Japan's Hunger for Growth:
Environment as Political Symbolism

by

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Abstract

In the afterglow of Japan's dramatic economic growth during the post-war period, the growth mentality is still apparent in contemporary Japan. The powerful business communities that helped the industrialization of the country are still structurally interconnected with the political elites. As a result, the growth interests of the corporations are reflected in industrial and environmental policies. Public opinion is deliberately shaped to allow the growth ideology while the environment is used as a symbol to be protected. This thesis will analyse how public opinion and responses are manipulated so that the growth goals are achieved under the guise of national benefit. This thesis will examine two cases of growth politics: nuclear policy and the Eco Town project in Japan to analyse the influence of the growth mentality and the linkages. The conclusion is that if Japan continues to overreach for economic growth at the cost of the environment and if public scrutiny is kept to a minimum, Japan will fail to secure either economic or environmental sustainability.

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Dedication

I would like to dedicate my thesis to Dr. Yuichi Moritomo who always encouraged me to explore and learn different perspectives in order to know my own perspectives.

Acronyms and Abbreviations

ETP	Eco Town Project
EPDC	Electronic Power Development Co.
GDP	Gross Domestic Product
IAEA	International Atomic Energy Agency
IAI	Independent Administrative Institution
IMF	International Monetary Fund
JFE	JFE Holdings Inc.
Keidanren	Japan Business Association
LDP	Liberal Democratic Party of Japan
LNG	Liquefied Natural Gas
METI/MITI	Ministry of Economy, Trade and Industry (2001-) / Ministry of International Trade and Industry
MOE	Ministry of the Environment
MOFA	Ministry of Foreign Affairs
msv	millisieverts
NPO	Non-Profit Organization
OECD	Organization for Economic Co-operation and Development
SCAP	Supreme Commander of Rationalization Bureau
ZERI	Zero Emissions Research Institute

Chapter 1: Introduction

> The phenomenon of symbolic politics is as old as politics itself, yet in late-modern societies it has gained unprecedented significance, and its quality and function have fundamentally changed. (Blühdorn, 2007, p. 252)

Politics is as complicated as the people who create it. People need structure for their political activities, institutions and forms so that they can learn their significance, gain the support of the general public and create social harmony (Edelman, 1964, p. 3). Thus, the use of symbols can be an effective measure for elites to communicate with the masses in a complex political world. But we should remember that symbols can also be used to direct our attention towards certain matters to "protect sectional interests, gain resources and maintain or restructure institutional patterns of power and deference" (Brown, 1994, p. 863). It appeals to our emotions of fear and hope, to obtain public response (Edelman, 1964, 1971, 2001). In this thesis, I will examine the use of symbols in the most controversial political acts in the late-modern Japanese society.

This type of politics, called "symbolic politics," is often used in the legitimization process of political actions. O'Connor (1973) recognized two functions of a capitalistic state: (a) economic growth through capital accumulation, and (b) legitimization of its political actions. Based on the Marxist notion of social expenditure, he argued that economic growth is always accompanied by social costs and to maintain mass loyalty and legitimacy, the state must meet the various demands of those who suffer from the costs of economic growth (p. 25). Thus, legitimization is an important function of a state in creating social harmony to achieve economic growth for the society as a whole.

Similar functions can be seen in the policy literature for business decision-making. As the demands for environmental standards increase in developed democratic states, it has become essential to incorporate citizens' voice in business decision-making (Gunningham, Kagan, & Thornton, 2004). Citizens' demands and expectations for a business enterprise, as Gunningham et al. wrote, have enforced corporate compliance in environmental protection (p. 308). He called the demands and expectations "social license" and argued that mistreatment of it could seriously harm a corporation's image and affect its sales (p. 309). Thus, to treat social license appropriately and reflect it in the corporate operation is an important legitimization process for business enterprises in order to maintain capital accumulation.

It becomes problematic, however, when the legitimization is merely a symbolic action of the interest group to conceal the fact that their action is for capital accumulation for a certain interest group. Scholars of growth politics such as Swanstrom (1985) and Logan and Molotch (1978) believe that small numbers of elites are able to manipulate the political process for their own benefit, using their social and economic power. Even though the interests of the elites may be contrary to the interests of the majority, the public are sometimes willing to accept their right to rule and obey their laws (Edelman, 2001) because the elite's interests are symbolically presented and described as for the benefit of all through the use of language, images and myths. Besides growth for particular groups, the results include increasing economic inequality among classes, environmental degradation, and related social problems. It is the nature of such politics that the powerless are usually the ones who suffer (Logan & Molotch, 1978; Swanstrom, 1985).

Environmental problems directly affect local growth because they reduce the confidence of investors and especially those whose business is tied to a geographical area

(Gonzalez, 2005). With increasing awareness of environmental issues at the international level, growth politics finds in symbolic politics a way of getting by the checks and balances of the public and environmental groups. Symbolic politics gained importance in the late-modern industrialized societies when more attention was paid to technological development and managerial systems of security, surveillance and control (Blühdorn, 2007). Policies for environmental protection tend to rely on technological innovation and managerial approaches, which are believed to achieve environmental goals without curtailing economic growth (Gonzalez, 2005). In a general critique of technological modernization, these approaches are able to solve only short-term and narrowly defined problems and are not comprehensive ecological alternatives to the existing socio-economic system (Blühdorn, 2007). Thus, rigorously engaging in this kind of environmental conservation is a performance that shows us something has been done and tames our anxiety about environmental problems. As Blühdorn argued, symbolic politics plays an important role in the "performance of seriousness," and it is the very system that has been sustaining what is known to be unsustainable.

The main points of this thesis involve examining why late-modern societies are engaged in the continuation of such an unsustainable system, rather than overcoming it and identifying how they are doing so. Japan is a nation recognized for its technological advancement, background of rapid economic growth, and serious environmental problems. Thus, it is an appropriate case to examine in trying to understand the unsustainable system that has developed under the pressure of economic growth and environmental protection.

To recover from the severe damage of World War II and widespread poverty post-war, promoting economic growth was the nation's first priority. After a long period of

ignoring ecological damage in order to recover prosperity, the early environmental protection measures in the 1960s and 1970s were merely symbolic (Tsuru, 1989). Regulations were made to ease public fear and anger but were rarely enforced. Establishing and implementing effective environmental regulations and policies were difficult because the environmental law was based on the fact that the protection measures should not obstruct the economic growth of the nation. The spirit of "growth first, clean up later" was the basis of any environmental protection mechanism throughout the industrial period (Broadbent, 1989; Tsuru, 1999).

In recent years, however, Japan's global effort to challenge climate change has been recognized by international organizations.[1] According to the review of the Organization of Economic Corporation and Development (OECD), Japan is "a world leader in environment- and climate-related technological innovation and is a pioneer in some new green technologies" (2010, p. 4). The same review states that Japan has not met the goals for the Kyoto Protocol,[2] and Green House Gas (GHG) emissions have increased from the base year 1990 due partially to the increase in the use of fossil fuels. Despite all the technologies with efficient energy use, electricity consumption in the residential and commercial section has grown due to the increased use of electrical appliances. Moreover, the generation of waste from the manufacturing industry has increased, off-setting the effort of recycling and reduction of final disposal.

According to the OECD's (2010) study, Japan's share of global environmental goods and services is the third largest in the world, and employment in environmental-related

[1] OECD Environmental Performance Review of Japan 2010.

[2] The goal was set at 6% reduction in GHG emissions on an average level compared with the level of 1990.

industries has steadily increased.[3] Thus, one could assume that Japan's effort to deal with environmental problems has been to establish markets that generate profit while protecting the environment. Despite this policy, the goal of the Kyoto protocol is not likely to be achieved by the set date. This thesis will ask some fundamental questions:

- Is the concept of "growth first" from the post-war period reflected in the current environmental policies after all the pollution disputes between the state and the affected public?
- What institutional and cultural structures push such policies centred on economic growth in spite of growing environmental awareness at both the national and international levels?
- How does the government pursue its growth goals in balance with environmental sustainability issues?
- Why do people remain silent or support such growth politics while sacrificing good living conditions and environmental amenities?

Based on these questions, my hypotheses are that Japan's environmental policies still reflect the concept of "growth first" from the post-war period, even after the basic environment law was amended in the 1990s because of growing public anxiety about environmental degradation from excessive industrialization. Throughout the 1990s the government has continued to focus on revitalizing the economy after the recession.

The Japanese government manipulates public opinion against their growth goals by engaging in symbolic politics. Thus, the rigorous development of environmental science and technology is a symbolical performance, i.e., the environment is used as a symbol to

[3] http://www.oecd.org/dataoecd/11/10/2090577.pdf

legitimize the government's growth politics. As a result, environmental problems are narrowly defined and environmental goals tend to rely on technological improvement. People have had to forfeit environmental amenities and healthy living, ironically, under the name of "environmental conservation." My research is significant for the future direction of not only environmental policies but also energy and economic policies. I am convinced that as long as Japan continues to focus on growth, it will erode both environmental and economic sustainability in its attempt to create a win-win situation.

I became interested in this topic when a great earthquake struck Japan in 2011. My hometown Fukushima was affected by three catastrophes: earthquake, tsunami and nuclear reactor explosion. The nuclear plant explosion left a vast area uninhabitable, put many people not just in the area, but also worldwide in a risk of invisible radioactive contamination. All the nuclear plants across Japan were shut down right after the accident; however, the government was on the move to reinitiate those reactors within a year. In fact, a couple of prefectures have already agreed to restart them in 2014, and the controversy around restarting nuclear reactors is seemingly dominated by pro-nuclear ideology. This strongly persuaded me to understand why Japan strove to restore the nuclear plants, how it reached such a political decision, and why there has been no significant public resistance. I realized that studying the institutional and cultural political economy that has determined Japan's environmental policies was necessary to understand the internal and external factors that encouraged people to push such decision-making.

As the method of research, I chose a historical institutionalist small-N comparative approach. Diemeier and Krehbiel (2003) defined a political institution as "a set of contextual features in a collective choice setting that defines constraints on, and opportunities for,

individual behaviour in the setting" (p. 125). They believe that the maintenance and/or adaptation of institutions are based on a collective choice process; therefore, studying institutions is crucial to understanding collective actions (p.141). As a methodology, the institution is considered to have features characterising both incentives and constraints on certain behaviour. In contrast, behavioural or rational theorists would claim that individuals are autonomous in their decision-making so institutions do not have a great influence on their behavioural patterns. As in other industrialized countries, however, Japanese industrial and environmental politics is influenced by the interaction between the state, the political parties and the business society. I believe it is crucial, therefore, to show how institutions, both formal and informal, shape the choice-setting environment and influence political decision-making in testing the hypothesis above. By using institutionalism as a methodology, I examine the Japanese government, a popular political party, the business society and the culture. I analyse the actors' behaviour within the institutions. I then characterise the outcome resulting from the behaviour and attempt to generate the implications by comparing two cases of Japanese environmental politics. As Diermeier and Krehbiel argued, institutionalism is suited for comparative studies whether the comparisons are between committees or constitutions (p. 124).

As a comparative method, I chose the small-N comparative approach. Skocpol and Somers (1980) discussed three uses of comparison in *The Use of Comparative History in Macrosocial Inquiry*: (a) generation and testing of hypothesis, (b) parallel demonstration of theory, and (c) contrast of context. To test the hypothesis in the historical context of Japanese industrial and environmental politics, comparing a few cases can be the most useful method.

The small-N comparative study is considered to be useful in defining and understanding the historical concept of a case systematically (Collier, 1991). Collier argued that a qualitative analysis of a few cases is most fruitful. He justified the small-N approach by citing Verba's (1967) work, which uses systematic hypothesis testing and theory building through a few case studies and shows the effectiveness of studying a few cases systematically and qualitatively. Collier concluded that it proved difficult to measure important concepts validly and reliably through an analysis of too many cases. Another problem of using many cases is discussed by Sartori (1984) in his notion of "concept misinformation." Satori argued that a concept can easily be stretched and lose its original context when it is applied to a range of cases. In order to avoid "concept stretching," it is crucial to use few cases.

In an attempt to achieve a systematic and qualitative comparison, I will compare two cases that reflect Japan's environmental-industrial policies and contextualize the research hypothesis. Two major methods in systematic comparative research design are suggested by John Stuart Mills: method of agreement and method of difference. *Method of agreement* is a method in which "instances of the same phenomenon are compared in different circumstances."[4] Variables that the instances have in common may be considered the cause of the phenomenon. *Method of difference*, on the other hand, is "a method of comparing an instance of a phenomenon with an instance in which this phenomenon does not occur, but that has most context variables in common." I chose the method of agreement to find common variables in the structurally different industrial contexts.

[4] Encyclopedia of Case Study Research Online
http://knowledge.sagepub.com.ezproxy.library.uvic.ca/view/casestudy/SAGE.xml

My data collection is based primarily on grey literature, including peer-reviewed articles and journals, secondary scholarly literature and official web sites in an interpretive framework. I did not conduct an official interviews with individuals or do any statistical analysis because my focus was on the larger level and concerned institutional problems, how institutions and their networks shape collective behaviour. Plenty of studies have been done on Japanese institutional structures necessary for my research method and I am able to access sufficient publications on both cases. I decided to conduct a qualitative research of a few cases for the completion of my graduate studies as a stepping stone to more sophisticated research in the future.

This thesis consists of five chapters. The introductory chapter is followed by three main chapters. In the second chapter, I review the literature on growth politics and examine how it connects to the controversial problems faced by modern industrialized cities. Then I review the symbolic politics theory, which plays an important role in growth politics, and describe some symbolic tools that are used in growth politics to manipulate what people want and expect from the government. I also review the industrialization of Japan and examine the institutional and cultural characteristics of growth politics in Japan.

In the third chapter, I look at nuclear development in Japan as a case study. Japan started nuclear development only shortly after experiencing traumatic devastation from nuclear bombs dropped on Hiroshima and Nagasaki during World War II. Even though the atomic bombs had killed hundreds of thousands of people, Japan still managed to launch the first nuclear plants in 1960. By framing the nuclear development in growth politics theory, I will analyse how the government convinced the public to have as many as 54 nuclear plants across Japan. I examine the interests of major actors, namely, the bureaucrats, the businesses

and the local governments. The two major reasons for promoting nuclear power were (a) to be independent of oil rich countries for energy resources, and more recently, (b) to be environmentally sustainable by reducing CO_2 emissions. Here, the most timely social ideologies were used as symbols to promote nuclear power as an answer for those social problems.

In the fourth chapter, I examine another case study: the Eco Town project launched in 2001 as a new national environmental strategy to create a more environmentally sustainable society. Twenty-six Eco Towns were created in the 10-year project; I examine an Eco Town in Kawasaki, Kanagawa prefecture. Kawasaki industrial area was developed as the second largest industrial region in Japan. However, it has been struggling to revitalize its industry after an industrial structural change in the 1980s. I explore the interests of the state, the local government and businesses and how they achieved further industrialization in the area with historical pollution problems. The global environmental protection is a growing concern of the public and the government successfully used it in their growth ideology.

The nature of the two industries is different. The location is a critical factor when viewing the different political approaches to geographically different economic and environmental demands of the public. In the nuclear case, locations are usually rural and the economy is dependent on the industry. The Eco Towns, on the other hand, are located in industrial cities where public awareness of industrial pollution is high. The time when the project is carried out is also crucial in examining how the process of legitimization differs when the public priority changes because society changes. Lastly, the industrial character (energy and manufacturing) is an important factor in analysing how the Japanese state and

businesses have incorporated the environment into their growth strategy to achieve capital accumulation in accordance with the public expectations for each industry.

The fifth chapter concludes that Japan's growth-driven politics have created only half-hearted, symbolic environmental measures. Politics might have achieved the interests of the elite, but the powerless still suffer from both economic and environmental problems due to such politics.

Chapter 2: Crisis of Growth Politics

Economic growth contributed to the way of life that we conceive as convenient or luxurious such as rapid transportation, fast communication, and a variety of social services available to the majority of people. Growth is something that we desire and use to maintain or upgrade our current way of life. Scholars critical of growth politics believe that it inevitably creates side-effects resulting in an increasing number of problems such as environmental degradation and inequality. These problems and their knock-on effects are inevitable in both urban and rural municipalities in modern industrialised societies (Logan & Molotch, 1987; Swanstrom, 1985).

In his thorough study of Japanese environmental politics and power relations in the political network, Broadbent (1998) pointed out this dilemma between growth and environmental quality, and called it the Growth Environmental (GE) dilemma. In his book *Environmental Politics in Japan,* in order to understand the politics of solving the GE dilemma, he uses three theoretical models: political-economic, institutional, and cultural. Although it does not mean Japan's environmental politics can be reduced to one of these theories, his approach allows a comprehensive perspective on Japan's responses to the GE dilemma by looking at the interaction between politics, the economy, the institutions and culture. Based on the three models defined by Broadbent, I will lay out the ideas of other theorists to understand Japan's response to the cases chosen for my thesis (the "why").

In each model, in order to analyse the "how" of its response, I will discuss how legitimacy is sought. To respond to the dilemma caused by growth politics, Japan's environmental politics often use the power of symbols. Broadbent (1998) found the use of symbolic politics underlay Japan's political history and public susceptibility to such politics,

compared to the U.S. Symbolic politics has been used as an important strategy of the growth politics that help to shape the nation's growth ideology while manipulating public opinion and concealing the negative aspects of growth. Edelman, who was cited by many scholars (Blühdorn, 2007; Broadbent, 1998; Matten, 2003; Molotch, 1978), brought major insights to my study of Japanese environmental politics. Before examining Edelman, however, I will analyse Broadbent's three theoretical camps and the ideas of other Western thinkers and will interpret them in relation to Japanese environmental politics.

2.1. Three Theoretical Camps

2.1.1 Political-Economy Model

Broadbent (1989) argued that this model tends to see political and social movements as actions of various groups to achieve their material interests. The state and business sector act rationally under certain growth ideologies to move toward economic growth. In this respect, O'Connor (1973) explained the reciprocal relationship between the state and business sector in his book, *The Fiscal Crisis of the State*. He argued that the growth of a monopoly sector and the growth of the state is a single process. In his view, the monopoly sector is the engine of capital accumulation and economic growth. With the technological and scientific development of the monopoly sector, its market expands with increased productivity, which leads to the surplus capacity of production and surplus population. The advancement of technology and science is forced by the growth of social capital and of the state industry. The surplus population is accommodated by the expansion of state expenditure, such as welfare and warfare expenses; therefore, the growth of state industry cannot be achieved without the monopoly sector. In another words, the capital accumulation in the monopoly sector cannot be achieved without the expansion of state industry. While

O'Connor's argument is applied to capitalism in general, in the Global North at the time of his work, his attention to the monopoly sector of the economy and the state was, and still is, particularly salient to the study of contemporary Japan, including the place of environmental policy in industrial expansion.

Logan and Molotch (1987) explained the reciprocal relationship between state and industry in Molotch's famous notion of the *growth machine*. Here the emphasis is on state policy at the local and municipal level. This level of policy-making will be crucial in studying the two industrial case studies I have chosen. It explains that a city with a pro-growth government and its business associates can increase the value of the land in the shape of aggregate rents through collective actions. In U.S. urban development, the continuous effort by actors of the growth machine has been achieved through competition among communities to attract federal government subsidies and business investment.

In this political-economy model, the influence of the business sector on policy-making is vital. Elite theory explores the involvement of the business elite in the political environment. Scholars of this theory argue that local growth is usually promoted by local heroes whose well-being is tied to specific lands (Logan & Molotch, 1987; Swanstrom, 1985). These alliances of heroes and local government, called "growth coalitions" by Molotch, work together to implement a growth strategy for their different interests (Logan & Molotch, 1987, p. 62). The growth coalition includes local businesses such as banks, real estate, utilities and newspapers. These businesses are usually the key operators of the growth machine because local growth indirectly contributes to their economic interest (Swanstrom, 1987).

The economic elite theory has been used by many scholars to describe business political behaviour (Domhoff, 2002; Gonzalez, 2005). The theory characterizes the leaders and owners of the business community as comprising a coherent social and political unit or class (Domhoff, 2002). Their wealth allows economic elites to "possess and exercise a high level of influence over government institutions" (Gonzalez, 2005, p. 3). The wealth allows them to accumulate other valuable resources too, such as "social status, prestige, campaign finance, political access and legal and scientific expertise" (p. 27).

Friedland (1982), a sociologist, argued that large industrial units are dominant, not because of their ability to make political demands, but because of their control over the generation of income and employment in the local community and over the flow of resources. These economic elites usually participate in policy-making as a part of a "policy-planning network" (Domhoff, 2002). The budget of the network, in large part, is drawn from these corporate communities. In turn, the directors and trustees of the network are chosen from these upper class business communities. They help set the general direction of policy planning organizations (Gonzalez, 2005).

The political participation of these businesses is encouraged by public entities, again to encourage economic growth. Friedland (1982) stated that because fiscal capacity and public spending depend on corporate growth, cities often encourage business political participation to ensure policies that will promote profitable investment. Lyon, Felice, Perryman, and Parker (1981) noted that cities with more powerful elites tend to have stronger growth rates. Therefore, participation in policy-making networks by these economic entrepreneurs is a critical force in stimulating the local economy and shaping the urban political system.

Local environmental degradation might be an economic negative for those who invest in the area. Investors heavily committed to long-term production and exchange in a given locale are particularly reliant on local economic growth for their own economic well-being (Gonzalez, 2005). Thus, in the environmental domain, key elements of the business sector play a major role in combating the problems. Environmental destruction such as air and water pollution tends to be attributed to business activities. The solution to this problem is usually sought through the market mechanism and technological and scientific development (Broadbent, 1989). The reason is because technological development does not restrict the nature of capitalism: accumulation. In the most advanced capitalist society, the state and industry have often been able to develop technology that is relatively benign to the environment and more energy efficient (Foster, 2002). Addressing environmental problems by developing such technology pleases environmental groups and environmentally minded people, while the process of capital accumulation and the firm's control over production remain unaffected (Gonzalez, 2005). Therefore, technology is a legitimate solution to environmental problems in a political-economy model from the point of view of business.

Legitimacy in this model tends to be maintained by creating a form of technological change that secures reproduction of the conditions for capital accumulation (Martin, 1997). O'Connor (1973) stated that accumulation and legitimation are two fundamental functions of the capitalistic state. At the expense of the interests of other classes, the state can assist capital accumulation for a certain group of capitalists to increase the economic power for itself. In the process, however, it can lose the support and loyalty of other groups that have to suffer from the externality of capital accumulation, which may lead to larger political antagonism. O'Connor argued that, on one hand, the state has to try to create the system and

conditions so that continuous capital accumulation is possible. On the other hand, it also needs to ensure the conditions in which social harmony is maintained.

