of TRI is also based on the need of community-right to know. In this context, The role of stakeholder involvement on public disclosure initiative in the United State much stronger than in Indonesia. The superiority in the United States laid on the community's willingness to

aware in environmental. It trigger by governmental support through providing means, channels, advanced technologies and legal foundation.

- The United State implement transparency more than Indonesia through the broader provision of means to access TRI data including mandate periodic report of firms. Some obstacles faced in Indonesia related with the weaknesses: inadequate data, weak institution, and lack of law enforcement for violation of mandate-periodic report. Furthermore, the high level of transparency can be seen in the result disclosed. TRI disclosed detail information of firms that make the information reliable for public.

The weaknesses of TRI:

- TRI has a weaknesses in understand and utilize information released since the result is provided detail and need adequate knowledge because difficult for communities to determine environmental risks due to TRI information.

The differences of public disclosure implementation is influenced by firm's behavior in developed and developing countries is different.

Lessons Learned

Lessons learned from the comparison of the implementation in two countries can be argued as follows:

- The means of stakeholders to involve in PROPER still inadequate for public to make responses or indirect complaints through cyber technology. The means for participation still limited in which stakeholders involve just in the determining the rating through “the Consideration Council”, but it still not representing the stakeholders perception in a whole since the member is limited

and it's determined by Ministry of Environment. There is an opportunity to adopt the concept "Stakeholders dialogue" in TRI to meet the promoting of democracy in environmental policy implementation. As a result, public have a wider and larger access to participate in that term.

- The lack of transparency implementation of public disclosure leads to the needs for monitoring activity from public. This monitoring activity can be undertaken by the independence institute established by the government. The main task of such institution is to observe accuracy data given by the company and performance determination from PROPER team. This efforts is aimed to achieve data accuracy and to realize accountability environmental agency.
- The transparency offered by TRI in the result disclosed can be adopted to improve the transparency in PROPER implementation. It can be argued that the result should not only disclosed colour-code rating but also the quantity of pollution waste of a certain firm, in order to avoid data manipulation.

5.2 Recommendation

As an effective instrument, the implementation of public disclosure should be encouraged through promoting the role of stakeholders in the program supported by government in providing means and legal foundation to meet the wider chance for maximizing the role of stakeholders participation and empowerment in improving environmental quality.

To improve the implementation public disclosure in Indonesia, it should be done:

- Improve legal foundation both for firms and regulators.

In this context, the improvement of legal foundation for both firms and regulators is needed to encourage the capacity of regulators through provide broader authority in law enforcement for non-compliance firms. For example,

the possibilities to enact penalties, fine and bring to the court for violation and falsifying data.

- Encourage the function of new channels for community in responding the result.

For this purpose, government should establish new channels that can be used by community to respond the result. For example, providing a means and technical guidance for the use of the new channels of regulation No. 23/1997, section 5, concerning community right in environmental management. Through this channel, it is expected can be used for community as legal foundation to pressure non-compliance firms.

- Encourage technical support

It can be achieved through the improvement of methods and procedure in PROPER in order to make it understandable and more transparent.

- Encourage the means for information access.

In this context, government should apply appropriate means to access the result through the maximal use of cyber technologies.

- Encourage socialization to meet increasing of community education

Socialization will encourage community education in understanding the use of such information and responding the result. Furthermore, it encourages community awareness in pollution control participation. For example, it is realized through performing program campaign, brochure, and publication the process of such program in media.

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