A study on collaborative environmental risk management : modeling to facilitate the prevention of soil contamination by local governments, businesses, and local stakeholders

Hall, Michael W.

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CHAPTER FOUR

COLLABORATION BY LOCAL GOVERNMENTS, BUSINESSES AND LOCAL STAKEHOLDERS FOR ENVIROMENTAL RISK MANAGEMENT

4.1 CHAPTER INTRODUCTION

Collaboration between government agencies and the private sector has been gaining popularity in recent years because of the numerous benefits, improved transference of knowledge, and for its potential to enhance risk communication among all stakeholders.

Part I of this chapter provides results from a study of 100 major corporations in the United States and Japan that have operations with potential soil contamination issues. The study uncovers their level of environmental involvement in ten areas that affect soil contamination prevention, and it provides evidence that some of these major corporations lack proper organizational systems to address the soil contamination issue. The information was obtained from Environment Reports (ER) and Corporate Social Responsibility Reports (CSR) reports from the Internet. The results support previous research carried out through surveys and interviews that environmentally conscientious companies are more dynamic in their environmental management; however, the author's study uncovered that some of these corporations with ISO 14001 certification did not provide adequate transparency in their reports concerning environmental performance, soil contamination prevention measures and accidents resulting in soil contamination.

Part II outlines the political and legal hierarchy for environmental policy in the United States, Germany, and Japan, and their function to implement environmental policies. This benchmarking provides a practical framework parameter introduced in the capacity building for collaboration in Part III, and for the CERM model detailed later in this chapter.

Part III explains the different approaches to collaboration, the benefits it provides to organizations, and the barriers to establish a program. Then, the framework necessary for a successful collaboration between a local government, businesses and local stakeholders is presented using the author's proposed negative and positive driving forces that should motivate the participants to form a volunteer CERM system for preventing soil contamination.

The measures and the positive effects associated with them as outlined in this chapter provide further support that a Japanese local government can improve its soil contamination risk management system if it decides to take the leadership in promoting the author's CERM model.

PART I

4.2 A COMPARATIVE ANALYSIS OF VOLUNTARY ENVIRONMENTAL REPORTING POLICIES FOR EMS AND ERM ON SOIL CONTAMINATION BY BUSINESSES IN THE UNITED STATES AND JAPAN

The author conducted a comparative study between major firms in the United States and Japan that have potential soil contamination issues for two main purposes. First, was to determine if there are any the differences between the firms' environmental reporting about their environmental programs to stakeholders. Second, was to compare the level of leadership the top executives demonstrate in implementing an EMS and an ERM program throughout the organization. Ten performance areas listed later in this section were selected to determine the accuracy of the author's hypothesis that top management in both countries publicize an environmental policy, but fail to provide sufficient transparency and leadership to stakeholders.

The first part of this study introduces previous research in this area, and the methodology of this study. The second focuses on executive involvement in environmental practices. The study examined selected quotes from CEOs and presidents as well as company policies to see if companies have a dynamic or static vision, and how the vision relates to its environmental reporting. The third section compares the areas that deal with transparency issues in each country. The paper concludes with discussion about potential new risk management strategies that consider more transparency and better risk communication management with stakeholders.

The initial research conducted on company Environmental Reports (ER) in Japan dates back to 1995 when Kozuma and Umezawa chose the top 100 companies according to their fiscal 1992 sales figures to obtain data for their study [1]. Their research uncovered that an ER is highly influenced by the government's and economic organizations' pressure to report. Another study conducted by the Network for Environmental Reporting showed some improvements in ER disclosures, but less than half of the 184 responding organizations included reference to future environmental goals, action plans, chemical releases, negative information, environmental impact data, and review by outside parties [2]. A third study conducted by Masao Kawano in 2000 acquired data from 193 companies listed on the first section of the Tokyo Stock Exchange. A vast majority of the companies (90 percent) released reports on their EMS and environmental conservation systems, but fewer than 50 percent commented in the ER's about environmental impact, support for business partners, compliance with laws and regulations, PRTR, and third party opinions [3]. The last study introduced is the only previous research with data from firms listed on the Tokyo Stock Exchange First Section companies since the MOE published its Environmental Reporting Guidelines in 2000. The study of the 204 companies found fewer than 50 percent of these