Thus, while this can often be in tension with the accumulation process, ultimately, they are two aspects of the same governing process. O'Connor (1973) introduced some of the state roles in legitimizing capital accumulation. First, the state encourages the monopoly sector not to pursue their interest over the interests of small business and the competitive business sector. A class-conscious political directorate is necessary to create the conditions in which no one capitalist group can prevail entirely in policy debates. Second, the state tries to maintain and increase the reproductive capacity of the monopoly sector, and keep sound inter-class social relations within the sector. To insure mass social harmony, the state also creates agencies and programs to control surplus population generated due to the advancement of production technology. It would require cooperation between the leaders of organized labour, corporations and the state to maintain high employment and wages, to keep the reproductive power of workers by providing social benefits, and to control the mass social movement. Lastly, the state regulates the relationship between big- and small-scale capital by supporting small-scale capital in local and regional areas. Their loyalty and support are important to the monopoly sector for the success of its national and international programs. Hence, the capitalist class is involved in the legitimation function of the state. It tries to offset any protests and antagonism that might prevent the regular circulation of capital and capital accumulation for themselves. As Martin (1997) noted:

> Legitimation . . . is achieved by political agents—representing classes—who occupy positions of influence throughout state and society, thereby controlling the range and extent of protest against capitalist relations of production. (p. 38)

In terms of the capitalist mode of legitimation, Peterson (2010) stated that capitalism attempts to overcome the tension of capital accumulation by claiming that it guarantees universal benefits, basic rights, and utilities, but they are actually distributed unevenly in a capitalist society (Peterson, 2010). In his view, capitalism tries to pursue legitimacy through other forms of accumulation which are regarded as "more legitimate" (p. 349). Involvement in technological and scientific development, in this respect, is more legitimate because it improves the efficiency of production and often replaces harmful resources with cleaner ones, thus promoting sustainability. Capitalist actors use this ideological image of universal benefits in pursuit of legitimization. Peterson noted that the legitimization process of capitalism is another opportunity for profitable investment and capital accumulation. Thus, in a political-economy model, the legitimation process is regarded as echoing the material interests of the business sector and state.

2.1.2 Institutionalism

Broadbent (1989) recognized many variations in institutionalism—old and new, formal and informal, normative and historical—and focused on the political party (LDP), the rules distributed by them, and on more informal norms historically embedded.

Peters (2012) pointed out some of the most important elements of institutions in his book, *Institutional Theory in Political Science*. First, it examines the study of structure, whether it is formal (a legislature, a legal framework, state, etc.) or informal (a network of interacting organization, a set of shared norms, etc.), which requires some sort of regulation of individuals' behaviour. Some scholars argue the state is the institution that has the most power in society. Max Weber stated:

> [The] state has combined the material means of organization in the hands of its leaders, and it has expropriated all autonomous functionaries of estates who formerly controlled these means in their own right. (Weber in *Legitimacy and the State* by Connolly, 1984, p. 37)

Thus, the state can set the rules and enforce them, sometimes by exercising force to regulate individual behaviour. Law is considered to be another of the formal institutions. Peters (2012) stated that traditional institutionalism considers law an important element of governance for the public sector in most developed countries; it influences the patterns of behaviour of its citizens. Some institutionalists argue that political outcomes are largely determined by these formal or informal patterns of rules and roles set by these institutions.

Second, history is considered an important element in the distribution of power. Political institutions are historically constituted and embody and reproduce these formal and informal rules and roles over time (Broadbent, 1989). The notion of "path dependency" represents this type of institution in which, once political rules are set, the pattern usually follows the same course unless significant inertia or problems occur in the system (Peters, 2012, p. 72). Thus, new ideas are embraced, but only within the existing institutional norms. In this respect, strong relationships between business and the state can be considered a historically developed class-based institution. What they have achieved historically affects the rules and roles of the actors. In the political-economy model, the business-state relationship involves the material interests of each group, and the rules are sometimes manipulated by powerful elites. The institutional theory, on the other hand, sees the relationship as an institutional structure in which actors routinely and ritualistically follow the rules that are accepted by those involved (Broadbent, 1989).

Some institutionalists (normative institutionalists) argue that the institution determines the behaviour appropriate for an individual as a member of the institution. Other institutionalists (rational institutionalists) see individuals as autonomous—free agents that may make rational choices to maximize their personal benefit but only within the institutional rules (Peters, 2012). In either case, institution affects individual behaviour.

Legitimacy in institutionalism seems to be defined differently according to the type of institutionalism. Weber declared that the state is the only institution that can claim the legitimate use of physical force within its territory and can give other institutions permission to use the force (Connolly, 1984). Politics, for Weber, is a means to strive to share or influence the distribution the power among states or among groups within the state. In this respect, bureaucracy is always powerful in the modern state for its knowledge and intentions that members of the bureaucracy keep secret in order to maintain and increase its superiority.

Rational institutionalism is similar to the political-economy model in its preoccupation with interests in the understanding of politics. Yet the concept of legitimacy is based on a different ideological foundation. The political economy model explains legitimacy as a capacity to maintain the system that manages continuous accumulation of capital by constraining the excesses of unregulated accumulation. In contrast, the legitimacy in rational institutional theory is based on set rules that constrain individual profit maximization when it threatens benefits for the whole (Peters, 2012). Thus, institutional changes will occur when existing institutions fail to set and enforce the rules that efficiently maximize collective benefit.

For normative institutionalists, the aspect based on the concept of legitimacy in institutions is the logic of appropriateness. That is, a legitimate behaviour is considered to

conform to the norms of an organization (Peters, 2012). If an individual's action is considered appropriate, it conforms to the values of the institution to which he or she belongs. This is opposed to the idea of the political-economy model in which the actions are motivated by material interest. Thus, institutional changes occur when actors see and adapt to the changing circumstances or social preferences that would threaten the existing patterns of behaviour, not when the actors see an opportunity to accumulate capital. In the environmental domain, political actors recognize the problems and try to find a response that would conform to the existing institutional values. However, that response might not be close to the political actions that are actually needed.

In the types of institutionalism discussed above, legitimacy is the ability of the system to maintain belief that existing institutions are the most appropriate in the society and that what they decide and do is morally proper and right (Schaar in Connolly, 1984). Old institutionalism defines legitimacy as a formal structure, such as law and legal forms; new institutionalism is based on belief and the opinion of the society. Schaar (1984) stated that proponents of the new institutionalism tend to see legitimacy as a system's ability to persuade members of its own appropriateness.

2.1.3 Cultural Camp

The third theoretical model Broadbent (1989) suggested for the ontology of Japanese environmental politics is "the cultural camp" (p. 26). By "cultural" he meant the values and beliefs that are dominant in a particular culture and society. This camp claims that these values and beliefs influence perception, motives and people's choices. The pattern of individual behaviours, therefore, is not directed solely toward their material interests as the political-economy camp claims. Neither is it constrained by the institutional rules and powers

in which institutionalists believe. In the institutional model, actors might challenge the existing norms and rules but, as noted earlier, they do so only within sets of roles and norms historically developed and considered to be appropriate (Peters, 2012). The cultural camp believes that political institutions are infused with cultural ideology and that these values and beliefs could affect or change institutional decisions and the political environment.

For the cultural school, environmental destruction results from the culturally popular ideology of the time such as economic growth or recovery from natural disasters, etc. (Broadbent, 1989). Broadbent noted that the adoption of popular values could justify the exploitation of nature. For destructive practices and policies to change, the ideas, values, and interpretations of the society have to change.

Gramsci built a cultural theory of this kind on the foundation of a political-economy theory of material interest. Femia (1981) explained that there are two ways in which the supremacy of a social class can be defined: domination, and intellectual and moral leadership. Hegemony is based on the latter component of social-class supremacy. Behaviours are influenced not only externally by force, but also internally (Femia, 1981) through the morality and ideology that pervades the society. For Gramsci, it is this culture, ideology and morals that shape the reality and knowledge the society acquires, and that internally control the beliefs and choice of behaviour (Fontana 1993). Thus, Femia stated, “Hegemony is the predominance obtained by consent rather than force alone of one class or group over other classes” (p. 24).

Gramsci characterised social structure by the use of force as the political society, and the other structure through which hegemony is exercised as civil society. Intellectuals, a social group, who can create their own knowledge and value systems, educate and organize

society (Fontana, 1993). To Gramsci, intellectuals are not only thinkers such as scholars and artists, but also political leaders, civil servants, managers and technocrats (Femia, 1981) and they are responsible for social change and stability. Fontana described their functions as "not only creating a particular way of life and particular way of framing the world, but also translating the particular interests of a certain group into general and universal values and interests" (Fontana, 1993, p. 141).

As mentioned earlier, the economic-elite theory argues that particular social groups with wealth can economically and politically influence society. Under the influence of Marxist theory, Gramsci saw the economic relations of production as the foundation for human association and behaviour (Martin, 1997). Gramsci saw the economic relation as "the rational basis of class collective action" (p. 52), unlike the elite theory claiming it as the elite's rational action for their self-interest. In bourgeois society, a social group can automatically but consciously learn the historical and dialectical conception of the world by work (Hobsbawn, 2011) and form their hegemonic role, values and ideology in the society. Hobsbawn argued that Gramsci saw the place of production as central to a person's consciousness under capitalism. In capitalist civil society, intellectuals are capable of articulating these economic relations as models of citizenship for society as a whole (Martin, 1997).

Among the categories of intellectuals defined by Gramsci, the political party is an important medium of the masses to transcend their social condition to a superior one (Femia, 1981; Fontana, 1993). Gramsci believed that without the intellectuals' coherent, systematic, precise and decisive will, the mass cannot achieve innovation through articulating and disseminating a new form of knowledge and new morality (Fontana, 1993). With its

intellectual and moral leadership, the party teaches political knowledge to people who are unaware and establishes legitimate hegemony over the existing world order. The new political knowledge connects intellectuals and people in civil society through political parties (triadic interaction) and initiates radical revolutionary transformation (Fontana, 1993).

To understand the process of legitimation in the cultural camp, it is essential to acknowledge Gramsci's concept of state. As Fontana (1993) argued, the state is characterized both as force and consent, dictatorship and hegemony, and as political society and civil society. The dual nature of the state is based on Machiavelli's image of power as half-man and half-beast (Cox, 1983). It implies that the state is more than domination and coercion, and that force and violence are not sufficient to attain legitimacy and maintain rule. Thus, a social group can be assumed to be a legitimate hegemony in society when it is capable of articulating the cultural and moral beliefs in the consciousness of the people and making the people conceive of them as a permanent and stable hegemony (Fontana, 1993). In other words, a social group cannot transcend the existing condition to reach a new and superior one when it merely exercises coercive power.

Martin (1997) examined the dual nature of the state and argued that Gramsci's notion of state with two different spheres (political society and civil society) is founded on the capitalist economy in which civil society struggles to express the cultural and moral values, created through material production, as the model of civic association. Martin countered the criticism that hegemony is only a political account of legitimacy. He disagreed with the notion that legitimacy is achieved by politically powerful actors who try to control protests and antagonism that could disrupt the sound circuit of capital (p. 38). In this sense, state power is assumed to be established and the political institutions are legitimized by consent.

However, Martin noted that Gramsci rather perceives the state as an "emergent property" that gains the recognition of authority realizing and articulating the consent of the governed (p. 52). Consent is thus defined by Femia (1984) as "the continuing process by which governments are made responsive to the demand of the governed" (p. 36). Martin (2012) argued, "Consequently, political society [the state as an institution with coercive powers] still required a civil society to affirm its legitimacy" (p. 52). Gramsci referred to this kind of environment as an "integral state" (Fontana, 1993, p. 141) or "integral hegemony" (Femia, 1981, p. 46), where force and consent are well balanced. In such a society, the rulers and the ruled are united organically by the moral and intellectual leadership without "contradictions and antagonism" (p. 46).

Gramsci recognized that this kind of social condition is rare in a modern capitalist society where the ruling class is not capable of representing everyone's interests (Martin, 1997, p. 47). He noticed increasing intervention of state and economy on civil society, even though hegemony is conceived as being practised through cultural and ideological spheres of civil society (Martin, 1997). Femia (1981) explained that Gramsci realized the interpenetration between civil society and political society. Political society can sometimes "organize and centralize elements of civil society" when the state wants to direct the public opinion to one suitable for their political actions (p. 27). Thus, it can be argued that the hegemony can be manipulated and directed by the ruling class under certain conditions.

In each theoretical camp, political-economy, institutional, and cultural, legitimation can be seen as a realm in which the rulers justify their actions either with their material, institutional or ideological power. Whatever the ontological background, the rulers tend to conceal their intention to achieve their self-interest and try to manipulate public opinion.

Logan and Molotch (1987) noted that in order to thrust the growth consensus on different local entities and the public, which has different interests that might conflict with the mainstream consensus, the growth politics strategically use "symbolic policy" (p. 63). This is, I argue, the very essence of growth politics, and it attributes to the undemocratic nature of the contemporary policy-making process.

2.2 Symbolic Politics

If the rulers are to manipulate public opinion toward growth politics, skills are necessary to shape how people interpret political actions, circumstances and ideas. Scholars (Molotch, Broadbent, Matten, Blühdorn) called this kind of politics "symbolic politics" and cited Edelman's work. Edelman (1919-2001) was a political scientist who specialized in symbolic politics and political psychology.

Edelman studied American politics but his ideas can be useful for Japanese cases because it can be argued that some political actions and ideas have been exaggerated to have larger (symbolical) meanings and a larger political significance in Japanese political history. For example, Tiberghien and Schreurs (2010) stated that the ratification of the Kyoto Protocol is "a symbol of Japanese leadership in tackling a major global problem as opposed to a symbol of costly economic cutbacks"[5] (p. 150). Despite the fear of industry that the ratification of the Kyoto Protocol would put a greater financial burden on their shoulders, LDP (the majority party at the time of pre-ratification) promoted the ratification with a strict goal for CO_2 emissions reduction. Tiberghien and Schreurs (2010) declared this action was taken because ratifying it would improve their image as a modern party (given the defeat of

[5] According to Tiberghien and Schreurs, Japanese industry was expressing major concerns about the cost and fairness of the Kyoto Protocol especially after the US withdrawal from the ratification. They argue that the withdrawal put competitive pressure on Japanese industries in the global market (p. 144).

the LDP in 1993 as a long-term majority government and the electoral reform in 1994) becoming more issue-based. For MITI and Japanese industry, involvement in global climate-change policies was an important means to improve the image of the industry, which had lacked a reputation for global corporate responsibility. The actual implementation of domestic policies to achieve the Kyoto goals has been voluntary, lacking a strong enforcement mechanism. This kind of politics can be seen as interwoven throughout the modern history of Japan's environmental politics.

2.2.1 Manipulating the Public

Symbolic politics, for Edelman (1964), means efforts of political elites to deceive and control the public by strategically using symbols, myths, and rituals in order to maximize their own interests. Certain goals and measures are announced by the political elites using rhetorical terms and symbols, but targeting only a single effect, often with no connection with reality (Matten, 2003).

Edelman (1988) suggested that people's political opinions are socially constructed. His view can be connected to the institutionalist view that thinks individual behaviour can be affected by the social structure and institutions people belong to. People define their political roles and significance according to their reality (circumstances, constraints, and opportunities), which are constructed through science, art, news reports and other cultural forms. Individuals' opinions change with "transformation in their social situations, with cues about probable future consequences of political actions, with information about the source and authoritative support for policies, and with the groups with whom they identify" (p. 3). Thus, political institutions and acts are part of a large force that "influences what people want, what they fear, what they regard as possible, and even who they are (Edelman, 1964, p. 20).

At the time of publication of *Politics as Symbolic Action,* Edelman (1971) argued that people are socialized from their childhood so they believe in the power of authority without question. This idea may not apply to all contexts in Western countries in recent history but it is still insightful for the Japanese context.

For Edelman (2001), government actions must be accepted and respected as coming from a superior entity whose objective is to achieve the well-being of the wider public. The reasons for particular state actions are phrased in terms of the "national or public interest" or that take into account interests widely held by the larger population (p. 65). Therefore, the government has the role of socializing the public to a point where people can accept and praise conditions and government actions they otherwise perceive as unethical, and to a point where they accept severe sacrifice that they would otherwise reject.

Some scholars and Edelman himself find the use of symbolic politics effective. The use of symbols can be an economical way of communicating with people who have different perspectives and values. In his first book, *Symbolic Use of Politics*, Edelman (1964) called them referential symbols and argued they can be useful because they make it easier for people to understand the situation and manipulate it through those symbols. In his article on symbolic politics in environmental regulation, Matten (2003) noted that there are constructive reasons why governments use symbolic politics. He claims that symbolic elements help people to communicate abstract scientific concepts and help integrate various social, political, and economic groups who might be affected by the implementation of environmental regulation. Therefore, there is an apparent reason why the government uses symbols in day-to-day political communication.

The term "symbolic politics," however, is often used to criticize insufficient policies and those who make them (Blühdorn, 2007). Symbolic politics is often undervalued because it manipulates the public emotion about a situation. Edelman (1964) declared that the use of "condensation symbols" which evoke the emotion associated with ambiguous and anxiety-producing situations can be seen in every political act. They control the public response so that that only a particular group interest can be taken into account. He argued, "Political history is largely an account of mass violence and the expenditure of vast resources to cope with mythical fears and hopes" (Edelman, 1971, p. 1). Groups with a common interest work together to merge diverse perceptions and beliefs into a unified perspective and influence what people want, what they do, and what identity they have for themselves.

2.2.2 Tools for Making Symbols

Language

Edelman (1988) believed, "Language is the key creator of social worlds" (p. 103). It creates reality rather than describes it by using abstract terms to organize meaningful perceptions in a complex world. The "public interest," the "national security" or "national health and safety" are commonly used terms because they can mean different things to different groups, but reassure the public (1964, p. 116).

The majority of people become aware of a political event not by observing the scene, but through articles or TV reports (Edelman, 1964). Most of the public, most of the time, has a view of public affairs that is depicted and interpreted through someone's political perspective expressed in chosen political language. Therefore, Edelman (1988) noted, "It is language about political events, not the events in any other sense, that people experience" (p. 104). Through the experience constructed by language, people are placed under either

constant threat or reassurance and are convinced not only to accept a particular political action, but to accept that it has been adopted for "a good reason." Thus, political language, while playing a role in shaping values, norms and assumptions about the future, often serves to rationalize actions that violate the moral codes of the community and of the actors themselves (Edelman,1988).

Myths

Myth is another tool of symbol-making used in political movements. Because large groups of people believe something in common, they attach particular meaning to events and actions (Edelman, 1971). Edelman stated that myth is a means of succour in the face of severe anxiety. Consequently, the construction of meaning occurs as a myth and, with other symbols, works on people's emotions. The myth attaches to anxiety and it becomes "the mould" of people's perceptions of political developments, establishing a socially supported identity of self and suggesting a collective course of action to allay anxiety. Government constantly shapes and reflects the myth through the substance and the style of its acts to rationalize a political action and legitimize it. Edelman (2001) noted that beliefs which guide political conduct and rhetoric are dominated by myths to a very high degree.

Political Settings

Edelman (1964) considered political settings as meaningful symbolic tactics presented by the modern government to get attention. Political settings are physical and social places in which political acts occur and which give the acts certain meaning. Depending on the setting, a political act can provoke anger, anxiety, assurance and hope in the audience. They are important in such things as impressing a large audience, legitimizing a series of future acts, and establishing or reinforcing a particular self-definition of a public

official. To formulate a law, for example, is an essential role of government. Formulating a law creates a physical, politically relevant setting that makes acts occurring within it look appropriate or inappropriate. The language used in laws and regulations also lends "authoritativeness" to conventional perceptions and value premises and makes it difficult for other entities to bring up other possibilities. The fact of creating a law establishes the fundamental assumptions and limits which influence the quality of political acts.

2.2.3 Creations of Symbols

The tool of symbols, discussed above, constructs a world where the political and economic elites act on behalf of their own interests, rather than in the interest of public well-being. They state, however, that their political actions should strive for this goal. Some of the elements in this world that are symbolically constructed are problems, leaders, ideologies, and public opinions on social change.

Edelman (1988) argued that problems are constructed, rather than being a verifiable entity. Problems are explained so that particular reasons for an action are provided for public acceptance, and so that particular members (leaders) seem to be the problem solvers. For those who recognize the profitable outcome from a course of action to a problem, they discuss it to "arouse, widen and deepen public interest by appealing to ideological or moral concerns" (p. 22). The most common way of solving problems is to enact a law or regulation even if it is evident there is little likelihood of its accomplishing its purpose. In this sense, the audience in such discussions contributes to the creation of problems. Since the majority of them are remote from the place where the problem occurs and where it is solved, they do not demand government action (political quiescence), but rather are content with the action of

law making as something that deals with the issue (Gonzalez, 2005). As a result, problems construct people's ideology about those who are appropriate to solve the problem, those who are dangerous, which action should be encouraged, and which should be criticized (Edelman, 1988).

Public opinion about a social problem is thus "a social construction of governments, of the media and of everyday conversation influenced by government and the media" (Edelman, 2001, p. 53). Media reports are the device through which all the symbols addressed above are filtered and exposed to the larger public. In *Constructing the Political Spectacles*, a book on the use of particular political symbols, Edelman (1988) noted, "It is chiefly news reports that stimulate the construction of political spectacles" (p. 90). Government officials play both actor and audience in the spectacles. As an audience, they interpret the news of public affairs in terms of their social situation or ideology in terms of the well-being of the public. As a player, on the other hand, their involvement in creating news reports provides a strong incentive to rationalize the official decision-making, even if there is clear evidence that its premises are dubious or invalid.

Newspapers, for example, are in the business of making spectacles. As Logan? and Molotch (1982) stated, the publisher's benefit is directly tied to the volume of circulation; the newspaper reports sometimes shape events so as to attract audiences and encourage particular interpretation. As a result, the media reports often overdramatize what they report by appealing to people's state of mind, and most citizens have only a foggy knowledge of public affairs (Logan? & Molotch, 1964).

As already noted, a few groups with the greatest power rationalize their actions and construct the voice of the people. They do so by claiming and believing that the particular

action will generate much wider benefits than other choices, citing its rationality and morality, and promising future benefits for the society as a whole. Edelman (2001) suggested that this way of promoting rationality by the powerful, which focuses on benefits at a much broader level, has been successful because it appeals to a moral code promoting the greater good rather than individual satisfaction.

The public knows the situation and the facts, but only through these symbols. The basic thesis of symbolic politics is, therefore, the public response to these symbols: gestures and speeches dramatically and romantically made up by the actors of symbolic politics (Edelman, 1964).

Edelman's arguments are sometimes criticized as not being suitable in a study of the contemporary political culture of industrialized Western societies. Critics argue that Edelman's arguments are influenced largely by "the post-war theories of mass society" (Fenster, 2005, p. 368) and biased by his Leftist political commitment (DeCanio, 2008). Edelman was educated and started his research in political symbolism in pre-war America. At that time, the idea of the masses was starting to raise concerns that extremism was taking over representative democracy and capitalist society, and powerful elites were emerging to generate a "passive public" (Fenster, 2005, p. 375). The historical background of Edelman's early education helps us to understand his pessimistic view of democracy, beliefs in the elite's ability to manipulate public opinion, and the political indifference of the masses.

Critics argue that with the technological changes in the communication systems in contemporary society, it is not always one elite group that attempts to introduce its ideology to the public through different media sources. The media is entitled to report different

perspectives and draw public attention not only to a leading ideology but also to a non-elite individual's effort to make changes in politics (DeCanio, 2008, p. 344).

Edelman is criticized for his lack of methodology in answering his research questions systematically. He did not believe in the efficacy of opinion surveys or a quantitative approach to interpret the behaviours objectively and find the general cause of an action, because those approaches rely on the researcher's interpretations and assumptions. Fenster (2005) suggested that although Edelman raised these important issues, he did not leave any other methodological suggestions to understand the world of symbolic politics. As a result, his arguments are rooted in his own assumptions.

In order to understand how popular ideology is created, infiltrates society, and affects the public, Fenster (2005) claimed that it is necessary to conduct historical analyses and look closely at the political context. The complex picture that can be seen in this process "provides a significantly more useful and empirically verifiable understanding of the process that Edelman identified but that he failed to consider at a level of detail" (p. 385). Fenster argued that Edelman's study is lacking political, economic, institutional, and cultural analyses of mass communication, which would be helpful in grasping the relationship between symbol makers and believers, the state and citizen, and how they change as new communication technology develops. Based on these methodological claims suggested by the critic, it can be helpful to analyze the Japanese case using Broadbent's (1998) three theoretical camps, political-economic, institutional and cultural, to examine Edelman's arguments.

Broadbent's (1998) three camp analyses, together with the historical analyses of Japanese cases conducted below, still suggest that Edelman's arguments are insightful, despite the criticisms of Edelman's theories of symbolic politics. Broadbent argued that the

growth ideology was and has been created and imposed on society by the ruling triad: the elite group of the state bureaucracy, business society and the popular political party. Although grass-roots social movements have arisen in certain periods of history, they stayed local and did not expand to being a national movement because they were controlled at their infant stage by the local elites. The media is controlled by the state so that certain information would not go public (Au, 2011; Carpenter, 2011). It might be becoming more difficult to control information with the new methods of communication, as the critics argue. Nevertheless, it is believed that mass culture is historically controlled by the state education system, so that the public is socially constructed to believe in national unity. Even in the contemporary education system, the concepts of nationalism, patriotism, and loyalty to the state are still highly valued and promoted through the system. They are even emphasized in times of hardship, such as the recession (Okada, 2002). Although Japan is considered to have a highly developed democratic state, the definition of democracy is not the same as that of Western nations (Yamashita & Williams, 2002), but it might be closer to what Edelman was considering for his analysis of symbolic politics.

In such a state, symbolic politics is a tactic using growth politics to arouse fears and provide reassurance to the public while achieving tangible benefits for a small group of the powerful. As we will see in the next section, the results include increasing inequality between social groups and related social problems: trade-offs from the growth that symbolic politics has tried to achieve.

2.3 Trade-Offs of Growth Politics

Returning to Broadbent's (1998) three theoretical camps, scholars of each camp grapple with a kind of legitimation crisis in modern state governance. In the political-

economic camp, Peterson (2010) noted that there is increasing tension between legitimation and accumulation in capitalist societies. He problematized market-driven climate governance such as emission trading systems (ETS) because investing more in such commodities or markets would only create another cycle of capital accumulation, and divert attention away from the root cause of problems (Peterson, 2010). O'Connor (1973) argued that to keep the cycle of private accumulation healthy, the state has to spend on social costs such as social insurance, to maintain harmony in society that is disrupted by the surplus value and surplus population resulting from increased productivity. Thus, increasing capital accumulation requires an increase in social expense to fulfil the state's legitimization function. The social expense is not directly productive for the state and any expansion might lead to a fiscal crisis.

By revising Marx's notion of the contradiction of capitalism, O'Connor's (1973) theory of the second contradiction of capitalism explains the consequence of capital accumulation. The first contradiction of capitalism is internal to the capitalist system which tends to overproduce and realize a crisis in demand (Spence, 2000). O'Connor stated that the second contradiction is related to Marx's notion of three kinds of production conditions: "the communal general conditions of production," "the labour power of workers" and "external physical conditions of the natural elements" (Spence, 2000, p. 85). O'Connor suggested that the second contradiction occurs because these production conditions are not produced as commodities but are treated as commodities in capitalist society. As a capitalist society develops, resource depletion exploits the environment as commodities; consequently, it results in underproduction and "crisis of liquidity or shortage of capital" (p. 84).

In the institutional camp, Schaar (1984) stated that the new definition of legitimacy is based on the belief that existing institutions are "appropriate" or "morally proper" as opposed

to the old definition based on law or right. Consequently, the means of legitimacy can be the building of a system that persuades the public of the appropriateness of the institutions (Lipset, 1984). The leaders and rulers start using symbols to control what people should think and feel; therefore, legitimacy depends on the skills of the rulers to manipulate the symbols that conceal the real meaning of policies and practices.

Lastly, the cultural camp realised the manipulative nature of public opinion. Civil society, where, in Gramsci's term, intellectual and moral leadership are exercised, has been a sphere in which governments mobilize the mass media and other ideological mediators to create appropriate public opinion (Femia, 1981). There are, of course, small minorities or hard-core revolutionaries who challenge these controlled values and beliefs. In growth politics, however, these people can be part of the tools of symbolic policy, namely, symbolic inclusion to make politics look democratic (Gonzalez, 2005). By incorporating the leaders of these public interest groups, policy makers show that the formulation of policies reflects various perspectives, not just one as believed by the majority.

Although growth politics characterized as symbolic has certainly promoted growth, there were necessary trade-offs (Logan & Molotch, 1987). The growth machines' motivations were, as those elites publicly insist, to distribute their achieved growth to the larger population for their well-being. It was nevertheless, one of the myths they created. Instead, growth politics created a larger population which suffers from the negative growth that forces them to sacrifice their well-being to a small population with power.

Externality is commonly defined as the costs or benefits of an exchange generated by people who did not participate in the exchange. Swanstrom (1985) argued that externality can be manipulated by public and private interests to expand and secure growth potential for

growth coalition. Therefore, this manipulation of costs has been the key role of growth politics. Today, in many places (especially on a large scale and with a fast rate of growth) the unevenly distributed externality has resulted in various social problems, such as economic inequality and environmental degradation (Logan & Molotch, 1987).

Economic Inequality

Swanstrom (1985) stressed that greater inequality is an essential factor in creating more growth in a local area in the process of providing incentives for those who control discretionary wealth. The cost of promoting corporate investment (for instance, by tax abatement) is often greater than the benefit that can eventually be given to the locals of the town.

It is often the case that aggressive economic activities in a town inflate the land price through increased bidding from investors, which results in unevenly distributed rents in the wider region (Logan & Molotch 1987). Land price disparities in a city result in the segregation of rich and poor. The rich are likely to have more access to better social services, the poor on the other hand are forced to endure sub-standard living conditions (p. 96).

Infrastructural development such as railroads, dams, and ports is considered an economic booster for the locality and a source of jobs. However, Logan and Molotch (1985) expressed doubt that these new jobs necessarily change the aggregate rate of unemployment in a given place. Most of the new job placements are usually filled with migrants who have relevant education and skills. Logan and Molotch believed “local growth does not make jobs; it only distributes them” (p. 89). In other words, pro-growth claims that consist of increasing jobs and employment are little more than symbolic politics.

Environmental Degradation

Growth degrades the environmental quality of air, water, and natural amenities. Since it is likely that the poor are forced to live and work in proximity to pollution sources, they are most affected by growth-induced environmental problems. As public awareness of the environmental problem has increased, the efforts to tackle certain pollution sources have also increased on both the national and international level.

In a growth-oriented society, environmental protection tends to rely on technological development, which is also believed to stimulate economic growth (Gonzalez, 2005). This technological dependence, called ecological modernization, is criticized by many scholars (Blühdorn, 2006; Foster, 2002; Gonzalez 2005). As Edelman (2001) recognized in his latest book, *The Politics of Information*, in a growth-centered capitalist society, technology can be considered another symbol that the growth-machine uses to enhance local growth. Investment in developing new environmental technology would please environmental groups and the environmentally conscious public, while the image of cleanliness attracts more investment from local businesses (Gonzalez, 2005).

Ayres, Ayres, and Warr (2004), industrial ecologists, argued that dematerialization (a reduction of materials throughout the economy) and increasing energy efficiency through technological improvement is a misleading and essentially false proposition. In the book, *Economics of Industrial Ecology*, Ayres et al. show historical data of the U.S. industrial activity to prove that there are significant gains in efficiency on the production and processing side. Despite efficiency gains, however, per capita fossil fuel consumption has more than doubled by mass since 1900. Therefore, the economy of the U.S. is not dematerializing at all in terms of mass per capita. This phenomenon is known by many names such as the rebound effect or Jevons Paradox. It explains the ironic situation in which

increased efficiency of production or usage leads to reduced costs and therefore greater demand.

By looking at these problems in economic inequality and the environment, it is clear that the growth-oriented politics has failed to achieve its promised goals. The government has promised national security and public health, but growth politics have succeeded in the real goals to meet the interests of selected groups with economic and political power. Public opinion is sometimes manipulated through the process of legitimizing capital accumulation while issues are re-defined and re-framed to a point where they become influential political symbols. Growth politics is therefore a rich environment for the proliferation of symbolic politics.

The growth trade-offs are severe enough to create a much larger crisis. This crisis has been seen in the recent economic melt-down of several major countries. The situation has led to international economic turmoil and increasing human-made greenhouse gases. These factors, in turn, are blamed for the environmental crisis due to extreme weather such as hurricanes and floods caused by global warming. Japan is not an exception.

Chapter 3: Japan as a Case Study

I will apply the three theoretical camps and symbolic politics theory to two Japanese cases. In order to understand why Japan treated the growth-environment dilemma the way it did, this section will examine the historical events that have shaped Japan's environmental protection measure by using theoretical points of view.

1950-1960: Economic Growth and Land Development

In this period, the Japanese state had already started a nuclear development plan. Nakasone Yasuhiro, a young man in the Diet, was involved in the research and technological development to build the first nuclear plant in Japan. Kawasaki, at the same time, was becoming one of the industrial centres that contributed to the post-war economic growth.

In order to help Japan recover from World War II, economic growth and particularly an increased GDP was the first priority of the Japanese government (Sorensen, 2002).

The government's post-war industrial policies set by the Ministry of International Trade and Industry (MITI) were said to be aimed at the growth of industry, especially the heavy and chemical industries, which were believed to be more profitable than light industry at that time (Minami, 1994). The heavy and chemical industries were supported by MITI both financially and politically. In this respect, Japan's post-war economic growth, known as the "miracle economy" relied mainly on the heavy and chemical industries.

Industrial development was intentionally concentrated in certain geographical areas by the government so as to maximize economic efficiency. The area with centres of industrial developmental was called the Pacific Belt (Figure 1) and included major urban conglomerations such as Tokyo-Yokohama, Nagoya, and Osaka-Kobe (Murata, 1980),

situated along the east coast, which has a relatively mild climate, free of the heavy snows in the north and the typhoons in the southern islands. Besides the weather, the area was advantageous due to the existing infrastructure and industrial foundation. Ports, rail and the agglomeration of firms had been developed pre-war (Sorensen, 2002). For Japan, which depends on importing raw materials for much of its production, such transportation systems were an important factor in locating industries.

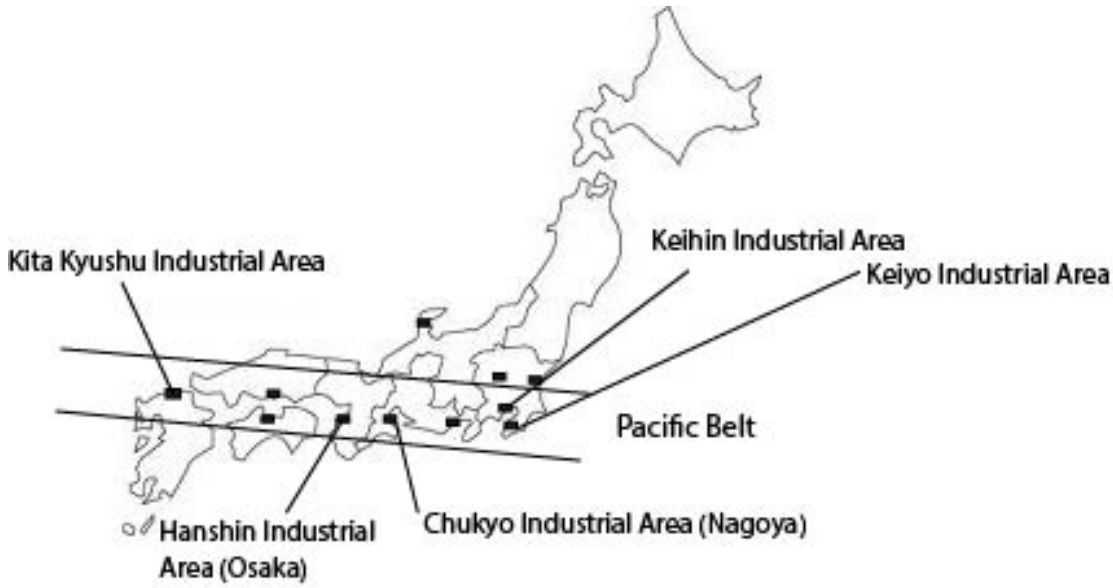

Figure 1 (Pacific Belt)

In this industrial development, the driving force was the so-called iron-triangle (Sorensen, 2002) or ruling triad (Broadbent, 1998) of the state ministry (MITI), big businesses and the ruling party (LDP). Sorensen (2002) noted that MITI played an important role in distributing funds to the corporations that were most able to profit and invested in public works to expand the economy. The connection between the ministry and big corporations was a signficant force in the rapid industrialization. In the pre-war period, *zaibatsu* (financial cliques) together with the bureaucracies were deeply involved in economic planning and they monopolized many industries in Japan (Hein, 1990). It was

believed to be weakening small- and medium-sized companies and fostering militarism (Minami, 1994).

After World War II, the *zaibatsu* were forcibly dissolved and banned by the Supreme Commander of the Allied Powers (SCAP) in 1945. SCAP attempted to decentralize the power of big business in Japan, and promote demilitarization and democratization of the economy (Hein, 1990).The Anti-Monopoly Law was implemented in 1947 and the Fair Trade Commission was established to enforce the law. At the beginning of the Cold War, however, the occupation started to focus on promoting Japan's economic revival rather than reforming (Forsberg, 2000), by somewhat reversing the previous reform policies. As the Soviet Union was perceived to be a threat of communist expansion into East Asia, the US began to build Japan as an anti-Communist ally. Forsberg(2000) believes that to have an economically and politically stable ally was essential for the US to retain its power dynamics in the pacific. The US recognized the efficiency and capability of Zaibatsu at the center of the speedy economic recovery of Japan and thus, relaxed the Anti-Monopoly Law to help them (Carpenter, 2012). Zaibatsu remain the economic and political power now known as *keiretsu* and continue to influence the economic development of Japan (Huber, 1994). In the development of heavy and chemical industries in the post-war period, *zaibatsu*-affiliated banks continued to support companies with their great financial capacity (Minami, 1994).

Another important element of Japanese political structure is its ruling political party, the Liberal Democratic Party (LDP). Since its formation in 1955, the dominant post-war governing party, the LDP, has enjoyed dominance over the political economy of growth. The LDP kept its popularity by establishing the clientelist system. Although the institutional elements such as the electoral system, are considered to be crucial (Curtis 1999), their ability

to create the clientelist network with the society is also an important factor for them to remain as a dominant party for such a long period (p.296). They brought personal patronage such as sake parties and monetary gifts to keep the local voters while strengthening the connection to Tokyo-based construction companies by contracting these rural developments (p.279). The big businesses supported the LDP with their campaign contributions while the LDP supported them in approving the legislation in favour of business interests. Rural communities are more likely to support such clientelistic politics than urban areas because of its reliance on government funding for its economy. Sheiner (2007) states that closer community ties also makes it easier for the LDP politicians to mobilize rural residents (p. 288). The LDP, local communities, and big businesses were therefore connected to the informal network to achieve the interest of each group.

1960-1970: Environmental Crisis and Citizens' Movement

Japan's first nuclear reactor was built in Tokai, Ibaraki prefecture; the building of Fukushima Daiichi nuclear plant started in the same period. The industries in Kawasaki continued to grow and so did other industrial centres across Japan, but the pollution problems were exacerbated along the coastal area due to the increased industrial activity (Mitsuhashi, 2005).

Operating upon the soft and hard industrial foundation built after the war, Japan's growth rate was much higher than other advanced countries in the 1960s[6]. Ikeo (2002) states that its fast post-war economic recovery was largely export-led. With the beginning of the Korean War, Japan's export expanded through the production of munitions to export to the

[6] The average growth rate from 1960 to 1975 was 8.9 per cent, whereas the U.S. had 3.2 per cent and the UK had 2.4 per cent as an average rate for the same period. As Sorensen notes, during the two decades from the 1950s to 1970s, "Japan became a world leader in a wide range of industries including steel production, cars, ships, televisions, and electronic equipment" (Sorensen, 2002, p. 169).

US military. As the US continued to try to promote Japan's economic prosperity from the beginning of the Cold War, the US became Japan's preferred market (Carpenter, 2012). For the Japanese government, Economic growth was also first priority during these decades. National policies, such as the National Income Doubling Plan in 1960 reflected the government's ambition to achieve a higher rate of economic growth to recover from the destruction of the war. The goal was to maintain a rate of economic growth of 7.8 per cent annually in order to double the GNP per capita by 1970 (Murata, 1980).

Government subsidies were poured into the improvement of infrastructure for industries, especially manufacturing, which was expected to contribute to the growth of the national economy most effectively. The subsidies, however, were constantly used to develop the Pacific Belt. Murata (1980) pointed out the government's thinking behind the selection of the Pacific Belt as the major area to allocate financial resources. He argued the government was planning to make the region more attractive for businesses, which would eventually create disparity between the industrial area and undeveloped areas. When this disparity became large enough, it would reduce economic efficiency and the government was hoping that would naturally lead to the dispersal of industries to the peripheral areas. As the government wished, it resulted in excessive concentration of large industrial complexes, as well as urban residency around the major industrial areas. The population of large industrial metropolitan areas, such as Tokyo, Nagoya, and Osaka increased dramatically in the decade.[7] It was not long before serious problems occurred due to the excessive concentration of industry and housing in the Pacific Belt region.

[7] The total population of the three metropolitan areas was 34.96 million, 37 per cent of Japan's total population in 1960. It increased to 50.29 million (45 per cent) by 1975 (Tsuru, 1989).

This concentration of industry and residency led to a serious environmental crisis during the decade. In the large industrial cities, there were hundreds of cases of deaths due to water and air pollution (Sorensen, 2002). Large numbers of people suffered from respiratory diseases from the air pollution and from various other mental and physical diseases due to water and food contamination by industrial acitvity. Weidner described this period of environmental policies of Japanese "Ecological Ignorance [because] it did little to improve environmental conditions, despite proof that industrial emissions of pollutants were damaging health and property" (Weidner in Tsuru, 1989, p. 482).

The citizens' movement towards environmental protection became frequent and influential nationwide in the late 1960s (Sorensen, 2002). Four major pollution cases started mobilizing Japanese citizens to protest throughout the 1960s: Itai Itai disease,[8] Minamata disease,[9] Niigata Minamata,[10] disease and Yokkaichi asthma.[11] These diseases were shown to be caused due to mismanagement of industrial wastes by the factories constituting the big complexes in the major industrial areas. The symptoms of these diseases were severe enough to gather protesters from the families affected, and the movement gained the attention of the media.[12] Weidner believed that the four major pollution trials had a great political impact and

[8] Ouch-Ouch disease: caused by cadmium poisoning from industrial waste in Toyama prefecture (Environmental Information and Communication Network (EIC Net), 2003, September).

http://www.eic.or.jp/ecoterm/?act=view&serial=119

[9] Caused by mercury pollution in the river of Kumamoto prefecture (EIC Net, 2009).
http://www.eic.or.jp/ecoterm/?act=view&serial=2524

[10] Same as Minamata Disease but in Niigata prefecture (EIC Net, 2009).

http://www.eic.or.jp/ecoterm/?act=view&serial=2036

[11] Caused by the sulphurous acid gas from Yokaichi Kombinato in Mie prefecture (EIC Net, 2003).

http://www.eic.or.jp/ecoterm/?act=view&serial=2634

[12] The symptoms included deformity of newborns, weakness of muscles and narrowing vision for Minamata disease and Niigata Minamata disease, with Itai Itai disease causing weak and brittle bones with pain and kidney failure, leading to death.

publicized the pollution, which helped to increase momentum in the environmental movement.

In Broadbent's (1998) analysis, the response of the triad to the protest was merely an attempt to shift public attention and re-frame the problem. MITI attempted to shift the responsibility for pollution from industries to Japan as a whole and argued that the industry should not have to bear all the cost of the clean-up. The LDP tried to frame the problem as something that should be tackled by the nation as a whole. The radicals who blamed industry were thought of as leftists or Communists. Thus, the LDP was the hegemonic party that tried to frame the problem in a different way to achieve consent for their growth ideology. The triad was powerful enough to push away the reform proposals of the Ministry of Health and Welfare (MHW) that insisted human health should be a priority and economic growth should not jeopardise public health. The triad believed economic growth would generate higher living standards and health quality, and advocated that economic growth would continue to be the top priority.

The environmental policies generated by this type of growth ideology of the ruling triad was characterised as "symbolic" if not completely "ignorant" (Weidner in Tsuru, 1989, p. 485). In 1967, the Japanese government passed the Basic Law for Environmental Pollution on which the current environmental policy measurement is based. The Basic Law was ambiguously worded and did not have enforcement mechanisms. Tsuru (1999) noted the policy contained special clauses that made it difficult for the citizens and the activists to protest the industrial activities and development that were undermining the environment. The clauses emphasized that environmental protection should be in harmony with economic growth. Although the physical health of the nation was to be strictly protected from pollution,

the main object of the law, Kurimoto (2005) argued, failed in breaking up the growth-centred political economy that had been developed by big industries, the ruling party, and the bureaucracy. It can be argued that the 1967 Basic Law had given a higher priority to economic growth than to environmental sustainability. Broadbent (1998) noted that the law was an example of symbolic politics because the implementation was merely a symbolic response to an angry public, but it did not solve the real problem. In Edelman's (1964) term, the law was a "condensation symbol" that appealed to people's anger and anxiety about pollution problems and tamed their feelings because something had been done.