firms reported on the state of their environmental compliance, overall environmental impacts, soil contamination issues, other environmental risks, and the state of environmental communication [4]. All four of these studies that covered a period of over six years, showed some progress in transparency in environmental reporting, especially for large firms. However, the results also confirm the author's findings that large firms are still reluctant to release complete information about their compliance data, have insufficient communication with stakeholders, and there is unsatisfactory reporting of third party opinions about their environmental reporting and activities.

Research shows that consumers and other stakeholders are interested in what companies publish in their ERs. According to a survey taken in 2002 by Globescan [5], 74 percent of respondents from 25 different countries were very or somewhat interested in learning about companies CSR initiatives. Another study by the same company in 2003 that included respondents from G 20 countries, excluding Japan, found that only 30 percent believed that companies were honestly communicating about their CSR programs.

The results section of this study examines the comments by top executives, employees and stakeholders as to why stakeholders might harbor distrust, and what some companies are doing to reassure stakeholders that they are being honest and fair. Several of the companies in this study have had serious environmental accidents in the past, but information on their ERs received a high rating in this study. This indicates they have made some positive adjustments in environmental management; however, Slovic points out that there are four main reasons why mistrust exists or continues to prevail even after changes have been made to improve the situation which can nullify or reduce the significance of such efforts [6].

1) Negative events (beyond or outside borders) are more visible than positive ones.
2) Negative events carry more weight than positive ones.
3) Sources of bad news are perceived to be more credible than sources of good news.
4) Distrust tends to reinforce and perpetuate distrust.

This negative phenomenon provides more support for governments and businesses to establish a proactive CERM scheme.

4.2.1 METHODOLOGY

This study analyzed the top ten companies from the U.S. and Japan according to their net profit figures for 2004 in the following industries: Paper and pulp, construction, chemical, electric, and beverage. Each of these has a strong connection to soil contamination, and a potentially significant effect on the environment in the case of an accidental release of toxic chemicals or a violation of government regulations. A list of the web sites addresses are in Appendix II. It is important to note that many of

the construction companies are general contractors, with only a few specializing in home and building construction. In addition, some beverage companies are food conglomerates while others produce only beverages. This study provides insight into the different approaches companies in the U.S. and Japan use in communicating their environmental policies to stakeholders.

Environmental reports for the company's environmental risk management and environmental management standards were scored on a scale 1=none, 2=planning or initial stage, 3=operational. In the case for firms reporting that they have an EMS equal to or exceeding ISO 14001, it was given a score of 1. The simple yes or no scoring method is to maintain clarity, with the footnotes at the bottom of each chart providing sufficient information on its EMS. Other footnotes were included in the case of very detailed reports, brief reports or special systems mentioned in the environmental reports. In some instances, the data came from Environment, Health and Safety (EHS) reports, Responsible Care Management System reports, or Sustainability Reports.

The study evaluated the ten items listed below and averaged scores to calculate the environmental indicator for each category:

1) Executive Involvement
2) Risk management system
3) Environmental management system
4) System improvement plan
5) Employee training program
6) Stakeholder involvement
7) Community education and communication
8) Environmental liability
9) Fines and Penalties
10) ISO 14001 certification

4.2.2 RESULTS

Executive Involvement

Trustworthy leadership is essential for sustaining a dynamic business, but the news of criminal acts by CEOs, presidents and top executives like those at Enron, WorldCom, and Martha Stewart, America's one-time idol homemaker, damage the image of business leaders. In addition, the disparity of wages between top executives and the average worker adds to stakeholder mistrust. The formidable influence of Slovic's mistrust factors mentioned earlier creates a serious challenge for corporations to improve their relationship with stakeholders. The following paragraphs provide examples of some major company top executives efforts to improve and promote a better public image through the company environmental

reports.