The environmental protests in the '60s certainly rattled the political economy that had led the rapid economic growth of the post-war era and questioned the legitimacy of capital accumulation. The protests, however, were not robust enough to change the fundamental philosophy of the ruling triad: more growth. Broadbent (1998) characterised the environmental movement in Japan as Not-In-My-Back-Yard (NIMBY). Consequently, the protests weakened once the local environment was improved. Broadbent found that the protests were controlled by the informal social network of local LDP leaders, local government officers and local business leaders. The local protests remained local while these actors exchanged material (money), institutional (status) and cultural (symbolic legitimacy of authority) rewards and costs. According to Broadbent, these elites sent local bosses to the protestors and persuaded them not to make complaints. The members of the movement and their families were usually supported by the local bosses and disobeying them would be against the loyalty and hierarchy of the social system. Therefore, the LDP's clientelistic relationship with rural communities worked not only to gain electoral support, but also to help demobilize the social movements.

Broadbent (1998) suggested that the culture of Confucianism helped to weaken the protest because it is considered inappropriate to go against the social elite model and disturb social harmony. Thus, cultural aspects helped the ruling triad to keep their position of power.

1970-1980: Economic Crisis and Environmental Protection Measures

In this decade, environmental policy was expanded as environmental movements continued to grow. Although the LDP was still the majority government throughout the decade, they were under increasing electoral threat as they lost their popular vote in the highly urbanized areas where the living quality had been degraded by pollution (Takao, 2012). Despite the growth-oriented political measures that continually degraded environmental conditions in Japan, the rapid economic growth that Japan had enjoyed since the early 1950s ended in the early 1970s following simultaneous international economic shocks. The first event recognized as one of the shocks is the "Nixon Shock" in 1971, when President Nixon announced the initiation of diplomatic relations with China. Sorensen (2002) believed that the event caused panic in Japan since it left Japan with a feeling of isolation in terms of catching up with the changing diplomatic situation. The other shock was the abolition of the fixed exchange rate system between the U.S. dollar and other currencies that had been in place since the end of World War II. The Japanese yen had been fixed at 360 yen to the U.S. dollar to encourage economic recovery. Now the yen was lowered in the new float system (the Smithsonian system) (Minami, 1994). The third shock was the sudden increase in oil prices in 1973, the "oil shock." Japan depends almost entirely on imported oil, so the shock led to panic not only among the resource industries, but also among general consumers. The combination of these shocks led to the end of the rapid growth, which atrophied after it saw the first drop in GDP in 1973 (Sorensen, 2002).

Kawasaki, the industrial area which had been developed by the heavy and chemical industries was affected by the hike in oil prices but managed to survive by shifting the industry to becoming a centre of advanced assembly and processing (Fujita, 1993). Development of nuclear power was accelerated by the oil shock, and six reactors of the Fukushima Daiichi nuclear plant started to operate in this decade.

The policies on environmental preservation shifted from just symbolic to something more genuine or what Weidner calls "technocratic policy," in which the government and the bureaucracy were able to make clear decisions and implement the measures of enforcement (Weidner in Tsuru, 1989). Radical changes were made in Japan's environmental regulations in response to the national uprising which criticized the moral failure of the government and big business (Tsuru, 1999). For example, the problematic harmony clause in the Basic Law for Environmental Pollution (1967) was eliminated. The Environment Agency (the current Ministry of Environment) was established in 1971 in order to monitor and co-ordinate environmental improvement efforts (Sorensen, 2002).

In contrast to Weidner's view, Broadbent (1998) argued that these policy changes were not developed on the basis of formal institutional procedures, but were determined by the "goal of accumulation" generated by the informal relationship between the political party and big business. Takao (2012) suggested that the expansion and changes to the environmental policy in this period were "a direct product of decisions made in the process of electoral politics" (p. 785) .

With the symbolic content and weak pollution prevention measures in the 1967 Basic Law, the environmental movement continued to grow. With the standard living already caught up with the West and affluent household increased, the public focus had shifted from

the intensive economic growth to up-grading their quality of life (Curtis, 1999). The LDP had to change their stance as pro-business when the party lost their share of the popular vote in 1967 after the Basic Law was implemented. According to Broadbent (1998), the LDP secured only 48.8% of the popular vote in 1967 compared with 57.8 % in 1958. Although they did not become a minority party, the LDP felt electoral threat in that they might lose the majority seats in the Diet if they did not respond to the environmental movement. The party passed formal legislation for environmental protection when elections were upcoming in order to gain seats. Flexibly shifting their political goals according to the popular demand is also LDP's essencial political strategy to seek poltical power through elections (Curtis,1999, p.18).

Big business was threatened by the fact that if protest movements became more powerful, productivity would go down and growth would be constrained because businesses would have to go through court cases and pay fines and compensation. Hence, big businesses were somewhat ready to soften their resistance to stricter pollution measures due to their pursuit of material interest. The triad's response to the increasing environmental movement was still mired in the dilemma of environmental concerns and economic growth.

In fact, the industrial planning of this time was going in the opposite direction from protecting the environment. In order to promote a dispersal of industries to all parts of Japan, the New Industrial Cities (NIC) were designated outside the Pacific Belt (Sorensen, 2002). The intention was to limit industrial concentration in the urban areas, and to respond to the rural demand for jobs and regional economic equality (Broadbent, 1998).

Hanayama stated, "Such a policy [establishment of the New Industrial Cities] led only to total disorder" (Hanayama in Tsuru, 1989, p. 432). The government effort to spread

the industrial complexes to regions other than the Pacific Belt involved reclaiming land in coastal areas and destroying forests and agricultural land in order to develop industrial bases. In spite of this effort, the expected industrial transfer did not occur, resulting in unused factory land of 50,000 ha. Moreover, in order to reduce the debt from unpaid public bonds, the local government had to promote "a good business climate" to invite businesses and even "polluters" (p. 432). Such policies exacerbated the existing problem of growth.

The NIC law was one of the typical tools of Japan's symbolic politics, in Edelman's sense of the term. Although MITI's original draft of the NIC law was intended to create one or two new centres of industrialization, the LDP approved the draft with several NICs across the nation in order to secure local voters and businesses for their electoral purposes. By implementing the NIC laws, the LDP tried to settle the increasing complaints from the rural areas about unequal industrial development (Broadbent,1998). As in Peterson's (2010) argument described above, the NIC law intended to solve the dilemma generated by economic growth by achieving more capital accumulation in rural areas while not articulating the real cause of social problems such as ineffective land-use control in urban areas. Without such tactics, Broadbent (1998) argued that the ruling triad would have lost their legitimacy much more quickly and would have faced serious electoral threat.

1980-1990: Bubble Economy and Deregulation

All the reactors at Fukushima Daiichi nuclear plant were commercially operating in this period. The Kawasaki industrial area started to see the hollowing out of businesses due to increasing land prices in the urbanized areas.

The implementation of strict measures for environmental protection did not last very long. As Sorensen (2002) put it, "While the 1970s were characterised by a pattern of

increasing regulation of land development and environmental pollution and rapidly expanding social welfare spending, the 1980s saw attempts to reverse all of these trends" (p. 256). The environmental movement weakened further due to the success of industry in reducing pollution and the effect of economic sluggishness resulting from oil price changes (Broadbent, 1998). The LDP did not have to impose such strict environmental protection measures on big business, and therefore went back to the business-as-usual operation which focused more on their material interests.

The Nakasone LDP government followed the international economic trend of deregulation[13] to stabilize and strengthen the long-suffering Japanese economy after the shocks of the 1970s. Sorensen (2002) suggested the major reasons for the Japanese deregulation trend were economic and political pressure. Deregulation was applied to city planning, when the Ministry of Economy ordered local governments to loosen the regulations on land development in 1983. It was pushed by many political supporters, such as the Real Estates Association,[14] Urban Development Association,[15] and the National Federation of Land and Building Agents,[16] who believed that strict limits on city planning were limiting efficient urban development. At the same time, the Nakasone government started increasing investment in public works. Transportation infrastructure, such as road and rail and large-scale projects such as bridges and tunnels were undertaken in this era, both in urban and rural

[13] Deregulation was an international trend in this period, as British prime minister Margaret Thacher and US president Ronald Regan implemented large-scale deregulation and enjoyed economic growth based on freer markets.

[14] A group association of the largest developers of Japan. It is under the jurisdiction of the Ministry of Land Infrastructure, Transport and Tourism. See home page of Real Estate Companies Association of Japan.

http://www.fdk.or.jp/en/index.html

[15] Association of developers owned by private railway companies (Sorensen, 2002).

[16] Current All Japan Real Estate Association, a group of small and medium sized developers. All Japan Real Estate Association.

http://www.zennichi.or.jp/english/index.html

areas. The increase of spending on public works and extensive deregulation on land development activities attributed to the increase in land values, which led to the bubble economy of the 1980s. The land price in urban areas in the 1980s surged to a point that made it almost impossible for regular office workers to buy a house in cities such as Tokyo and Osaka (Sorensen, 2002).

The bubble economy did not continue long. The end of the bubble economy in 1991 was the beginning of a protracted recession, changing the industrial structure of Japan. Manufacturing factories began outsourcing jobs to China and other countries while focusing on research and technology instead. As a solution to the environmental problems, MITI and the Keidanren (Japanese association of business organizations) invested in technology to improve energy efficiency (Takao, 2012). Takao stated that the 1980s saw increased coalition-building between industries, the government and universities to tackle pollution problems in Japan (p. 777).

1990-2000: Saving the Economy, Saving the Globe?

The 1990s are often called the lost decade in terms of economic growth (Sorensen, 2002). Coming along with the end of the Cold War, the pressure from the US to open the Japanese market to foreign imports had significant impact on the stability of the Japanese economy. Moreover, land prices continued to drop, bankruptcies increased along with unemployment and government debt, due mainly to the continuing investment in public works as a measure of stimulating the sluggish economy. The LDP's dominance had ended in 1993 after nealy four decades. Curtis (1999) assumes LDP's loss of political power is due partially to financial strugles, and to continuous media coverage on its corruption politics which generated the public's distrust against the party (p. 63). The election system was

changed from single non-transferable vote in multi member district to proportional representation with single member constituency. This change is considered to contribute to a significant change in the traditional LDP politics (Sheiner, 2007, p. 294). Sheiner argues that voters have come to choose politicians according to their political platform rather than individual personality since the change, and therefore, it may have reduced the clientelistic relationship between voters and candidates (p.297). However, the non-LDP government did not last long. Despite the increasing antagonism against LDP's corruption politics, public distrust and significant electoral change, after a short while, the LDP won a majority of seats and returned to power. Although Reed concludes that it is due to the opposition parties' inability to coordinate (Reed et al., 2009), it is also because of the political network and clientelistic ties of the LDP deeply rooted in Japan's political economy that does not work with other political parties without such a foundation.

In addition, the 1990s saw a major shift in the industrial structure. Due to the increasing cost of raw materials and energy sources to operate manufacturing plants, firms transferred their major manufacturing plants overseas. Industrial cities that had prospered from the development of heavy and chemical industries over the last three decades started to see plants shut down and move out to places with cheaper rent and labour costs. Japan still suffers the affects of this from the problem of hollowing out industries to this day.

In contrast, environmental awareness was expanding at the international level in the 1990s, both globally and in Japan (Takao, 2012). There was an increase in awareness of global climate change; many multilateral environmental agreements were developed in this period. The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 to assess the impact of climate change. In the summit meeting in Rio de Janeiro in 1992, the

representitives of most of the countries agreed to adopt a framework for international action to reduce overall greenhouse gases in the atmosphere. As a result, the UN Framework Convention on Climate Change (UNFCCC) was developed to provide measures and steps to achieve the goal (Coward, 2005). The Kyoto Protocol set the targets for specific emissions reduction for the participating countries. Thus, the Kyoto Protocol and UNFCCC were recognized as major instruments of international climate change regulation.

Indeed, the 1990s saw a shift in environmental perspectives within Japan. Right after the international conference in Rio de Janeiro, the Basic Environment Law, originally launched in 1967 as the Basic Law for Environmental Pollution Control, was amended in 1993 to adjust for the environmental problems that were becoming more complex and expanding on a global scale. The focus shifted from pollution control to global environmental conservation. The three most important laws passed were the Basic Environmental Plan, Environmental Impact Assessment, and Economic Measures to Prevent Interference with Environmental Conservation. The Basic Environmental Plan is considered to be the most important because its aim is to promote policies for environmental conservation (Tsuru, 1999). The plan was proposed by the prime minister (Morihiro Hosokawa) in 1994 with four keywords for long-term goals: circulation, symbiosis, participation and international involvement, which are the founding concepts of the Eco-Town project.

Takao (2012) explained that Japan was under pressure from the other OECD countries to play a major role in global climate change as one of the economic leaders of the world. Businesses were in fear of material losses from the damage to Japan's reputation by not contributing to the global environmental issue as expected by other nations.

In line with the growing attention paid to sustainable resource use and global environmental conservation, the government set the vision for Japan to restructure as a recycling-oriented society. Tsuru (1999) analysed the Basic Environmental Law of 1993 and argued that its sentences lack grammatical subjects so as to make the responsibility ambiguous. Tsuru added that it emphasizes the participation of manufacuturing industries to improve the techonology of production with less stress on the environment. The participation of the public, always the victims of pollution, is not the centre of debate. Therefore, the newly established environmental law remains symbolic and focuses on the market economy of growth.

Theoretical Synthesis

In his analysis of Japanese environmental politics through the landfill project in Oita prefecture, Broadbent (1989) used the three theoretical frameworks (political-economy, institutional and cultural) to understand why Japan responded as it did to the growth vs. environment dilemma. Although he does not reduce his conclusion to one of the three models in generalizating Japan's case, Broadbent stated that Japan's environmental politics can be characterized as a "communitarian elite corporatist" (CEC) model which indicates that it is "business-dominated, LDP-mediated and partly pluralized, and at the margins, ministerially rationalized and more pluralized within a strong vertical corporatist political system" (p. 348). Broadbent noted that in Japan, as in many other advanced, capitalist, industrial democratic (ACID) societies, big business dominates politics by working directly with the state, placing its company members in the state government or making revenue for the state. However, in Japan, the domination occurs mainly through its influence over the leading political party (LDP) in terms of its electoral and political contributions. The large force that shapes the

political economy of Japan's environmental politics is this ruling triad of which primary principle has been capital accumulation since the post war period.

The logic of political-economic rationality seems to be based on the decision-making of the ruling triad. As the historical analysis shows, the LDP helps large corporations by their electoral contributions; businesses, in turn, help the LDP for material and political support such as "pork-barrelling." MITI helps to build the legal framework to legitimize the political actions of the ruling triad and manages tensions generated by capital accumulation, while maintaining their regime. The ministry engages in O'Connor's (1973) two functions of the state: capital accumulation and legitimation.

In Broadbent's (1998) view, the ministry may have less control than the other two actors of the ruling triad even with their established network and resources. In contrast to this view, Huber (1994) noted that MITI "is possibly the most powerful institution politically, economically, and socially in Japanese society" (p. 5). Broadbent himself stated that the power relations within the ruling triad are not fixed and they are clustered together as a single interest group under a similar ideology rather than three different interest groups competing against each other.

The political-eonomy model cannot explain all the aspects of Japanese environmental politics. Broadbent (1998) did not agree with the formal state-centric view of institutionalism, but he believed that the more informal vertical institutional network of the elite class and the ordinary citizens have helped to develop a political environment that is not subject to strong political antagonism. The LDP has historically developed a bond with rural citizens and local business leaders through informal exchange activities. The monetary and personal help given by the LDP to local voters helped to build a patronage/ listic system that made it difficult for

locals to oppose LDP hegemony. If there was opposition, the local LDP leaders could fracture it through their broad vertical network with local leaders and businesses. The historical, normative institutionalism would see the long-term dominance of the LDP as a process of informal rule and role formation followed by society. The implementation of the NIC law was an opportunity for the LDP to strengthen this bond with local leaders and businesses.

When the LDP was at risk of losing its domination due to increased environmental protest, it strove to maintain its legitimacy by maintaining the bond through compensation and by reframing the environmental issues as national problems. It shifted the object of blame from the industries to the nation as a whole and discouraged the environmental movement. It can be argued that the LDP was capable of defining which behaviours were appropriate and which behaviours were not as a member of the institution. Thus, with the help of their vertical network, the LDP could enforce the "logic of appropriateness" (Peters, 2012). After the movement declined, it went back to the initial principle: capital accumulation. It represents the idea of path dependency that argues once government creates a policy and political program, the initial institutional choices and behaviours persist unless there is significant inertia.

The cultural aspects helped the state to achieve its goal. Broadbent (1989) noted that Japanese self-concept is usually weakly defined and, hence, Japanese people tend to make decisions based on community values rather than on moral values. Harmony is appreciated in Japan and Broadbent believes that it constrains many people from raising their individual voice and veering from the norm.

Social rank is another important cultural aspect. It tends to define relationships and the social structure. Broadbent (1998) admitted that the same is true in other advanced capitalized industrialized democratic (ACID) countries, but he believed it was stronger in Japan where the self-concept and the ability to distinguish self and status is weak. Thus, if the political leaders with a higher social rank (LDP politicians) reach a consensus, the population would automatically adhere to the leader's goal and dissent would be immoral. Although there were environmental movements in Japan throughout the 1960s and 1970s, according to Broadbent, the intensity of these environmental movements was more tentative than in countries such as Germany and France where the movements extended to national civil movements. The environmental movement in Japan stayed local because it was controlled by the local elite groups.

Despite this characteristic, Japan is not, in Gramsci's terms, an "integral state" where power and consent is in balance. The consent in Japan is based on the social norms of harmony which might be stronger than any physical or material force that the state can impose on society. It might come from the defeat of socialist militarism in the war, or it might be the Confucian moral teaching (the family state) that the Japanese government encouraged people to believe in after the Second World War. Either way, the idea of harmony that is deeply rooted in the public spirit had significantly reduced the state's responsibility to impose material and physical force to stabilize political antagonism. Under the influence of harmony as a social norm, the ideological hegemony spread through the nation is manipulated by the ruling class.

Based on this historical anlysis, in the next chapter I will narrow the focus to specific policies that Japan implements to achieve economic growth under the name of environmental

protection; namely, nuclear policy and eco-industrial development policy. They are disparate industries, but the development of nuclear plants and eco-industrial parks were the national projects that saw heavy involvement by MITI, local government and large corporations. The locations were fundmentally different but they both face geographically unique GE dilemma because of the same industrial strctural constraint. Furthermore, the development of each project took place almost three decades apart (nuclear plant develoment in the 1960s and Eco Town project in the 1990s). Therefore, each case has different socio-economic problems in a different timeline. These differences allow us to understand how the national political actors legitimized their actions in relation to the environment and achieved public consent to carry out their national project of economic growth.

Chapter 4: Japan's Nuclear Policy

At the time of writing this thesis, it has been two years since the magnitude 9.0 earthquake hit Japan's northeast region and caused massive damage. The earthquake was followed by a thirty-foot-high tsunami that swept over cars, houses, railroads and drowned entire towns on the northeast coast. The National Police Agency reported 15,883 people were killed, 6,015 were injured and 2,651 are still missing as of November 8, 2013[17].

The earthquake and tsunami were not the end of the disaster. On the evening of March 11th, 2011, tsunami water flooded the diesel generators of Fukushima Daiichi nuclear power plant. It resulted in the failure of the cooling system and a rapid hike of the temperature in four of the six reactors that contained a number of radioactive fuel rods. Tokyo Electric Power Co. (TEPCO), the operator of Fukushima Daiichi, failed to reconnect the power to the cooling system, and tried to pump water into the reactors from fire trucks. However, as the rods were gradually exposed to the air, the radiation level of the reactors began to rise. It was announced that levels of radio activity eight times more than usual were recorded in front of the main gate of the plant. Three hydrogen explosions occurred in the following three days: once on March 12th, at the No. 1 reactor, again on the 13th at the No. 3 reactor, and the last one on the 14th at the No. 2 reactor. The radiation levels around the facilities rose to 400 millisieverts (mSv).[18] The nuclear crisis at Fukushima Daiichi is considered to be level seven, the same as the Chernobyl incident, due to its continuous leaks

[17] Japan National Police Agency. Report of damage and police actions for the great East Japan earthquake. November 14, 2013. http://www.npa.go.jp/archive/keibi/biki/higaijokyo.pdf. My translation.

[18] The world-average radiation level an individual is exposed in the year is 2.4 mSv. The recommended radiation level that a worker of a nuclear industry can take from the plant is 1mSv per year. Currently, the limit for employees at Fukushima Daiichi is elevated to 20 mSv per year, for a maximum of five years.

of radioactive water into the ground and ocean, resulting in widespread health and environmental concern on an international scale.

The handling of the incidents by the government and the operator, TEPCO, earned the distrust of the Japanese and the international community in terms of the operation of nuclear power plants in Japan.[19] Currently, except for the Ohi nuclear plant in Fukui prefecture, 53 nuclear plants in Japan are temporarily or permanently shut down after the earthquake. The hosting towns depended heavily on the nuclear power and reported a huge economic loss after the closing of the plants.[20] Japan's nuclear power policy, which was developed under the slogan of "national energy security" and "environmental conservation" for "public well-being," has meant huge costs in the reconstruction of the area, business losses to the local farmers and fishermen, and long-term environmental and health concerns to a large number of local residents.

I argue that the development of nuclear plants in Japan is an appropriate example of exclusive growth-centred policy that was based on the interests of large businesses and political elites. I will analyse the historic facts of the nuclear policy development in order to understand the interests of economic and political elites, and the interest of local communities who had no choice but to accept the building of nuclear power plants, sacrificing their physical health and that of the environment. I explain the symbolic aspect of nuclear power politics to see how the public's opinion was manipulated to accept pro-nuclear power. In the next section, I will begin at the surface of nuclear policy, the publicly known

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[19] Los Angeles Times "*A Year After the Tsunami, a Cloud of Distrust Hangs Over Japan*," March 11, 2012. www.articles.latimes.com/2012/mar/11/world/la-fg-japan-quake-trust-20120311

[20] Yomiuri Shimbun Online "*The Loss of Nuclear Power Plant Shut-Down, More Than ¥18 million,"* May 4, 2012. http://kyushu.yomiuri.co.jp/news/national/20120516-OYS1T00216.htm

motivations and reasons why Japan needed nuclear power in the 1970s and continues to need it today .

4.1 Nuclear Policy for the Environment and National Resource Security

The purpose of nuclear power development in Japan is two-fold: resource independence and environmental protection.