The first two quotes introduced in this paragraph are from dynamic corporations that execute two-way communication with stakeholders. The next paragraph contrasts statements from static firms that rely only on one-way reporting. These two different approaches to their stakeholders become apparent by the executives different semantics and attitudes written in the web-based reports. The Proctor and Gamble company has been at the center of environmental liability claims, and according to their chief executive, more likely will face similar liability claims in the future. His approach to readers is to promote an organizational wide personal responsibility to be a good corporate neighbor that has high principles, transparency, and honesty to admit mistakes and try to make improvements in the future. "P&G operates with integrity everywhere we do business. P&G invests in every community where we live and work. P&G embraces its responsibilities as a corporate citizen. More specifically, P&G *people* embrace our responsibilities. We take them personally because they are a reflection of our individual values as well as those of our Company" [7].

Lafley introduces a case where P&G executives in a developing country refused to pay bribes, and even shut down the factory to protect their company values. He goes on to admit the company has made mistakes, and this is common for such a large corporation, but he acknowledges them and the company has instituted corrective measures. This leading statement is part of the seventy-one page 2003 Sustainability Report. Later on in the report, there is a detailed section on environmental performance data, improvements, and fines; however, stakeholders criticized the company for its lack of clarity about environmental measurements to meet its objectives, and the company's unclear mission towards sustainability. The company responded by saying that it would make improvements in its next year's report.

Another example is by a Japanese firm that was responsible for environmental damage and received strong criticism from local citizens for its poor environmental performance many years ago. Since then, it has made substantial improvements to its environmental performance. President and CEO Kunio Egashira stated in the company environmental report; "For the Ajinomoto group, operating in harmony with society as a good corporate citizen is one of the primary management objectives, and we engage in many activities towards achieving this goal. In recent years our main focus has been on addressing environmental issues, a concern which everyone in the 21st century should share" [8].

The cultural difference is interesting to note. The Japanese message begins with "harmony", and the American with "integrity". Another contrast is that the word "environment" does not appear at all in Lafley's introductory comments. Whereas, in the Egashira's comments it appears seventeen times in a

short two page statement. This is not to suggest that P&G has a weak policy toward environmental improvements, but stakeholders may interpret that the company top management is less interested in the environment with the absence of "environment". Grayson and Hodges [9] state much of the success of a commitment to responsible business depends on the leadership of the organization—the tone the leaders set and whether they are perceived to 'walk the talk.'

The next two companies, one from Japan and the other from America, manifest the static type approach to environmental reporting. The reports lack depth, transparency, and vision. Daiwa's 54-page report briefly mentions environment management and risk management improvements. The focus is on improving its profitability and increasing its market share. The Japanese housing market has been in recession for several years, so it is not surprising that the report spends focuses on financial improvement strategies, but compared to its competition, the brevity of environmental reporting is significant. The president's message begins with; "The management of the Daiwa House group; however, gives priority to laying the foundations of future growth." Later on, he comments on responsible corporate behavior, but nothing pertaining to the environment: "To play its proper role as a responsible corporate citizen in this newly unfolding age, the Daiwa House group takes its corporate mission very seriously. We believe that our mission is threefold: to earn the trust of the public through sincerity and truthfulness; to provide a long-term and reliable supply of products and services with high added value; and to secure the growth of our corporate group through close cooperation with our customers." Finally, at the end of a ten page company introduction he mentions the company's environmental vision. "With regard to environmental concerns, we are cooperating closely with universities and companies in other industrial sectors to pursue research into electricity generation through renewable energy such as solar power and wind power, facilities for the disposal of industrial waste or the recycling of waste materials, and so on, with a view to turning them into commercially viable projects" [10]. His statement once again implies the company focus is on increasing profits than on environmental protection.