Japan's dependence on nuclear power has increased since the 1970s. In 1973, the price of crude oil rose dramatically, resulting in worldwide economic instability. In 1974, the Japanese government announced that the development of nuclear energy was a national priority. After the oil shock, it was more beneficial to invest in alternative energy resources for energy-intensive industries that were relying on foreign countries for as much as 80% of their fossil fuels (Carpenter, 2011). For the Japanese government, transition to nuclear power was important to maintain the growth rate and overtake the U.S. economy (Hein, 1990).

In later years, nuclear energy has been favoured due to its carbon "cleanliness." In 1997, the Kyoto Protocol was established and inaugurated in 2005 to reduce greenhouse gas emissions that contributed to global warming. Japan announced that it would reduce the emissions of CO_2 between 2008 and 2012 by 6% compared to the base year 1990. However, the total CO_2 emissions in 2008 increased by 7.5% cumulatively from the base year, and 1.5% in 2009 (METI, 2011). In order to achieve the target, Japan would have had to build twenty additional nuclear plants in the next decade (Tsuru, 1999). METI believes that the environmental technology is yet to be developed. The most immediate and realistic means of reducing CO_2 emissions is to reduce fossil fuel consumption by improving energy efficiency and increasing the use of energy sources that entail no CO_2 emissions (METI, 1990).

According to the white paper (annual authoritative policy reports) of the Ministry of the Environment, the main sources of Japan's electrical power generation are nuclear, LNG (Langatate thermal energy), coal, petroleum, and hydro. The total supply of each generation facility was: nuclear 30.8%, LNG27.2%, coal 23.8%, petroleum 8.3%, and hydro 8.7% in 2010 (Ministry of the Environment, 2011). In summary, before the earthquake Japan depended more heavily on nuclear power than any other energy source, with 54 nuclear power plants operating in 2010.

The Japanese Atomic Energy Commission (JAEC), a policy-making organization, was established in 1956, a few years after the Korean War and one year after the LDP won a majority in the Diet. It was reported in the *Framework for Nuclear Energy Policy* in 2005 that "it is appropriate to aim at maintaining or increasing the current level of nuclear power generation (30 to 40% of the total electricity generation) even after 2030" (JEAC, 2005, p. 29). Established under the jurisdiction of the prime minister's office, JEAC believes a slight increase in the generation of nuclear power would be needed for the future supply of electricity in Japan. The METI (the Ministry of Economy, Trade and Industry), known to be pro-nuclear, provided a more aggressive plan for long-term energy generation for the nation. In the *Basic Plan for Energy*, announced in June 2010, METI proposed that Japan would build nine new nuclear plants in order to increase the capacity up to 85% of a facility's full capacity from 60% in 2009 (METI, 2010). Furthermore, it was announced that Japan would build at least 14 more nuclear power plants by 2030 to increase the capacity of nuclear plants to 95% by 2014 (METI, 2010).). It was assumed that by striving to build 14 nuclear plants, it would be possible to increase the electricity generated by zero emissions sources, such as

hydro and nuclear, by up to 50% by 2020, and 70% by 2030 of total generation of electricity (METI, 2010).

The Japanese government relies on nuclear power to achieve the goals of economic growth through resource independence and environmental protection. The next section will discuss how the political economy was created by political and business actors focused on their private interests.

4.2 Nuclear Interests of the Powerful

4.2.1 State Control of the Electric Industry

Japan's electricity has been generated and distributed by private power utilities, except for a short period of state intervention in the pre-war era. In 1938, when the Electric Power State Control Law was passed, the state took control over electricity for the first time in 100 years of private power generation. In the same year, a joint public–private national company, Nippon Hassoden[21] (Hassoden), was established by consolidating thirty-three generation companies across Japan. It generated power and sold it to transmission and distribution companies. Although Hassoden was privately owned, actual management of the company was carried out by the government, which had authority over electric power supply and demand, construction, rates, planning and appointment of the chief executive (Samuels, 1987). Silberman (1982) called this period (1936-1945) state corporatism when the government played the central role in organizing national interests and determining public policy. Under the premise of providing abundant and cheap electric power to consumers, Hassoden gradually nationalized the private generation companies, and became a giant, state-

[21] The English translation is Japan Electric Power Generation and Transmission Company.

controlled electric utility by 1942. The state failed to achieve an abundant and cheap energy supply, however, due to its lack of incentives for cost reduction and efficiency. Corruption repeatedly occurred between Hassoden and the government for the subsidies (Samuels, 1987).

The state control over electricity was abolished soon after World War II. In the period of Allied Occupation between 1945-1952, under the Supreme Commander of Allied Powers (SCAP), Japan was reconstructed as a modern and politically democratic country. In the SCAP official view, the old system of electricity supply in Japan by a bureaucratic, semi-governmental monopoly resulted in inefficiency of generation and distribution of power, and failed to give firms incentives and responsibility in the administration of the industry (Samuels, 1987). In 1951, Hassonden was abolished and nine regionally divided private power utilities were inaugurated.

Despite SCAP's attempts to privatize the industry, the Japanese government did not give up on state intervention in the power industry. In 1952, the Electric Power Development Company (EPDC), a new Independent Administrative Institution (IAI) of MITI was established. Under MITI's administration, EPDC owned and managed large-scale hydroelectric plants, coal-fired generating stations, geothermal generating stations and nuclear power plants. Although the initial plan was to return the generation companies to the nine regional firms, EPDC retained the title of the national electoricity supplyer and continued selling power to the nine utility companies (Hein, 1990).

In nuclear development, the EPDC played a major role in both the political and economic aspects. The EPDC, one of MITI's Individual Agency Institutions (IAI) and *zaibatsu* corporations meet regularly to promote the establishment of nuclear plants. By

looking at the facts that two-thirds of the EPDC was owned by MITI, and it depended on MITI for most of its financing, it could be assumed that the creation of EPDC was the government's attempt to control the power of the private corporations in the electricity industry.

Several authors understand the government position in the electric industry after the war as reciprocal, handling all the interests of the government officials, Diet leaders, and private power utility companies in close congruence (Carpenter 2011; Hein 1990; Samuels, 1987). For instance, government support for the autonomy of private utility companies helped the ruling party (LDP) in that the private utility companies could financially support the Party in return for "pork-barrel" politics for regional development. For its part, the EPDC got involved in costly long-term projects that the private companies did not want to undertake (Samuels, 1987). The EPDC was able to borrow funding for new power plant develoment from the World Bank as well as national government banks with low-intererst rates, which shifted the risk and financial burden from the nine utility companies. In addition, the EPDC played the role of diplomatic intermediary between the private corporations and the U.S. in order to import American construction machinery and assistance. This exchange of knowledge helped the government to make a close connection to U.S. foreign policy (Hein, 1990). Hein argued that the government's involvement in the expansion of electric-power facilities was not an attempt to control the utilities but rather coincide with industry ambitions, and the power companies continued to receive favorable treatment.

Thus, as Broadbent (1998) noted in his case study of landfill sites in Japan, the state-centred bureaucratic view of Japanese politics does not explain the political economy of

nuclear power politics in Japan. The reciprocal relationship comes from the horizontal linkages between other actors: big corporations and the political parties.

4.2.2 The Influence of Big Business on Japan's Administrative System

> The Japanese regard their system of bureaucratic administration as having remained fundamentally unchanged since its inception in 1887 during the Meiji Restoration and as steeped in semi-feudalism, despite the end of a military ruler (Shogun) whose xenophobic policies effectively isolated Japan from the rest of the world for over 200 years. (Carpenter, 2011, p. 84)

Considering the fact that Japan's rapid industrialization during the early twentieth century would not have been achieved without substantial capital investment from private companies, it is important to consider the historical significance and influence of *zaibatsu* in order to understand the reciprocal relationship between the government and big private businesses in Japan. *Zaibatsu* are the large conglomerates of businesses, each dominated by a single wealthy family and engaged in industries such as banking, trading, mining, and manufacturing.

In the Meiji era (1986-1912), as Japan attempted to prevent foreign occupation and expand its realm beyond its national borders, *zaibatsu* were the most important partners for the government to develop railroads, mining industries and manufacturing facilities in countries such as Korea, Taiwan, and Manchuria (Northeast China). Japan's production level rose due to these developments, especially by exporting military supplies, ships, and coal to the Allied Powers during World War I .

Even in the global recession in the 1920s, Japan's economy flourished as *zaibatsu* with diverse production lines handled the changes in industrial structure and gained

economic power due to post-war construction activities, expanding exports and developing new businesses. Small businesses with limited financial capacity were affiliated with these large corporations as suppliers of manufacturing components and parts to the large conglomerates.

During World War II, the governmental support to *zaibatsu* increased as the Ministry of Commerce (MITI) and the Ministry of Finance made a close alliance with them for the production of armaments and military supplies. The Bank of Japan financed the private banks related to the *zaibatsu* (Mitsui, Mitsubishi, Sumitomo, Furukawa, Nissan, Yasuda, Okura and Asano) for the manufacture of military goods that were considered vital to win the war.

After the war, as part of SCAP's attempt to reconstruct Japan's war-time economic system, *zaibatsu* that had been involved in the war by providing weapons to the government were dissolved in 1945, along with the Ministry of Munitions, the Home Ministry and the Ministry of Police. However, many argue that the dismantling of *zaibatsu* was not fully acomplished, because the groups managed to reorganize themselves as *keiretsu*, each with a *zaibatsu* banking company at the centre of their capital holdings (Carpenter, 2011; Samuels, 1987; Sorensen, 2002).

For the development of nuclear energy, five *keiretsu* groups had organized in the 1950s, when the government was just beginning to establish the framework for promoting an atomic-energy program. They were the Mitsubishi, Mitsui and Sumitomo groups; the fourth was jointly organized by Hitachi and Fuji Banks; the fifth was set up by the Furukawa and Kawasaki manufacturers and the Daiichi Bank (Hein, 1990). In fact, the reactors at the Fukushima Daiichi nuclear plant were designed and installed by Toshiba and Hitachi.[22]

[22] http://www.tepco.co.jp/nu/f1-np/intro/outline/outline-j.html

These businesses were all involved in the research and development of nuclear power together with the nine utility companies, with foreign technological assistance in the early stages. The government supported the technological development through regulation and financial support. For instance, they were permitted by the government to import the most advanced nuclear plant from overseas. The financial risk of the basic research was shouldered by the government, as was the cost of any failure. By the end of the 1970s, these companies were able to build nuclear reactors without the support of foreign experts, expanding their services to the East Asian market (Carpenter, 2011).

The close relationship between the government and private companies was established during the period of Japan's economic development by helping each other's interests. The government relied on the technological assets of private business in making weapons to win the war, while the private businesses gained the regulatory and financial suport of the government. The development of the nuclear power plants was carried out by means of dense interconnected networks linking state departments and agencies with private *keiretsu*. This administrative is system deeply rooted in the reciprocal relationship between the government and private business and is the foundation of the political economy that is centred around economic growth for particular entities.

4.2.3 Linking Political Elites and Business

The interpersonal linkages between business and the political elites who heavily influence the nation's policy-making depend, in turn, on *amakudari* (Carpenter, 2011). Carpenter stated that *amakudari*:

> [Is] an institutionalized practice through which the National Personnel Authority formally places bureaucrats who have reached retirement age into private and public

> organizations. The arrangement provides retired officials with re-employment in top-level management positions where salaries are often higher than their previous incomes. (Carpenter, 2011, p. 53)

Amakudari was probably the means that maintained the relationship between the government and big business for a long time. When a retired bureaucrat is appointed to the top position in a private company, the company was able to establish a connection between the ministry the official was sent from; therefore, the official could lobby the government in line with the company's interest. Again, the company may comply more quickly and thoroughly with the ministerial policies which would result in enhancing the ministry's regulatory control.

In the case of the power industry, for example, the utility companies are one of the popular places for EPDC and MITI officials. While the EPDC officials provide ideal regulatory conditions and financial support to the private corporations for nuclear development, the corporations provide the officials with positions in the electric power companies. In this way, MITI, affiliated with EPDC, expands its influence over the nuclear energy sector.

The employment of retired bureaucrats has been considered a good opportunity for companies to expand their business, due to the increased chance of getting long-term government contracts such as the construction of public facilities. If a company has a powerful post-bureaucrat, the company may get a government contract without having to go through the bidding process, since the post-bureaucrat can influence the official bidding process (*nemawashi*) for these contracts (Piccketti, 2002). This illegal bid-rigging can be one of the consequences of the *amakudari* system.

In addition to *amakudari*, an important element of Japanese political economy that manipulated its nuclear power development was "pork-barrel" politics. It has been institutionally practised in the electoral system since the post-war era, due to the desperate need of local governments for public works such as roads, dams, ports, and schools for their economic development. Fukui and Fukai (1996) argued that "pork-barrel" politics is central to the post-war economic policy that brought Japan rapid economic growth. Local party organizations and politicians often work to attract public work projects to be undertaken and obtainin government funds for the project (Scheiner, 2007). The success of this process determines whether the politician or the Diet member is re-elected next term. It can be argued that the LDP's long-term domination has been maintained largely by developing "pork-barrel" networks at the grass roots. The local Diet, usually dominated by LDP members, takes public demands to the national government to be assessed for financial aid from the ministries in Tokyo. The local LDP members play the role of intermediary between the public and the national government. Thus, a local politician who can bring more "pork" to his or her electoral district enhances his reputation and improves her chance of being re-elected. As Kohno suggests, the LDP politicains always engage in serious competition to gain votes and legislative influence (Kohno, 1997). Curtis(1999) puts it in other words that the (LDP) politicians do not represent the society but rather engage in business-like practice as they try to sell their product, their brand name to many people so that they can win elections (p.18).

The LDP is a pro-nuclear political party. It built all 54 nuclear plants across Japan during its domination (Carpenter, 2012, p. 145). Construction of nuclear plants was one of the public works that was used frequently for "pork-barrel" politics from the 1970s to the

1990s in local communies in desperate need of government subsidy (Carpenter, 2011). Although it seems nuclear plants brought more work for local businesses and more jobs for communities that were left out of rapid post-war economic growth, it is important to see the structural problems that forced the communities to host the plants in order to get a better standard of living.

4.3 Local Communities Lured by Nuclear Money

4.3.1 Economic Disparity of Rural Areas

This section will discuss the local communities who had no choice but to host nuclear plants for their economic prosperity. This hosting created another key characteristic of the political economy of nuclear power—a weak civil response against nuclear development in Japan.

Japan enjoyed rapid economic growth from the early 1950s to 1973, as the selected industrial cities on the Pacific Belt grew with increased economic activities and concentrated capital investement. It resulted in a large population shift from peripheral areas to industrial cities, causing serious problems in both urban and regional life. As described in the previous chapter, these issues of urban concentration include environmental problems due to the over-crowding of industries and roads. The worsening of water and air quality became evident in the urban areas, resulting in deteriorating living conditions. Land prices dramatically increased in the major urban centres because of the large investment in the infrastructure and social services in urban areas (Sorensen, 2002).

One of the issues in the peripheral areas was the growing economic disparity. An increasing number of young people moved out of rural areas to the city for jobs with better pay and career opportunities. Old people were often faced with inadequate social services

because of the declining pool of tax payers (Sorensen, 2002). Loss of successors for the rural industries, such as agriculture and fishery was also a problem that affected the maintenance of the cultural assets of the region as well as economic sustainability.

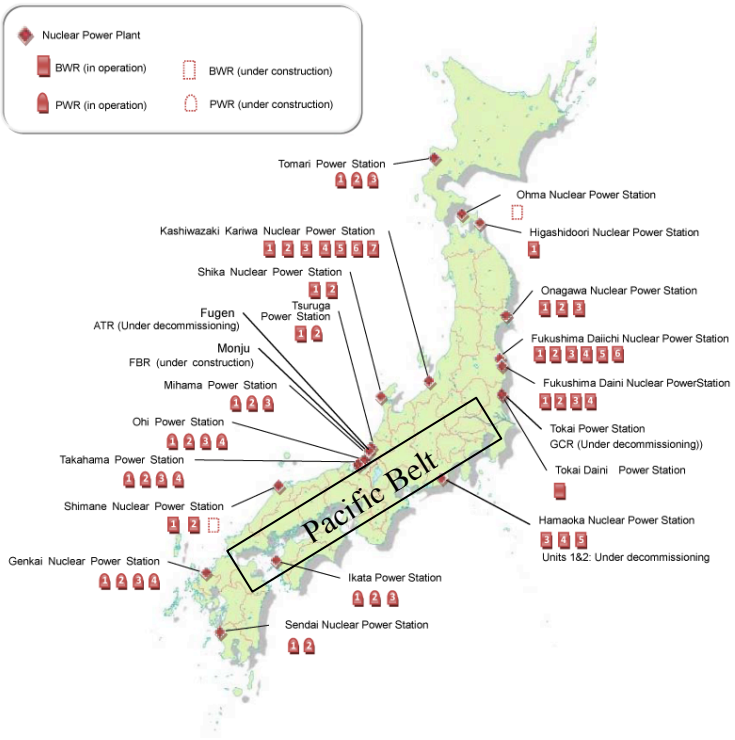

Figure 2 (Nuclear power plants in Japan)

Source: National report of Japan for the fifth review meeting of the convention of nuclear safety, September 2010. Government of Japan

As figure 2 shows, most of the nuclear plants are outside of the pacific belt.The local government in these peripheral areas could not refuse the opportunity of large-scale public works, including the development of a nuclear power plant, related transportation infrastructure, and social facilities, despite the fact that there was usually resistance to the risk of having nuclear activity in the vicinity of residences (Valentine & Sovacool, 2010). The Three Laws for Power Source Development were established in 1974 to provide the hosting local government with subsidies and additional funding for nuclear plant

development. In Morse's (1981) view, these laws gave the financially desperate host communities "cooperation money," thus solving the problem of local resistance to nuclear proposals, which had always been an obstacle in the promotion of nuclear energy. The sites for nuclear power plants were carefully chosen by the central government and nuclear corporation (Mitsubishi, Toshiba, Hitachi, etc.) with the criteria of "depopulated," "inadequate tax base," and "weak civil society" (Carpenter, 2011, p. 148). In theory, by hosting a nuclear power plant, the local government could benefit from using the subsidies to improve the infrastructure, to develop social services and facilities, increase job positions and enhance existing businesses due to the migration of workers to the area.

The local communities that were suffering from a declining economy as a result of urban migration thus had to depend largely upon the nuclear subsidies for better access to improved infrastructure and social services, even though they were fully aware of the risk of nuclear power. As Carpenter (2011) put it, "The communities became addicted to the subsidies as the local governments connected hosting power plants with the subsidies for the future construction of schools, free and improved welfare services and lower local taxes" (p. 148).

4.3.2 Nuclear Plants as a Money Source

The building of the Fukushima Daiichi nuclear plant started in 1971 in Futaba town where the economy was based on agriculture. The site was on a field that the Japanese army used for training, owned by a private developer (Yamakawa, 1987).[23] Yamakawa, a geographical economist, studied the economic effect of building the nuclear plant in Fukushima in 1987. According to Yamakawa's study, there was no opposition from the

[23] My translation.

residents of Futaba city. The population of Futaba town decreased from 8,152 in 1953 to 6,968 in 1968 due to migration of labour to industrial cities. However, after the nuclear plant construction in 1971, the population started to increase and it peaked at 8,257 in 1983. There were 4,000 workers at the Daiichi, 800 from Futaba town, and the rest were sub-contracted workers from TEPCO. Agricultural workers, who depend largely on the weather for their harvest, often went to work temporarily at the nuclear plant when the harvest was affected by cold temperatures (Yamakawa, 1987).

During this period, the annual budget of Futaba town increased dramatically from 10 million yen in 1972 to 2.3 billion yen in 1993, 84% of which came from the tax revenue related to the development of the nuclear plant. The council renovated the town hall in 1993 for 1.5 billion yen, and built three schools, community centres, a seniors' home and a swimming pool. Futaba town was not the only host community that benefited from the nuclear subsidies, but eight neighbouring towns[24] also obtained subsidies from the central government.

The coastal town of Omaezaki in Shizuoka prefecture hosted the Hamaoka nuclear plant. All the reactors are temporarily shut down after the Fukushima incident in 2011. Five reactors began to operate commercially in 1976, 1978, 1987, 1993 and 2005 respectively. Hamaoka has been a controversial plant due to its location. A massive earthquake is expected in the next few decades. A Japanese seismologist, Katsuhiko Ishibashi, repeatedly reported that there is a tremendous risk of earthquake at the location of the plant. In one of his reports, he coined the phrase "*Genpatsu Shinsai*" (nuclear power plant disaster resulting from earthquakes) that warns of the domino effect that an earthquake could trigger at the nuclear

[24] Ohkuma, Namie, Naraha, Tomioka, Kodaka, Miyakoji, Kawauchi and Kashio.

plant (Ishibashi, 1997). In 2004, he opposed the building of the plant, insisting that Hamaoka was the most dangerous plant in Japan, but the city approved the installation for economic prosperity (Carpenter, 2011). In 2005, the fifth reactor began to operate.

Shimin Ombudsman, a municipal ombudsman, reported that Omaezaki was addicted to the nuclear money provided every time the city decided to build another nuclear reactor.[25] The town of Omaezaki has received approximately $700 million for the building of its nuclear plant since the 1970s, which created 3,000 jobs (Carpenter, 2011). The nuclear subsidy increases when a plant generates more power. Increased spending by the plant on new technology results in more efficency and is rewarded with increased subsidy from the government. The subsidy is also provided to old reactors that have been operating for more than thirty years. The ombudsman believes that this policy encourages the city to keep old facilities with less sophisticated safety measures.

It seems that the community of Omaezaki had traded a safe environment for their improved standard of living. Valentine calls such spirit a "mentality of self-sacrifice" that has supported and promoted nuclear energy as a necessary evil in supporting economic prosperity (Valentine & Sovacool, 2010). The dedication of Japanese people to national prosperity was seen in wartime and was known as the *kamikaze* spirit. The *kamikaze* pilots sacrificed their lives in World War II to protect the nation and the emperor who was believed to be a god. In the same way, the host communities of nuclear power plants have given up their land and health for the nuclear power that the government insisted would help the nation's economic and environmental crisis.

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[25] My translation of 'Genpatsu rieki yu-do ni yotte yugamerareta chiho zaisei' 2011 http://www.ombudsman.jp/nuclear/yugami.pdf

3.3.3 Externalities of Nuclear Plants

It was not only money that the nuclear plants brought to the community. They also brought a risk to the environment and health of the communities as feared before the plants were installed. Although many small accidents related to nuclear energy have been recorded since the early stage of nuclear development, two major accidents in the 1990s resulted in a surge of public attention regarding the safety of nuclear energy (Picketti, 2002).

The first accident happened at Monju nuclear plant in Fukui prefecture in 1994, just after it had gone online. The International Atomic Energy Agency (IAEA) recorded this accident as Level 1; however, Picketti (2002) stated that the accident certainly damaged the image of the nuclear industry in Japan. In the same vein, Carpenter (2011) argued that the utilities have lost the public trust not just because of the accident but the fact that they tried to cover up its seriousness.