Turner Construction Company, a major general contractor in the U.S., exemplifies the environmental stance of U.S. construction firms. The study results in Appendix II show the average rate for environmental indicators are significantly lower for the U.S. construction industry. According to Turner's corporate report, the focus is only on the growing the "Green building" market. There is no mention about the company's environmental protection policy. "Turner is committed to the success and increased adoption of sustainable construction practices—also known as "Green building" practices—throughout the industry. We believe Green buildings are not only good for the environment, they also provide immediate and long-term economic benefits for developers, building owners and occupants" [11]. The other U.S. firms in this study wrote little or nothing about their own efforts to become more environmentally friendly or specific protective measures adopted by the firm.

The strong contrast between top executives who have dynamic approaches compared to those with static ones, supports the conclusion reached by Welsh, Rana and Mori in their study comparing Japanese and U.S. firms' motivations for adopting ISO 14001 [12]. They have surmised that ISO 14001 does not 'convert' firms towards greater environmentalism, but firms that are environmentally concerned in the first place are more likely to adopt voluntary programs. In the author's research this trend is seen in top management's vision statements, and that attitude is most likely passed throughout the company culture, which is then appears in its environmental reports available on the Internet web page.

Gabel and Sinclair-Desgagné suggest that organizational failures from poor internal communication, and ambiguous corporate vision and goal presentation are more responsible for poor environmental failures than other factors. They argue that increased integration of environmental considerations must occur throughout corporate management systems. They go on to state that businesses recognize the value of environmental goals, but fail to implement policies fully that drive employees' behavior [13].

4.2.3 TRANSPARENCY

The non-profit Global Environmental Management Initiative (GEMI) began in 2001 defines transparency as the openness of an organization with regard to sharing information about how it operates. Transparency is enhanced by using a process of two-way, responsive dialogue [14]. The following seven U.S. companies analyzed in this paper belong to and participate in helping make transparency a larger part of U.S. corporate policy: Coca-Cola, Anheuser-Busch, Georgia Pacific, Proctor & Gamble, Duke, Dow Chemical and DuPont. GEMI outlines the key elements for transparency as [15]:

1) Leadership and governance
2) Stakeholder relations
3) Performance reporting

Grayson and Hodges, "predict that the future successful companies will need more than grudging acquiescence from their stakeholders. They will need to work hard to be an employer of choice, supplier of choice, investment of choice, partner of choice, and neighbor of choice" [16].

The data indicates Japanese and U.S electric and beverage firms had above average scores for most categories, but several scored poorly reporting on liabilities, fines and penalties. Most U.S. chemical companies shared this same fault. The companies with transparency deficiencies and the other companies in the study with low environmental reporting scores provide good examples of firms that need to reevaluate their reporting policies, especially since these large corporations have a great opportunity, and the funds to lead by example.

Car manufacturing companies were not included in this study even though they have direct and indirect

connection to soil contamination because there are not enough companies in the U.S. and Japan to carry out a comparative examination. However, two companies deserve comment because they represent the direction other corporations should adopt. Toyota Motor Company EMS and ERM programs are well developed and implemented not only throughout the organization, but it requires it suppliers and distributors to comply with its environmental policies. According to its 2005 Environmental Report the company follows a "beyond compliance" policy to reduce greenhouse gases (GHG), recycling End-of-Life vehicles, building eco-plants, and educating all team members how to protect the environment. Seven consecutive years without a violation is testimony of the quality of its environmental program [17]. General Motors 2005 Corporate Responsibility Report (CRR) detailed its effective EMS policy and clearly listed its policy and the number and type of violations. The CRR directly addressed the issue of soil contamination and reported no chemical spills or soil contamination violations from 2001 to 2004 [18]. Both reports commented that their EMS programs have increased environmental performance, improved stakeholder relations, and increased safety for workers and local stakeholders.

More corporations should not only include better environmental reporting in their operations, but also incorporate EMS and ERM into their organization to acquire gains from increased trust, increased environmental performance, and better decision-making. The advantages of EMS and ERM are becoming more apparent through these ERs as improving information systems connect the world.