The second accident took place in 1999 at the village of Tokai in Ibaraki prefecture, where Japan's first nuclear power plant was located. This accident was recorded as Level 4 by the IAEA, the second worst nuclear accident before the Fukushima Daiichi nuclear meltdown in 2011. The accident was caused by workers who ignored safety procedures, which resulted in a nuclear meltdown for about 20 hours. Three workers were killed by being exposed to a fatal dose of radioactive matter, and more than 600 workers were exposed to high levels of radiation (Picketti, 2002).

Tsuru (1989) asserted that the sub-contracted workers of the nuclear plants are often hired from the slums and the countryside and the companies do not always give them security of employment; they receive low pay and their exposure to radiation is not strictly controlled. Like the farmers in Futaba town in Fukushima, they were employed temporarily.

These workers were likely to be engaged in riskier jobs, such as cleaning up the leakage of nuclear waste (Watanabe, 2009).

Even after these serious accidents, both nuclear plants in Ibaraki and Tokai villages were restarted after a while. The amount of compensation from the government was increased to calm down local concerns (Dauvergne, 1993). It can be inferred that the operation of nuclear plants in these rural communities was perceived to be a necessary evil that helped them revitalize the economy and the society. As Yamakawa (1987) suggested, without the nuclear plants, the local farmers in Futaba town would have suffered more in times of unseasonably cold weather that affected the fruit crop. "The Nuclear Plant (Fukushima Daiichi) helped the hosting communities to survive through the hard times of the regional and agricultural economy" (p. 3).[26] For rural communities like Futaba town with no other core industries apart from agriculture, the risk had to be taken in order to maintain a certain level of income and keep the younger generation in town.

In order to increase the efficiency of production and transportation, the national industrial development on the Pacific Belt was successful for rapid and continuing economic growth. Capital accumulation in the industrial cities, however, caused economic disparity between the rural areas and metropolitan cities and left the rural areas with few choices. Dispersing industry (including nuclear plants) across Japan was arguably the best way Japan could legitimize its growth politics. The result was that it brought another dilemma to the rural community that had striven for a higher standard of living and accepted, in turn, risks to their health and the environment. Now I will examine the "how" of Japan's response to this dilemma.

[26] My translation.

4.4 Symbolic Politics

The dependence of rural communities on nuclear plants for their economic stability was the key for the 54 nuclear plants to spread across Japan, the only country that had experienced the destructive power of the atomic bomb. More than 200,000 were killed by the atomic bombs in Hiroshima and Nagasaki in 1945, and yet only a decade later, Japan initiated nuclear power development. Although the nation's "mentality of self-sacrifice" was an important factor in the nation's rapid recovery from the war, Valentine and Sovacool (2010) noted that government control over information played a critical role in terms of nuclear energy expansion.

Communication with the public is a large part of the nuclear politcs of Japan for its promotion of nuclear energy (Samuels, 1987). The push from the national public came largely from the huge effort of the central governent to educate people about the safety of nuclear power. The strategy was to develop a concept of safe atomic energy in the public discourse to get acceptance from the citizens, especially residents of the hosting area (Onishi, 2011). The media, linked deeply to the government and nuclear corporations, played an important role in perpetuating the safety myth of nuclear power to the public. This link with the media is an important piece of the puzzle in making a case that the Japanese public and private elites engaged in symbolic politics to deceive the public.

4.4.1 The Media Organization: More Linkage

The utility companies have a close relationship with media organizations. The relationship goes back to 1954 when the Committee for the Peaceful Use of Atomic Power was established by Shoriki Matsutaro, the president of *Yomiuri* newspaper, and Ishikawa

Ichiro, *Keidanren*'s chairman.[27] In the 1950s, atomic energy was remembered as a weapon that had destroyed Japan's two major industrial cities—Hiroshima and Nagasaki. However, Shoriki used his newpaper as a means of popularizing the concept of atomic energy as a safe source of power (Hein, 1990). His newspaper company invited technicians and officials from Calder Hall, Britain's leading nuclear company, to contribute to the Research and Development (R&D) and import the technology for building the first reactor in Japan as soon as possible. It can be said that Shoriki's newspaper company and private business provided powerful momentum and contributed significantly to the development of Japan's first nuclear energy plants.

The close links between the power utilities and the media can be seen today in the companies' substantial advertising budget. TEPCO's nuclear promotion budget has increased from 7.5 million in 1965 to 243 million in 2009.[28] The advertising means include: newspapers, radio, exhibitions, and TV commercials using famous actors and actresses stating that nuclear power is safe and cleaner than other energy sources. Many argue, however, that the information that is generated through the media is sometimes controlled and falsified by the government and the power utilities (Carpenter, 2011; Onishi, 2011; Samuels, 1987). As seen in the Fukushima nuclear disaster, information on the nuclear

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[27] *Keidanren*: Japan Business Federation established in 1946 to promote participation of private businesses in developing of the foundation of the national economy. It was amalgamated with the *Nikkeiren* (Japan Federation of Employees' Association) in 2002. Its board members were traditionally chosen from the large corporations, thus, it has political power in the development of Japan's economy after WWII.

[28] My translation of an article on on-line news report published by Japan Communist Party. June 26, 2011, accessed on Aug 30, 2012

http://www.jcp.or.jp/akahata/aik11/2011-06-29/2011062901_02_1.html

See also "Fukushima residents seek answers amid mixed signals from media, TEPCO and government" by Makiko Segawa in *The Asia Pacific Journal: Japan Focus* on May 16, 2011.

http://japanfocus.org/-Makiko-Segawa/3516

accident was not released in a timely manner, causing irritation in the national public and the international community. For example, on May 24th, 2011, almost three months after the tsunami hit, TEPCO acknowledged that the Daiichi nuclear plant had a meltdown of its fuel rods within days of the earthquake (Kingston, 2011). Carpenter (2011) noted that the government controls what can be released and when it should be revealed.

4.4.2 Kisha Club

The information from the power utility companies is filtered through the institution of a Kisha Club (Press Club). This club was founded in 1890 as Japan's major mediator of information from the ministries and the Diet. A Kisha Club is a reporters' association with similar functions as press club in other countries, such as the National Press Club in the U.S. All governmental units including the prime minister's office, the Diet, and political party centres have one Kisha Club consisting of a dozen to 300 reporters (Au & Kawai, 2011).

Cooper-Chen (2007) argued that due to its particular characteristics, the Kisha Club system has been one of the most salient and controversial features of journalism in Japan. According to Au and Kawai (2011), the Kisha Clubs have several distinctive features. First, the membership to the club is limited. The members of the Kisha Clubs are carefully chosen by the private newspaper association. If an individual journalist does not belong to a Kisha Club, it is more difficult for him or her to get the same amount of information as a member because he cannot attend the press meetings where information is provided (Kelly et al., 2002). Second, there is a strict agreement among the members of Kisha Clubs to protect the friendship and honour of the club. For example, the Blackboard Agreement restricts which stories a reporter can write at the moment. An issue is listed on the Blackboard when the

issue is scheduled to be explained to the public by an official a few days later, and the violator of this agreement is punished by being excluded from the Kisha Club.

The system of Kisha Clubs has been criticized by the international community and foreign media for its lack of freedom in information sharing, and the homogeneous nature of news reporting.[29] Its collusive nature can be seen in the case of Fukushima Daiichi whose operater, TEPCO, has a close relationship with the media organization. For example, in press conferences with TEPCO's top managements, Kisha Club reporters did not ask critical questions about the condition of the reactor, such as the possibility of nuclear leaks after the explosions on March 14th (Carpenter, 2011). Carpenter believed the reason for this was because the media tried to maintain a sound relationship with TEPCO, which invests substantially in advertising nuclear energy. Although there was increasing concern about the radiation leaks among scientists and the public, the information was not released until March 27th.

Au and Kawai (2011) explained that the Kisha Club built a symbiotic relationship between the media outlets and the government. The officials, on one hand, use the Kisha Club's strict rule to avoid the spread of information that may be disadvantageous or inconvenient for them; the media, on the other hand, use it as a convenient way of acquiring information.

4.4.3 Manipulating Public Acceptance

Educating the public is another major strategy of Japan's nuclear industry. The Japan Atomic Relations Organization is one of many organizations that was created by the

[29] See *Freedom of The Press in Japan 2011* by Freedom House. www.freedomhouse.org/report/freedom-press/2011/japan

government and utilities to spread the idea of safe nuclear energy (Onishi, 2011). The organization sends nuclear power experts to schools and colleges to speak about how nuclear energy can be safe. The nuclear experts are often chosen from the inner circles of the nuclear industry and the government, and hold the same fundamental view that nuclear energy should be promoted for the energy security of the nation (Picketti, 2002).

At public relations buildings (built as one of the infrastructure improvements around nuclear power plants), animated shows and miniature models of the plant's structure explain the systems of generating power and the safety of the resource. The exhibition building in Shizuoka prefecture near Hamaoka nuclear plant has become a popular tourist attraction, with a large theatre facility explaining not only nuclear energy but also showing movies about nature and the history of planetary evolution. School textbooks teach students about the safety of nuclear power; however, they are sometimes revised by education officials in order to under-emphasize the information that might plant suspicions about the safety of nuclear energy in the public mind (Onishi, 2011).

Onishi (2011) stated that the Japanese government and the utilities have made a huge effort in creating safety myths of nuclear energy in the mind of the Japanese public in order to achieve greater acceptance. Their efforts have been successful in Japan, where people tend to believe the government automatically. The creation of safety myths was attributed to (a) the attitude of the government and the utilities about the risk of nuclear energy, resulting in the lack of development of proper safety measures, and (b) weak public opposition.

4.5 Fuelling the Power

Japan's nuclear politics have been developed in a political economy that can be characterized by the close relationship between the state, the LDP, private businesses, and the

media. This relationship may be styled Japan Inc.—the growth coalition between industry and the state with culturally unique institutions such as *Amakudari*. The ruling triad was, as Broadbent (1998) argued, reciprocally united as one hegemonic force encouraging the development of nuclear power. In addition, the media supported the nuclear business and was a crucial intermediary between the government and the public in constructing the safety myth.

Why nuclear plants developed in Japan can be explained in the three models that Broadbent (1998) suggested. The heavy involvement of businesses and political elites in the nuclear industry would support the political-economy model. As mentioned earlier, the dispersal of industries (including nuclear power plants) to peripheral areas is the way the Japanese state legitimizes the capital accumulation process that created the economic disparity between the peripheral and urban areas. Following O'Connor's (1973) understanding of the dual state's roles was , one could argue that the government tried to achieve two major state functions (accumulation and legitimation), by locating nuclear plants that would bring in more public works and jobs to the hosting community. The hosting communities left behind in the wake of the economic growth had no choice but to accept the risky industry for the subsidies and social services that would increase their standard of living. The subsidies and compensation made the building of a nuclear plant the rational choice for the hosting community.

The political-economy model, as Broadbent (1998) described it, cannot explain the interconnectedness of the bureaucrats and businesses; LDP and the local businesses and community; and the media and the government. The institutional model would support the lengthy dominance of the LDP as representing a strong leader in civil society. The local LDP

had supported the local community by taking local demands to the central government and bringing "pork-barrel" benefits back to the community. With the strong relationship already developed between the LDP members and the community, the community was less able to go against the LDP norm, which was pro-nuclear. Another factor was *Zaibatsu's* and *Keiretsu's* participation in nuclear power development. They were influential because of their wealth. The government set up the necessary regulations and permission in order to create a good business climate for the nuclear power companies, and to assure secure job positions for themselves in return (*Amakudari*). The Kisha Club is another important institution that helped the state nuclear ideology by controlling the information released to the public.

The cultural model can explain the weak role of the general public who were willing to contribute to the nation's prosperity at the risk of their lives. The mentality of self-sacrifice, together with the socio-economic conditions of the rural communities that had to take nuclear plants as a necessary evil helped the state to perpetrate its ideological hegemony. The "good reasons" for the nuclear expansion activities were, first, to reduce the dependency on foreign energy, which was going to be increasingly costly as the resource became scarce after the traumatic experience of the oil shock in the 1970s. A subsequent reason was to reduce CO_2 emissions to mitigate the effects of global warming. These social problems are used in the pro-nuclear campaign as symbolic issues that Japan can tackle by developing more nuclear plants. As a result, ideological consent that Japan needs nuclear power penetrated the media, the public and local governments from the 1960s to the early 1980s (Dauvergne, 1993).

It can be argued that resource security and environmental protection as the reasons for the nuclear development have been merely symbols to arouse the fear of the people in the

face of uncertainty. The nuclear policy assures the people that nuclear power is the right answer to these problems. Public opinion against nuclear power was modified by the growth coalition through language and images in media reports and school textbooks. The creation of a safety myth was a strategy that gained wide acceptance despite the fear of atomic energy that killed thousands in the war.

What is actually pursued and protected in Japan's nuclear politics under the name of "national resource security" and "environmental protection" is maintainance of the institutional system of capital accumulation that connects the state ministry, the LDP and large corporations (reference). In an interview on CNN, Michio Kaku commented on TEPCO's hesitation to pour seawater into the Daiichi's exploded reactors, thus causing further melt-down of the fuel rods: "[The nuclear] businesses are protecting their investment to salvage the reactors. . . . Japan purchased unlimited power from the devil" (Kaku in CNN interview, 2011). The Japanese government and big corporations have invested hugely in nuclear power since the 1950s, creating a dependency that has made it difficult for the nation to give up nuclear power.

Nuclear energy, which was believed to be the solution to Japan's competitiveness in the global economy, became the source of economic burdens and environmental problems after the earthquake on March 11th, 2011. The cleaning up of the nuclear crisis in Fukushima is adding a further financial burden to the mounting sovereign debt. The government estimates the total cost of the nuclear crisis at Fukushima Daiichi nuclear plant is at least ¥5.7 trillion (US$73 billion) and it will increase as the cost of decontamination and compensation for the victims continues.[30] In addition, the cost of the earthquake itself is estimated to be

[30] My translation of 'Genpatsu Jiko Songaigaku, Saitei 5.7 cho yen' on Yomiuri On-Line on December 6, 2011, accessed on August 30, 2012.

about ¥17-25 trillion yen (US$217-319 billion) which will reduce the nation's GDP by 0.2-0.5%.[31] The IMF and the OECD are concerned that Japan might not be able to bear the massive costs estimated to be needed for its reconstruction.[32]

The misshandling of the crisis is often attributed to the network of interconnecting formal and informal relationships between politicians, bureaucrats and businesses. Carpenter (2011) stated the route to responsibility can be connected to the core of Japanese government, which is centred around the institutional agreements that created interpersonal relationships between the government agencies and the private sector. Logan and Molotch's (1987) growth machine theory focuses on local-scale growth politics. In Japan, however, the growth strategy of the central government is spread through local political parties (LDP) with their strong ties to the local business communities for reciprocal benefits. The government to business ties developed a political economy that led political decision-making to vested interests and mutual obligation. Therefore, Japan as a nation can be referred to as a large growth machine.

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http://www.yomiuri.co.jp/feature/20110316-866921/news/20111206-OYT1T01216.htm

[31] My translation of 'Shinsai Sougaku16cho-25cho, GDP Saidai 0.5% Oshisage" on Nikkei On-Line on March 23, 2011, accessed on August 30, 2012.

http://www.scribd.com/doc/51396814

[32] See "Road To Recovery: Japan Set to Recover Sharply, but Disaster Takes Heavy Toll" in *IMF Survey Magazine: Countries & Regions* on June 8, 2011

www.imf.org/external/pubs/ft/survey/so/2011/ccr060811a.htm

See also "*Economic Survey of Japan 2011, Overview*" April 2011

Chapter 5: Eco-Town Project

The nuclear policy in Japan was based on the national strategy to promote nuclear power for resource independence and environmental conservation. The development of nuclear power plants, however, has been centred on the vested interests of the political and corporate elites. As a result, it spread not only funding but also tremendous costs for the host communities after the earthquake in 2011.

I argue the Eco Town project is another example of growth politics although it is quite different in nature. Unlike nuclear power plants that were allocated to rural sites, the areas targeted for this project were cities where the economy had been flourishing in the rapid economic development period after the war. The economic foundation, such as transportation infrastructure, stable businesses, and human resources, was already in place. The participants in this project were a different kind of manufacturer who had established a cluster of mainly heavy-chemical industries over a long time. They had not been involved in the environmental business before the project. Lastly and more importantly, the time of the initiation of the Eco Town project is much later than the peak of nuclear plant development (1960s-1980s). After the post-war economic growth, industry went through an economic recession due to structural changes. The environmental focus had shifted from local and national to international as the global climate-change discourse has grown.

The goal of the Eco Town project is to develop recycling-based industrial towns across Japan. The project was based on an economic rather than an environmental goal, just like the nuclear policy. By developing new business, namely the “recycling industry,” in the areas where the problem of hollowing-out has been accelerating since the end of the bubble economy in the 1980s, the government strategically supported the powerful *keiretsu* that

have close relationships with the powerful political elites. Thus, I argue that the Eco Town project has a symbolic aspect. It uses the environment as a symbol in the increasing environmental awareness of the 1990s to involve business and the public in environmental businesses.

The project may have helped the hosting cities to keep major businesses that could have moved their operations to other places with cheaper rent and labour. It is doubtful whether the other goal of the project, environmental conservation, has been achieved. The project usually involves a large-scale infrastructural development, the expansion and creation of an industrial site (Ministry of Land, Infrastructure, Transportation and Tourism, 2006; Samuta, 2003), destroying the environmental amenities, and making more pollution from the increased industrial activity.

Therefore, the Eco Town project is another measure of growth politics through which the government and business elites strive to achieve their interests using symbolic tools. They attract greater public support for developing or expanding industrial towns that have been polluting the region and the country. By looking at the case of Kawasaki Eco Town, I will analyse the interests of the local businesses, the government, and the local government in developing the recycling-based industry. Then, I will examine the trends in Japanese environmental policy, which tries to incorporate the market economy to sustain or revitalize economic development while symbolically saving the environment.

5.1 The Concept of Eco Town

5.1.1 The Philosophy

The Eco Town, sometimes known as the Eco Industrial Park (EIP) is an empirical practice of industrial ecology. It aspires to having all the material cycles associated with

industrial activity synthesized like the natural cycle of the local biological sphere (Graedel & Allenby, 1995). As in the natural world, all waste goes back into the soil and is reused in a various ways. Likewise, the philosophy of industrial ecology believes all industrial waste should be re-used to create new products. One important notion implicated in this analogy is that industrial ecology rejects the concept of waste (Graedel & Allenby, 1995). In biological ecosystems, all materials are reused with great efficiency. In our industrial world today, we obtain materials from the natural ecosystem for our economic activities, but unlike the natural ecosystem, we discard materials at great cost. Graedel and Allenby stated, "Materials and products that are obsolete should be termed *residues* rather than *wastes*, and it should be recognized that wastes are merely residues that our economy has not yet learned to use efficiently" (p. 10).

Based on the notion of industrial ecology, the concept of Zero Emissions was invented by the Belgian economist and entrepreneur, Ganter Pauli. This concept focused on economic efficiency. Pauli launched the Zero Emissions Research Initiative (ZERI) based in the United Nations University's Tokyo headquarters. The concept encourages all industrial waste to be used in other products in different industries or processes. Therefore, industries can be reorganized as "clusters such that each industry's wastes by-products are fully matched with others' input requirements, and the integrated whole produces no waste of any kind" (Kuehr, 2007, p. 1200). This concept has been promoted by ZERI in support of the national government of Japan and it has been accepted not only in the industrial sector but also in the community as a whole in Japan.

The concept of zero emissions has more theoretical and conceptual perspectives, while the Eco Town project is where the concept of industrial ecology is practised and

construction of the closed loop is physically undertaken by a various interest groups in the geographical region. Cohen-Rosenthal (2003) defined an Eco Town as:

> [A] community of businesses that co-operate with each other and with the local community to efficiently share resources (information, materials, water, energy, infrastructure and natural habitat)—leading to economic gains, gains in environmental quality and equitable enhancement of human resourses for the business and local community. (p. 19)

Ideally, an Eco Town creates an inter-linkage, often called industrial symbiosis, between different firms in proximity to one another.

From the 1990s, a number of local and regional projects were planned and Eco Towns were developed around the world. Boons and Howard-Grenville (2009) noted that interest in Eco Town development projects has grown enormously among national and regional governments and industries in many countries. Eco Towns are seen as the solution to the tension between economic development and environmental protection. Many of these developments made reference to the case of Kalundborg in Denmark, which is often referred to as the best example of industrial ecology in the world (Lowe, 1997). Several plants as an industrial cluster incorporate a cyclical reuse of by-products while making profit from the reduced cost of raw materials and having less waste going into landfill sites. The symbiosis has created a win-win situation for all participants in the city of Kalundborg in terms of the environment and the economy.

5.1.2 Eco Town Project in Japan

Japan's Eco Town project was launched in 1997 by the Ministry of the Environment (MoE) and the Ministry of International Trade and Industry (MITI) to create a recycling-

based society. The goals for the program were: (a) to save the landfill space for the industrial waste, and (b) to revitalize the Japanese industrial economy which was suffering from the burst of the bubble economy in the 1980s. Japan was facing a serious lack of landfill sites and needed to take urgent action for metropolitan areas.[33] MITI strategically coordinated the industrial shift towards environmental businesses in cooporation with *Keiretsu*. *Keiretsu* with several corporations including different types of industry have sufficient assets to meet the goals of MITI without borrowing money from the government or outside the group. A *Keiretsu* corporation competes with another *Keiretsu* corporation to achieve the goals and responsibilities that MITI defines, and if "the *Keiretsu* does well in realizing the public economic objectives, it is rewarded by MITI and the public with funds, responsibility, and prestige" (Huber, 1994, p. 35).

The economic goal may be stressed more strongly in the Japanese Eco Town project than in Kalundborg, since the local industries that have been depending on heavy chemical manufacturing were experiencing a severe economic down-turn due to the industrial structural change after the bubble economy. Hollowing-out is the typical problem in these industrial areas, since many businesses relocate to areas with cheap rent and labour costs; therefore, acres of idle land were left in the industrial site (Mitsuhashi, 2005). In order to tackle these challenges, the project was developed with a combination of town planning and community development.

During the ten years of the project, 26 Eco Towns were developed throughout the nation (Berkel et al., 2009). These projects were subsidised by the MoE and MITI if the

[33] In 2006, the existing landfill site for industrial waste was analysed to be filled up in the next 7.7 years, and 15.5 years for general waste from households of Japan, if no measures were taken. In metropolitan areas, including Tokyo, Kawasaki, Yokohama and Chiba area, the landfill site for industrial waste was going to be filled up in 3.4 years (Ministry of the Environment, 2008).

project was approved by the national government. The MoE gave grants to the local municipality who developed the project in consultation with local businesses, the community and the local stakeholders. MITI, on the other hand, gave grants up to 50% of the total project cost to participating businesses that were willing to invest in innovation in recycling technology. Kawasaki was the first of these projects.

5.1.3 Kawasaki Eco Town

Kawasaki is included in the Tokyo–Yokohama region (Keihin), which became the largest industrial region to support the rapid economic growth of the nation. The development of the industrial area started as early as 1900 when the Kawasaki base of JFE Steel Corporation (then Nippon Kokan/NKK), the second largest steel and iron maker in Japan, launched in the coastal area of Kawasaki (Murata, 1980).

In the same period, large-scale industrial complexes, usually referred to as *kombinato*[34] began to develop. The idea was to achieve the highest possible efficiency by combining several different but corresponding factories in proximity (Sorensen, 2002). In Kawasaki, shipbuilding, automobile manufacture, electrical appliances, and general machine industries were built around the steel, oil, and petro-chemical factories between 1950 and 1970 (Tsuru, 1989).

Kawasaki contributed to the industrialization of Japan after World War II as the Keihin region grew to become one of the biggest heavy and chemical industrial manufacturing areas. Between 1959 and 1965, when the economy underwent rapid economic growth, the Kanagawa region (the prefecture where Kawasaki is located) always surpassed the nation's overall growth rate (Fujita, 1993). Even when the entire nation was suffering

[34] Named after Russian "Konbinat," which means connections (Sorensen, 2002).

from the crises or shocks of the 1970s, Kawasaki was able to avoid major damage by shifting the industrial structures from heavy and chemical to the manufacturing of electronic appliances, automobile parts and assembly.

Industrial restructuring in the 1980s hit Kawasaki hard. Manufacturing companies moved their mass-production out of Kawasaki and Kanagawa. In 1996, the total value of goods produced in Kawasaki was 20-40% less than 1981, and the hollowing-out of the *Keihin* industry was becoming a serious problem (Nagai, 2000). The industrial area had to shift the corporate strategy, a legacy of the post-war era, to something more suited to the needs and trends of the new age.The Eco Town project was believed to promote that industrial structural change (Samuta, 2003).

Kawasaki Eco Town is located in the Kawasaki industrial area, one of the major industrial areas in Japan. It is within the capital region, approximately 20 km (11 miles) from the capital city, Tokyo, and along the coast of Tokyo port. Most of the firms in the area are large- to medium-sized facilities and include steel manufacturers, oil refineries, energy plants, and ship and car manufacturers (Mitsuhashi, 2005). The population of Kawasaki city is 1,431,172[35] and it has been growing as a bedroom community for people who work in Tokyo.

The city was assigned as the first Eco Town of the nation in 1997. The size of the projected area was 2,800 ha in reclaimed land along the coast. It was designated mainly as an industrial area and has been separated from the residential area of the city by an industrial road since the industrial development in the 1960s. This region was considered to be

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[35] City of Kawasaki. Population and Families in Kawasaki. Accessed on September 1, 2011. http://www.city.kawasaki.jp/20/20tokei/home/suikei/jinko23/sokuho/jinko2309.htm

desirable for the Eco Town project since there was an established industrial structure, such as transportation infrastructure and ports, and also because the area was separated from the residential area, which could have been an obstacle in developing waste-treatment facilities.

The objectives of the Eco Town project in Kawasaki were two-fold: (a) to revitalize the economy of the coastal industrial site, and (b) to create a recycling-based society. The project was developed under four elements:

1. To shift the practices of individual firms from polluting to environmentally benign.
2. To reduce industrial wastes and use them as materials for new products by creating a symbiosis between firms.
3. To develop research on recycling technology to be a sustainable society.
4. To share the information and know-how of the Eco Town development with other regions and developing countries to contribute to the innovation of environmental technology. (Mitsuhashi, 2005)

5.2 Growth Interests

5.2.1 Interests of Local Businesses

In Kawasaki, although a large regional district is the focus of the project, a smaller area within the site, called the Zero Emissions industrial park, has been developed as the hub of facilities that embody the idea of industrial ecology. The goal was to reduce their emissions close to zero by making a closed-loop of the participating firms. Fifteen manufacturing firms, including, steel, paper, and other chemical products, obtained ISO14001 in 2005 and participated in the making of the industrial park (Mitsuhashi, 2005). These firms have developed technology for reducing waste and by-products, and built the

coordination-of-material cycle for reusing and recycling the saved energy and unavoidable waste from each plant. The philosophy of industrial ecology is embodied in the actions taken by the participating firms. Some examples of the practices follow.

Plastic for Reductants: JFE

Plastic waste is collected and rematerialized in the park. At JFE, a steel manufacturing plant, plastic wastes are used as reductant (reducing agent) in the blast furnaces, in combination with coke to smelt iron ore. Plastic waste that consists of carbon and hydrogen reacts with the oxygen in iron ore to produce CO_2 and H_2O. It generates 30% less CO_2 than when it uses only coke, which is pure carbon (Samuta, 2003). Therefore, replacing some of the coke with plastic waste is less harmful for the environment. JFE collects and uses 120,000 tons of plastic waste from other plants in the Eco Town and other regions of Japan. In addition, JFE dismantles electrical appliances and recycles the metal parts for their steel processing. The government subsidised 50% of the project, 1370 million Japanese yen (Berkel et al., 2009).

Plastic for Ammonia: Showa Denko

Showa Denko started ammonia manufacturing in Kawasaki in the post-war era, and made Kawasaki number one in the Japanese ammonia industry. Showa Denko built the petro-chemical complex in the Kawasaki industrial area to transport the resources for ammonia production, such as naphtha, from other firms in fossil fuel processing. In 2002, when the resource contract with these firms expired, Showa Denko developed the technology to produce ammonia from used plastic materials through chemical decomposition, instead of using natural resources such as naphtha and LNG. As part of the Eco Town project, it obtained a government subsidy of 3400 million Japanese yen, 50% of the entire cost of the

project (Berkel et al., 2009). Showa Denko produces 175 tons of liquefied ammonia from 195 tons of used plastics per day.

The participating firms contributed to the development of such environmental technology for several corporate reasons. First, some of the factories that have been operating since the period of rapid economic growth may change their public image from being polluters to innovating such technology. JFE and Showa Denko were the major polluters in the period of the booming economy in the 1960s-70s, and responsible for restoring the environment in the surrounding area. To participate in the project, a plant has to consider environmental management as the focal point of their business, and show creativity in making sustainable transportation systems and waste management in their plants. Participating in the project was vital for them to refresh their image and attract a greater number of consumers who are environmentally conscious.

Second, recycling waste into raw material within the firm can be cheaper than buying the same amount of new raw materials. If a firm can process a great deal of waste, it may increase its competitiveness by saving the cost of resources (Samuta, 2003).

Finally, by engaging in the recycling business, the participating firms may diversify their operation from the traditional heavy and chemical industries. Participating firms are likely to be manufacturers of raw materials such as steel, cement, and petro-chemicals that have been suffering from recession due to the industrial structural change since the 1980s. These firms now engage in the growing recycling business based on their existing technology and facility for using the resource in order to survive in the weakening manufacturing sector (Samuta, 2003).

Therefore, the local businesses consider the economic profitability of participating in the Eco Town project besides the other goal of the project: to reduce overall waste.

5.2.2 Interests of Local Government

The interests of local government are closely related to that of local businesses (Samuta, 2003). The city carried out research on the regional manufacturing firms in 1996 on industrial structural change. The study showed that large local businesses were extremely interested in the field of the environment as a promising industry to which they wanted to shift their business strategy for the future. In 1997, the city launched the "Kawasaki 21, Industrial Strategic Action Program" as a project that promotes the revitalization of "*Monozukuri Toshi* (manufacturing city)" based on the experience and knowledge accumulated post-war, in order to stop the hollowing-out and decrease in production. The building of Zero Emission industrial city was a part of the project (Ito, 2005). Therefore, the Eco Town program for the city of Kawasaki was initiated as an important part of its economic policy, based largely on the interests of large local businesses.

Besides the interest in recreating a manufacturing city, the City of Kawasaki was interested in improving its image. In the period of industrialization, Kawasaki became one of the major polluting cities of the nation. As in the other industrial regions on the Pacific Belt, many giant factories and *kombinato* were developed in the 1960s, promoting the concentration of industrial activities. The transportation network for both public and industrial purposes was implemented, resulting in "motorization." Following the four major protests (Itai-itai disease, Minamata disease, Niigata Minamata disease and Yokkaichi asthma) against industrial pollution between 1960 and 1970, 400 people who were affected

by the industrial pollution and the automobile exhaust in Kawasaki filed a lawsuit.[36] After four trials over 16 years, the nation and the industry finally admitted that the asthma and other health disorders was due to the industrial acitivities and increase in the level of motorization in the area. Although the lawsuit was concluded, this event has left deep divisions between the citizens of Kawasaki and industry (Azuma, 2000). Supporting the Eco Town project was part of the city's effort to heal the disparity.

The subsidy allocated by the national government for the project was another incentive for the city. The City of Kawasaki was granted 40 million Japanese yen (1 million JPY=US$10,000) from both the MoE and METI; about 50% of the total project cost[37] (Berkel et al., 2008), which was about 13% of the total subsidies ($1.65 billion) distributed to 26 Eco Towns by the government. The grant was used to execute town planning, community recycling and promotional and outreach activities.

5.2.3 Interests of the State

After World War II, the coastal areas in particular were important for foreign trade. They developed rapidly through land reclamation. The Keihin industrial area was reclaimed in 1961 as an industrial area leading the recovery from the economic downturn after the war. The entire coastal area has been further developed and expanded over the last century by reclaiming the coastal area; 20,763 ha of 28,000 ha (74%) of the Kawasaki industrial area is

[36] Yomiuri Newspaper Online 'Kawasaki Kogai Sosho'. Accessed on June 2nd, 2012.

http://plus.yomiuri.co.jp/article/words/kawasakikogaisosho

[37] There were five projects subsidised by the METI: Recycling of plastics as reductant, recycling of plastics for concrete framework, recycling plant for unsorted and contaminated paper wastes, recycling of plastics for ammonia production and PET to PET recycling plant (Mitsuhashi, 2005).

on reclaimed land that has been developed since 1913. Some 730 ha of reclaimed land has been developed since 1995 in the Kawasaki industrial area.

According to Murata (1980), the reclamation of the Kawasaki-Yokohama region continued during the period of rapid economic growth, with the establishment of huge factories for Nippon Steel, Nippon Kokan, Kawasaki Steel, and Sumitomo Metal Works.

These firms were run by *zaibatsu*, developing numerous linkages between parent companies and subcontractors in each industry. In Japan, it is customary for a machine producer to buy parts from several subcontracted parts-makers, even the same parts, to increase the competition between subcontractors. This procedure improves the quality of products and keeps the price low (Murata, 1980). The linkages are called *seisan keiretsu* (vertical manufacturing network) differentiated from the financial *keiretsu* that are the descendants of *zaibatsu*.

For instance, JFE steel, the biggest steel factory in the Kawasaki industrial area, is run by one of the financial *keiretsu*, formerly known as *Kawasaki zaibatsu*. In the Kawasaki group are 10 *seisan keiretsu* businesses in steel, shipbuilding, motorcycles, machinery and so on. There are also other *seisan keiretsu* companies under the umbrella of Mitsubishi and Sumitomo, two of the largest financial *keiretsu* in Japan, involved in the development of the Kawasaki industrial area. Thus, the development of the Kawasaki industrial area was initiated by major financial *keiretsu* that were both economically and politically influential in the period of rapid economic growth.

In the 1990s, the industrial regions in the Pacific Belt had achieved dramatic economic growth through the heavy and chemical industries but they were suffering from the structural recession due to increasing material costs and international competition. The region

needed another industrial restructuring to revitalize these regions without wasting the existing foundation of manufacturing processes. The answer was the environmental industry.[38] According to the estimate of the Ministry of the Environment, the market value of environmental business was 30 billion dollars in 2000, estimated to expand to 47 billion dollars in 2010, and 58 billion dollars in 2020 (Ministry of the Environment, 2000). However, Samuta (2003) stated that it was not necessary to choose the waste recycling business as a key industry of the environmental business among other fields such as eco-housing, solar electricity, wind electricity, and so on. The reason why the government set the recycling business in motion was to use the established physical and technological foundations of manufacturing, otherwise standing idle or moving away to other countries.

Following the framework for Japan's measure for global environmental conservation stated in the 1993 Basic Environmental Law, METI established the Basic Law for establishing a recycling-based society in 2001. It states the vision for Japan's shift as follows:

> In order to achieve sustainable development, Japan should take measures against problems concerning waste and enforce the 3Rs [Reuse, Reduce, Recycle] as its top priority. . . . More specifically, for the sustainable development of Japan, it is essential to get out of the conventional economic system that is based on mass-production/consumption/disposal and create a recycling-oriented economic system and society while promoting "environmentalization of industy (incorporating measures for environmental and resource constrains into business activities)" and "industrialization of the environment (generating market value through measures for

[38] Organization for Economic Co-operation and Development (OECD) defines as 'the grouping of all producers of environmental products ; these consist of cleaner technologies and products, pollution management services and resource management'(OECD, 2005).

http://stats.oecd.org/glossary/detail.asp?ID=6419

> environmental and resource constraints)" with effective use of the power of the private sector. (MITI, 2003, pp. 4-5)

As noted in the citation above, the role of industry in achieving a recycling-based society is stressed. Two complementary laws were put in force to achieve a recycling-based society. The Waste Management Law (2001) set the goals for waste treatment and clarified the roles and responsibilities of waste generators and prefectures to reduce and manage their wastes (Berkel et al., 2009). The Law for Promotion of Effective Utilization of Resources (amended in 2003) provides 3R-related measures taken by businesses, consumers and the government to reduce waste, recycle, and reuse waste as raw materials (MITI, 2003). These laws set a legal framework for the establishment of the recycling-based society.

As Berkel et al. (2009) argued, the Eco Town project, launched about five years prior to the enactment of the Basic Law for Establishing a Recycling-Based Society, was an important in developing the infrastructure for recycling activities necessary to achieve the shift proposed by the national government. Supported financially by the national government, the Eco Town program aimed to develop innovative recycling industries in cities with outdated industries that were suffering from the structural change in the economy after several economic and resource crises (Berkel et al., 2009). In this respect, it can be said that the project retained the characteristics of Japan's traditional industrial development that designated the towns to be improved and funded.

The traditional relationship between the city government and local businesses, and the businesses and the state were the crucial driving force of the project to support each others' interests. Although each interest varies, these actors are unified as a single interest group as in the case of nuclear power development. They think strategically that the Eco Town project

in Kawasaki and throughout Japan would help reinforce the nation's economic vitality in the changing domestic and international industrial structure. Therefore, the argument that Kawasaki's Eco Town project was more an industrial strategy than an environmental protection measure (Natsunaga, 2008; Samuta, 2003) is legitimate.

5.3 Assessment of the Project

5.3.1 Dilemma of the Locals

As Figure 2 indicates, the 26 Eco Towns are located along the area of the Pacific Belt where rapid industrial development in the 1950s and 1960s left pollution as a serious social problem. Kitakyushu Eco Town, for example, was approved in 1997, the same year the Kawasaki Eco Town project was initiated and the recycling industry developed (Berkel et al., 2009). Kitakyushu industrial area in northern Kyushu is one of the four major industrial areas in Japan that contributed to the rapid economic growth of the country. Kitakyushu city was said to be the most polluted city in Japan in the 1960s and the 1970s (Fujikura, 2001). Although, as in Kawasaki's case, the residential area and the industrial area are clearly separated, the residents suffered from coal dust in the 1950s, and sulphur dioxide from petroleum in the 1960s. Environmental improvement has been recognized by both national and international environmental initiatives in recent years after all the anti-pollution measures, however, the image of Kitakyushu city remains poor.[39] In these industrial cities, public interest focuses on the physical health and improvement of environmental amenities (Samuta, 2003).

[39] The City of Kitakyushu 'The Conference for Brand Set Up Strategy' at http://www.city.kitakyushu.lg.jp/soumu/20300118.html

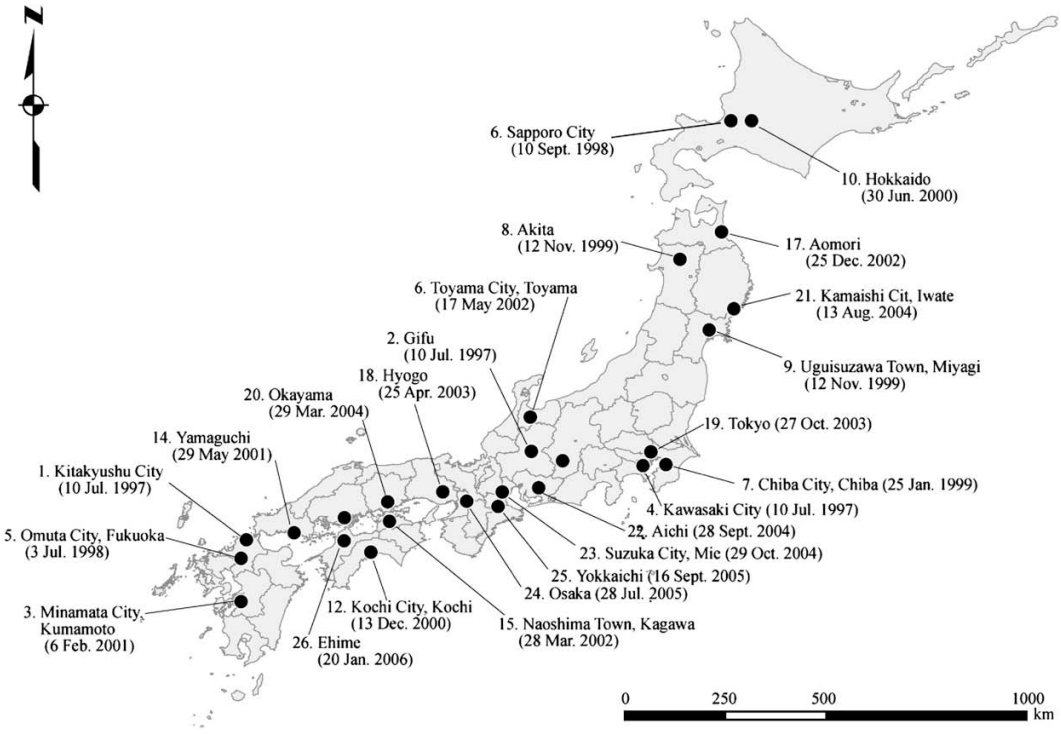

Figure 3 (Eco Towns in Japan)

Source: http://www.env.go.jp/en/press/2006/0120a-01.pdf

The decline of industry affected the industrial cities in the Pacific Belt area as heavy industry underwent fundamental restructuring in the 1970s (Shapira, 1993). According to Shapira, Kitakyushu city lost more than one third (almost 50,000) of manufacturing jobs in steel, machinery and chemicals between 1965 and 1988. While the public was relieved by the improvement in environmental quality, the social consequences of the industrial decline was another threat to their standard of living, weakening the employment foundation and economic position of Kitakyushu. Fujikura (2001) stated that everyone in Kitakyushu knew that the smoking factories were a source of employment and regarded them as an "unavoidable by-product of successful economic development" (p. 473). Thus, they were

facing a dilemma between economic growth and sound environmental practice. Most Eco Towns were developed in the Pacific Belt area where this dilemma had existed for some time.

5.3.2 Environmental Impact of the Eco-Town Project

Japan's effort to create a recycling-based society may have contributed to the reduction of waste by material recycling in the household and in recycling plants. However, we should not forget that the land where these plants are built was created by landfill, jeopardising marine biodiversity and the marine ecosystem. At the time of writing, the project has completed 14 years of operation. The results of the Japanese Eco Town project are expressed in diverse ways by researchers and authors. Berkel et al. (2009) concluded the project was successful in terms of the amount of industrial and household waste that these plants recycle and rematerialize. The total capacity of the recycling project in the 26 participating Eco Towns is nearly 2 million metric tons annually (Berkel et al., 2009). In fact, the lifespan of landfill sites has been prolonged over the last ten years. According to the report of the Ministry of the Environment, the landfill sites for industrial wastes in 2009 have 10.6 more years until they reach capacity, compared to 7.7 years in 2006. The landfill sites for household wastes also have more space in 2009, with 18.7 more years compared to 15.5 years in 2006 (Ministry of the Environment, 2011).

Berkel et al. (2009) pointed out the improvements and innovations in technology that have been brought about by the project. All the recycling technology represented by the five recycling plants in the Kawasaki Eco Town might not have been developed as well and as quickly without the government subsidies. The technology can be accessed by the processing industries, as well as academia and specialized research facilities, making the further use and development of the technology more promising.

A few researchers, however, criticize the result of the Eco Town project in Kawasaki. Matsunaga (2007) argued that after the 10-year duration of the program, the situation around the recycling business has changed, while the government regulations that were created and amended to develop the recycling-based society remained the same after the project ended in 2004. Matsunaga pointed out that much of the waste material flow is shipped abroad, particularly to China, due to the cheaper cost of processing. In fact, the government study shows that 52% of recycling firms in the 18 Eco Towns stated that the recycling business was less profitable than expected and 74% of them see difficulty in securing a sufficient quantity of waste material to generate profit from economies of scale (METI, 2000). Thus, at the factory level, it is increasingly difficult to collect enough material waste to be recycled to sustain the business;[40] at the macro level, the waste materials are not well circulated within the nation, but flow beyond the border (Matsunaga, 2007).

Samuta (2003) argued that the project has not directly contributed to meeting the public concern for the environment such as the improvement of atmospheric pollution and recreating marine environmental systems. On the other hand, he argues, it has grandfathered the traditional developmental strategies that focus primarily on local economic development It has neglected the protection of the local natural environment even though it may contribute to overall waste reduction. He assumed that the project would not reduce the volume of freight traffic that runs through the industrial road dividing the residential area and industrial area. In fact, a study[41] showed the number of cars that drove through the industrial road a day

38. In fact, PET-Reverse, a PET-bottle recycle factory was forced to shut down in 2004, because of the unstable flow and cost of PET bottles.

[41] See the web site of Kawasaki Kankyo Taisakubu at http://www.city.kawasaki.jp/30/30sidou/home/kougaitop/kougaitop.htm

was 30,117 in 1999; the number increased to 38,117 on the same day at the same time in 2005. In the same period, the volume of large freight vehicles on the same industrial road also increased from 34.8% to 41.5% of the total traffic. According to the study, the amount of SOx emitted from businesses in the Kawasaki industrial area in 2007 was 851 tonnes, down from 1,289 tons in 1997. The amount of NOx from industrial plants and traffic was 9,739 tons in 2007, slightly reduced from 11,975 tons in 1997. The concentration level of atmospheric NOx at an observation point near the industrial road was on average 0.132 parts per million (ppm) per hour in 2007, down from 0.169 ppm per hour in 1997. However, the standard level of NOx set by the Ministry of Environment is between 0.04 and 0.06 ppm per hour or below that level, in order to maintain sound health. Therefore, the NOx levels recorded near the industrial road were much higher than the environmental standard for the entire decade. The NOx level was on average 0.113 ppm per hour in 2009. The city has reported that it would be difficult to achieve the set environmental standard at the location in the near future. The increase in traffic volume negated each firm's effort to reduce the greenhouse gases from the production process.

More cases of photochemical smog warnings were announced in 2007 than 1997. Photochemical smog is air pollution caused by the chemical reaction of photochemical oxidants, such as chemically reacted nitrogen and hydrocarbons. It causes affects human health, causing respiratory and vision-related problems. The city announces warnings when the atmospheric concentration of photochemical oxidants exceeds 0.12 ppm per hour. There were only two warnings in 1997; however, it jumped to 13 warnings in 2007 when the Kawasaki Eco Town project was finished.[42]

[42] City of Kawasaki, Air Pollution Monitoring Center. Accessed on Mar 19, 2012.

The Eco Town project in Kawasaki city has been criticized from the perspective of environmental ethics. Fukushima (2011) argued that development of the waterfront should consider public accessibility as an environmental amenity, not just for commercial purposes for the local businesses. Kawasaki is a good example of Japan's waterfront development that segregates the residential area, making it more convenient for industry, but neglecting the public right of access to the amenity. The existing transportation infrastructure and robust manufacturing foundations on the waterfront of Kawasaki were factors in the decision to locate recycling plants that would process the garbage collected from all over Japan. Since the residential area was far away from the waterfront, the businesses did not have to worry about the smell and the noise that could be a problem in urban areas. Although the separation of the residential area is considered to be an advantage for the Kawasaki Eco Town project by a few researchers (Ito 2005; Mitshashi 2005), Samuta (2003) perceived this advantage as the "environmental cost" to the public, who are not able to access the marine amenity that should be available to everyone.

The city had a 10-year plan to increase green areas for public enjoyment. *Kawasaki-shi Tokutei Koujou Ryokuchi Seibi Kihon Houshin* (Basic Plan for Promoting Green Areas around Plants in Kawasaki City) was inaugurated in 2000, in order to increase the green area[43] to as much as 15% of the total industrial area in Kawasaki in the next 10 years (City of Kawasaki, 2011). This was a guideline for specified plants with more than 9000 m^2 lot area or 3000 m^2 floor area in manufacturing, power and gas supply plants in Kawasaki city, but

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http://www.city.kawasaki.jp/30/30kansic/home/html/teikyo/taikidata-ox_haturei.htm

[43] Green area is defined by the Factory Allocation Policy as a place with more than one tree of 4 meters and more within 10m^2 or a place with 10 m^2 ground covered with lawn (Kyogikai, 2011).

there was no legal system for its enforcement. In 2010, 95 plants were registered as the specified plants whose total area covers 1,703 ha of the area of Kawasaki city; more than 80% (1574.8 ha) is located in the industrial area (City of Kawasaki, 2011). After 10 years of operation, there is 182 ha of green area, which is 11.85% of the total area of specified plants in Kawasaki (City of Kawasaki, 2011). In the industrial area, there are 160.5 ha of green area, which is 10.4% of the total targeted area (City of Kawasaki, 2011). Therefore, the city has not achieved the goals stated in the guideline, even though there is a slight increase in the green area from 10 years ago. Plans for establishing recreational parks such as soccer grounds and amusement parks have been turned down during the planning process due to the city's financial difficulties (Azuma, 2000). Fukushima (2011) reported that because of the division by the industrial road, the waterfront of Kawasaki city area has completely different characteristics from the other side of the industrial road. Material processing plants, such as steel production, oil refineries, and storage for the trade industry are the major components of the waterfront area, whereas the residential area is spread on the other side of the industrial road. Although there has been a regulatory effort to create entertainment and recreational areas in the area to make it more accessible to the public, it has not been successful[44] (Azuma, 2000).

Reclamation of land is a controversial issue. It is ironic that the Eco Town was based on land that was reclaimed at least partially with garbage that could not be recycled or rematerialized. The impact of marine development on the marine environment has been studied; the results show negative influences on marine eco-systems and biodiversity. Marine

[44] According to Azuma, a soccer field was planning to be developed in Ukishima, one of the reclaimed land in the industrial area, but the plan did not go through. Another plan to build a recreational park called Tezuka World, was cancelled due to a financial difficulty resulted from prolonged recession (Azuma, 2000).

development often causes geographical changes that displace living and breeding sites for marine species (Shimizu, 1999). Reclamation changes currents and chemical reactions are likely to pollute the water and the sea bed. The turbidity of water caused by construction could be harmful for organisms in the ocean. Therefore, it is widely known that reclamation of coastal area causes both direct and indirect damage to the marine environment.

5.4 The "How" of the Eco Town Project in Japan

As noted above, most of the 26 Eco Towns were developed in the Pacific Belt area where there is a conflict between economic growth and environmental constraints. The businesses had to restructure their operating systems and diversify into new manufacturing and service businesses following the industrial structural change of the 1970s (Shapira, 1993). In order to revitalize and expand the industries that had supported economic growth at the expense of the environment, the Eco Town project had to go through a process of legitimation. I would like to examine the "how" of Japan's Eco Town project by analysing its concept development and use of environmental discourse.

5.4.1. Concept of Zero Emission

The goal of the Kawasaki Eco Town was to symbolise the concept of Zero Emissions developed by the United Nations University in Tokyo in 1994 (Hotta, 2004). The concept was communicated to industry, government, and civil society through an organization called Zero Emissions Forum (ZEF) consisting of representatives from Japanese business, local governments, academia and NPOs (Kuehr, 2007). The concept was presented to business communities: "Zero Emissions can mean greater competitiveness; it represents a continuation of industry's inevitable drive towards efficiency" (in Hotta, 2004, p. 5). Based on the idea of

ecological modernization (environmental problem as a potential source of growth), Hotta stated that the concept of Zero Emissions mobilized businesses to become involved in environmental activities.

The concept is accepted not only by businesses but also by the community as a whole (Hotta, 2004). Kuehr (2007) assumed the term "zero emissions" attracted special attention, as it is easily understandable and does not require translation into other languages. Since it is easy for Japanese people to imagine the significance of "0" (zero is the same in the Japanese language), the concept of zero emissions has provided the appropriate discourse and storyline to contextualize their activity. Hotta argued that the discourse on zero emissions allows central government, local government, or industries to interpret environmental policies and activities to move from a regulation-led passive position such as pollution prevention to a promotion-led active one, such as environmental management, marketing, reporting, or the 3Rs (Hotta, 2004).

It may have reduced the overall waste in Japan, but the local residents are still subject to the nuisance of extended recycling activities. Developing an expanded cluster of recycling facilities under the name of Zero Emissions industrial area may avoid the criticism of the environmental activists and the public that such a development will harm the location.

The concepts of industrial ecology and zero emissions may promote policy measures that achieve economic efficiency and environmental conservation by using improved technology. For these reasons, the concepts are attractive for industrialized nations like Japan. Development and the application of technology are believed to be the optimal solutions to environmental issues such as air pollution (Gonzalez, 2005). Whether these goals

are complementary is a controversial question in the discourse of today's environmental activism.

5.4.2. ISO14000 as a Symbol of Sustainable Production

The participating firms in the Kawasaki Eco Town have obtained ISO14000 certification, which shows they have improved technology and a management system to operate their business with less harm to the environment. The Kawasaki Eco Town brochure insists that the participating firms obtain ISO14000. The ISO14000 was adapted in 1996 by the *keidanren* and the Japan Industrial Standards (JIS) as part of establishing environmental standards (Takao, 2012). Takao pointed out that the background of this adaptation was the international pressure on Japan after the Earth Summit in Rio to play a responsible role in global climate change as a world economic leader. Not complying with the ISO standard could be a considerable disadvantage for Japanese products sold in foreign markets. Matten (2003) called this kind of certificate "industrial metastandards" and argued that it is the most common tool of corporate environmental politics because it signals to the general public that the company has certain precautions in place. Technology has a symbolic power to assure people that something has been done to protect them from uncertain outcomes (Edelman, 2001). The assumption that "clean" technology creates a benign relationship between economic growth and the environment is criticized due to the actual outcome of the practice (Gonzalez, 2005).

In fact, the case of Kawasaki shows the rebound effect of improved technology. The amount of PET bottles produced in 1997, at the beginning of the Eco Town project, was

219,000 tonnes. It increased to 544,000 tonnnes in 2007, the end of the project.[45] It is argued that the increase in the manufacture of the PET bottle occurred partly because of the increasing efficiency of production and the fact that people believe the PET bottles can be recycled. Blühdorn (2001) advised that the environmental strategies relying on technological development have not been able to either halt or reverse the current trends in environmental consumption and destruction. Thus, it can be argued that the company's effort to obtain such environmental standards as ISO14000 is a symbol of global competitiveness that encourages public consumption activities. The public, on the other hand, is assured that the Eco Town project involves sustainable production rather than polluting activities, and contributes to the fight against global climate change.

5.4.3. Global Environment Discourse

The Kawasaki Eco Town brochure explains the background that pushed the planning of the project. It stressed the need to tackle global environmental problems and the potential of Kawasaki to contribute by becoming the model that other countries could follow (Mitsuhashi, 2005). As noted above, one of the goals of the Eco Town project in Kawasaki was to share the technology and knowledge of environmental conservation developed in Kawasaki with developing countries. The City of Kawasaki was designated as the Environmental Specialized Zone by the national government in 2003 to promote the industrial structural change. The Environmental Specialized Zone encourages innovation in environmental technology that will contribute to the preservation of the global environment by bringing scientists together and by loosening regulations to promote further

[45] The Council for PET Bottle Recycling. Statistics of sales, production and collection of PET bottles. Accessed on Apr 10, 2012.

http://www.petbottle-rec.gr.jp/data/transition.html

conglomeration of high-tech industry.[46] The city stresses its potential to lead the development of environmental technology and its ambition to be the model of environmental industry in the global world economy.

Kawasaki's goal to be the world leader of environmental technology reflects the nation's desire to be an international environmental leader. Under pressure from international communities to play a responsible role in global environmental protection after the Earth Summit in 1992, the Ministry of Foreign Affairs (MOFA) has continued to claim its position of global environmental leadership (Tayor, 1999). Taylor stated that Japan's declaration to be a global environmental leader could be the strategy to promote further development by increasing Japan's competitive advantage in global environmental diplomacy. Thus, the use of the term, "global environmental leader," is rhetoric that conceals its intention and desire for global control. Taylor criticized Japan's "technological fix" approach to environmental problems and argued that Japan's foreign policy to improve the global environment might promote rapid industrialization in developing countries without fear of the consequences of such development. Taylor pointed out that Japan's foreign assistance has been large infrasturactural construction that damages the natural environment of developing countries. He criticizes the contradictions between this global development strategy and Japan's rhetoric to become the world environmental leader.

Japan's ministries and businesses legitimized further industrial development and the system of capital accumulation, while creating an environmental discourse that would promote public consensus. The Eco Town project was planned to create a recycling-based society with material circulation between businesses, households, and industry. It seems that

[46] My translation of http://www.kantei.go.jp/jp/singi/kouzou2/sankou/030526/019.pdf

more emphasis was placed on creating a good business climate by developing the infrastructure foundations under the name of the Eco Town project. Azuma (2000) argued that the project has only a short-term vision and, therefore, benefits only individual firms and businesses. In this respect, I would call the Eco Town project one of growth politics that pursues the interests of economic and political elites. The concept of the long-term benefit of environmental sustainability, on the other hand, is used as a symbol that lubricates the execution of the project.

5.5. Eco Town: Symbol of Sustainability

As in the nuclear case, the Eco Town project was led by the elite group, the state, businesses, and local government. The project was planned and developed by the national government as part of the national environmental goal to establish a recycling-based society.

Why the Eco Town project was developeed can be explained using Broadbent's (1998) three models of Japan's environmental response. The political-economy model would explain the Eco Town project as a rational choice to help industry expand in the locations where there had been disagreement between the public and business over pollution problems. In this model, one could assume that MITI used the increasing awareness and antagonism towards the polluting industrial activities as an opportunity to revitalize the economy through the project and achieve both environmental and economic goals.

Using Marxist economic categories, "social expenditures" have two faces. These are *social capital*: "expenditures required for profitable private accumulation" (O'Connor, 1973, p. 6), and *social expense*: "projects and services which are required to maintain social harmony" (p. 7). The more social capital is spent, the more social expense is required to fulfil

the state function of legitimization. The political-economy camp could explain the Eco Town project as a social expense. The industrial foundations developed along the Pacific Belt were the key system for efficient capital accumulation in the post-war era (Sorensen, 2002). In the globalization of industry, more social capital was spent on foreign markets to increase private accumulation and to reduce labour costs, because further domestic industrial development might be more costly and less efficient. However, the public in the industrial areas of the Pacific Belt have suffered from problems both during and after the peak of industrialization such as pollution and job losses due to hollowing out. Thus, the revitalization of these industries might be the social expense necessary to maintain social harmony.

For local governments, the Eco Town project was a source of public works and subsidies. It improved the image of a major polluting town, which encourages the location of new businesses and population flow (Logan & Molotch, 1987). The eco-town project was an ultimate choice for the city to revitalize the regional economy without raising public concern about further industrialization of polluted areas. It can therefore equally be considered social capital.

The institutional model would create a social interrelationship between the state, large corporations and the local government. The businesses along the Pacific Belt had contributed to the national economic growth strategy since the pre-war era. The local governments had been involved in the city planning and community development in cooperation with the industrial clusters that provided jobs and prosperity to the local communities (Sorensen, 2002). This traditional relationship of local and national actors as well as the physical foundation of the clusters of manufacturing firms became important elements of the political culture. They promoted growth politics in the region, including the Eco Town project. As

mentioned in Chapter 2, the idea of path dependency was another important notion of the social-institutional model.

The Pacific Belt arguably supported the regional economy. It had an established infrastructure for efficient material flow, information bases, and personnel demands and supplies, without which further industrial development would be less efficient.The Eco Town project was therefore on the same trajectory as Japan's traditional industrialization model, which relied on the mega industrial clusters (Samuta, 2003).

The state had a significant role in setting the political background for the project. This shows a break with Broadbent (1998), who does not agree with the state-centric view of institutionalism. It had created a "good business environment" by establishing laws and regulations for industry to move into the environmental business. As Edelman (1964) argued, laws and regulations are the foundation on which a political act would be legitimized. The laws for creating the recycling-based society and laws for promoting material recycling had legitimized the recycling business and become the foundation for the Eco Town project (Berkel, Fujita, Hashimoto, & Geng, 2009).

The cultural model would explain the project as a reflection of the global environmental ideology. Around the time of the Earth Summit in Rio, the public perspectives on environmental values shifted from the prevention of domestic pollution to conservation of the global environment (Tsuru, 1999). With increasing pressure from the international community, the Eco Town project was intended to modernize industrial practices and support industrializing countries with new technology. Japan used the international pressure as an opportunity to replace the old system of capital accumulation with new environmental businesses which would achieve the interests of the political and corporate elites. Under the

name of "eco," the industrial areas in Kawasaki and other regions were developed further, resulting in increased environmental damage. The way of legitimizing the shift was through the symbolic use of rhetoric, such as zero emissions, technological certificates, and the diplomatic positioning of Japan as an environmental leader.

As explained in the discussion on each of the theoretical camps, I argue that the Eco Town project in Japan is the product of another form of symbolic politics that conceals the growth interests of the state, business, and local government. The Kawasaki Eco Town has been developed as a symbol of sustainable development that represents efficient material cycles and environmentally benign industrial activities. In fact, it supports and revitalizes the traditional system of capital accumulation in terms of both the physical industrial structure and social network of corporate and political elites.

Chapter 6: Conclusion

Growth may be the result of the natural characteristics of human. They are ambitious, progressive, and seek contentment. Economic growth is not problematic when the benefit is distributed evenly in the society as a whole and if it is pursued within the environmental capacity. However, it has been pushed by those who have more power and influence in the political and economic sphere to promote their own agendas. As a side effect, others have benefitted from the influence of technological development and improved social services. In tandem with the end of industrialization in the First World, economic expansion has been reoccurring in the Second and Third Worlds with the spirit of "growth first, clean-up later."

Dilemmas occur when the external aspects of the economic expansion become evident. Economic and social inequality between the rich and the poor is exacerbated and has resulted in severe human rights problems. The Earth's capacity to absorb all the waste from industrialization has been exceeded, resulting in deterioration of the eco-system and related environmental turmoil. In Japan, both peripheral and urban areas have been facing dilemma that is geographically unique but caused by the same industrial structure created for the post-war economic development. In order to solve this dilemma, the concept of environmental conservation has been used as another tool of economic growth. Although it is known to be one of the leaders in environmental technology, Japan's commitment to environmental preservation has been centred on the desire for growth that has permeated the linkage between the government, big corporations and the political party since pre-war.

In Japan, the nation itself has been a gigantic growth machine if one wishes to apply Logan and Molotch's (1987) notion of "city as a growth machine." The linkage between the government and *zaibatsu/keiretsu* remained even after the U.S. occupation and efforts to

resolve the monopolization of the Japanese economy after World War II. Today, its influence is still significant because bureaucracy (MITI), political parties (LDP) and industry are connected through the historically developed informal network. In fact, both nuclear and Eco-town cases were largely involved with this iron triangle of which primary principle has been capital accumulation. By using their authority and economic power, the ruling triad created the growth ideology and defuse it efficiently and widely to the public through political parties' clientelistic network with the local communities. Rigorous engagement in symbolic politics is evident in this process.

In nuclear case, the most timely social problems were used as symbolic issues to place nuclear plants in Japan. Nuclear power was a symbol of national resource security as early as the 1950s when the nation was fired up by the ruling triad's growth ideology. To be more independent, to be more internationally competitive, nuclear was depicted as a necessary project. As environmental awareness increased in the1980s, nuclear was then a symbol of environmental protection because it does not emit CO_2. This is how it was possible to launch as many as 54 nuclear plants in Japan where the fear of atomic bombs in Hiroshima and Nagasaki still remained and where earthquakes occur more frequently than in most other countries. As part of the symbolic politics, the public opinion against nuclear power was manipulated through the safety myth, media reporting, and education. As Edelman (2001) stated, public opinion is moulded by those who have the greatest power. It is then used to rationalize the actions that bring disproportionate benefits to the elite. The strong interconnectivity between the media and the elites has been a great force in nuclear development in Japan. The Kisha Clubs, the nationwide media organization, controls the flow of information so that it creates a desirable mass response.

The rural communities had no choice but to depend on the nuclear industry, due to the economic disparity created by Japan's industrial structure since the rapid post-war economic growth. The nuclear business was a chance for the most rural communities to attract businesses and people who had moved to cities for better opportunities. The nuclear industry has contributed to economic stability in the rural communities until the earthquake on March 11th signalled the end, although temporary, to Japan's growth-led nuclear development. All the communities with nuclear plants except for one in Fukui prefecture now have to survive without energy, jobs or government funding. The Fukushima Daiichi nuclear plant disaster created a large area that will be uninhabitable for decades. Fears of further damage to the Earth still remain.

Although not as threatening as the nuclear case, the Eco Town project in Japan is also a growth-led national project. In the case of Kawasaki, it involved large-scale reclamation that destroyed the marine eco system and the coastal amenities that the public should have the right to enjoy. Moreover, the increased traffic into the site reduced the air quality at some locations. Because they were trying to use the existing industrial foundation, the facilities needed large quantities of recycling materials (waste) shipped from outside the city to operate the system. Therefore, the Eco Town project has created a recycling-based society where the economy does not work without a large amount of material (waste) flowing into the system. How this project was carried out in the area with historical pollution problems and pollution sensitive public is again, engagement in symbolic politics.

The Eco Town project was promoted as a sustainable industrial development rather than just a further industrialization. The law (the Basic Policy for Promoting Recycling-Based Society) was created as a foundation for developing the recycling industry across

Japan. Indeed, the government predicted the prosperity of environmental business in the next decade. Edelman (1964) argued that the constitution, the law of nature, reason, or other potent symbols justify man's lot and his acts. The growth ideology underlying the project was that it should be a win-win situation. It should revitalize the local industrial economy while reducing waste by creating a recycling-based society. The nation needed a new industrial strategy that could use the existing industrial structure. Kawasaki city has Keihin industrial area, one of the largest industrial areas that contributed to Japan's rapid economic growth. The structural change after the bubble economy affected the local industry that depended on the heavy and chemical industries. Participating in the Eco Town project was the panacea for their problems—stopping the hollowing out of the industrial site, improving the image of the industrial area as a big polluter, and developing foundations for a new industrial structure.

In Kawasaki, the Eco Town project is also a symbol of global environmental leader. By developing environmental technologies, Kawasaki was determined to aid developing countries. It can be argued that this is a strategy of Japan to be more competitive in global environmental diplomacy. Use of this kind of rhetoric is also a tactic of symbolic politics to gain public support for the project. The innovation of recycling technology is proudly proclaimed in publications. It might have reduced people's fears by providing the hope that salvation lies in technology and it might have convinced the public that something is being done for the environment. However, it does not change the traditional industrial system that requires a large amount of input to maintain the benefit of economy of mass.

The Eco Town project is symbolic, increasing public awareness of the environmental impact of industrial activities. Blüdorn (2005) called it a "performance of seriousness,"

making the public believe that their concerns are being heard and addressed while the elites are secretly pursuing their own interests. Thus one of the roles of the government is to legitimatize the development of the recycling industry by using vocabulary such as eco, zero emissions, and 3Rs. Another governmental role is to help the aging industry shift gears and incorporate the environmental business. The public has failed to scrutinize the project due to the widespread perception of these concepts constructed through everyday conversation, the law, and other symbols. Physical segregation from the industrial site has kept scrutiny to a minimum. It has been a few years since the project finished its 10-year limit. The outcome of the project should be analysed and reported on by a third party in terms not only of technological progress, but also the more comprehensive environmental impact on the nation as a whole.

In the case of nuclear power and the Eco Town project, the political and economic elites pursue their own interests under the name of national benefit. The public perception of these projects is strategically constructed so as to go along with the growth ideology of the elites. Both projects have achieved the interests of a small group while the public assumed that they would achieve harmony between economic growth and environmental sustainability. However, it is always the people living near the project site who become the victims of pollution. If the fundamental structure of political economy does not change, and if the public continues to be misled by the symbolic nature of politics, any project for the national benefit would not attain its economic or environmental goals, but would merely sustain the system.

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