4.2.4 PART I CONCLUSIONS

The scores for executive involvement were generally high, but with closer examination, even some companies that had the top "3" score could be classified as a static type organization due to their lack of two-way communication. This indicates that the rating scale was somewhat oversimplified. However, the web site analysis does provide insight whether a firm has a dynamic management policy with two-way communication, or is depending on the old inefficient static policy. Next, the data show that a company with dynamic management is more likely to have higher environmental indicator scores, transparency and performance records. The study uncovered some unexpected results for Japanese paper and pulp companies compared to U.S. firms. The author expected a higher rating for the Japanese firms because of the strict requirements in the dioxin law, but in fact, Japanese paper and pulp companies have significantly lower reporting scores than their U.S. counterparts. The Euclidean cluster analysis determined the distance relationships between U.S and Japanese firms. The Dendrogram (Appendix II) illustrates a low distance coefficient between the Japanese paper and pulp firms compared with a high distance for U.S. companies. The low distance reflects the similarity of the poor transparency reporting for Japanese firms compared to their U.S counterparts.

The cluster analysis for construction companies uncovered some interesting similarities. Daiwa House, Jacobs and Foster Wheeler had a low distance clustering, which, in this case, represents their similar poor environmental reporting. Jacobs and Foster Wheeler are both large general contractors; whereas, Daiwa's main business is housing, resort construction, office and medical care facilities. One would expect more transparent reporting from large firms that are involved in such large-scale projects. Beverage companies in the U.S. and Japan have low distance coefficients illustrating their similarity with sound EMS and ERM programs. One problem; however, is that companies in both countries had poor reporting on liabilities and penalties. The electric and chemical companies had across-the-board high scores; therefore, a cluster analysis could not provide distance coefficients to produce Dendrogram brackets.

Finally, the results are similar to those by the Welsh, Rana, and Mori study cited earlier, which also found that companies other than chemical companies did not report, or only very briefly mentioned liabilities and penalties resulting from an accident, a violation of regulations, or from a civil court case. These results provide evidence to support the second hypothesis in this dissertation that environmental transparency is lacking for large corporations. One part of the proposed CERM model to prevent soil contamination requires better internal and external communication, better environmental training, and increased knowledge sharing between corporations, local stakeholders and the local government. The results from the author's and other studies suggest that voluntary reporting has its limitations because firms that appear to have low environmental consciousness were less likely to report their activities. The author recommends that either a national, state or local government regulation require more accurate and detailed information for all types of pollution in the company ER. This would give the public the environmental information that they have the right to possess, foster better understanding, and increase trust between businesses and stakeholders. Another option would be to link operating permits to ER transparency. The complete set of data from this study is in Appendix II at the end of this thesis.

PART II

4.3 ENVIRONMENTAL DECISION MAKING HIERARCHIES IN THE UNITED STATES, GERMANY, AND JAPAN

As the previous study revealed, not all companies buy-in to the importance of establishing an environmental risk management system. The section discusses and offers proposals to overcome this significant barrier to environmental protection. The author suggests that positive and negative forces stimulate wider participation by businesses, and these forces can motivate Japanese local governments to adopt the CERM model proposed in this thesis.

The following sections supply an overview of the complex government systems for the U.S., Germany

and Japan, but omit many details not directly related to the topic in order to maintain clarity.

4.3.1 ENVIRONMENTAL DECISION-MAKING SCHEMA IN THE U.S.

The United States federal government is a highly pluralistic system with many cross-sector areas where the decision-making processes occur. The EPA implements and enforces regulations promulgated by Congress on a national, regional, state and local level. The heavy dark blue lines in figures 4.1, 4.2, 4.3 illustrate the horizontal and vertical decision-making process conducted between organizations. The solid light blue lines refer to the two-way communication network, and the dotted lines reflect consultation and opinion responses.

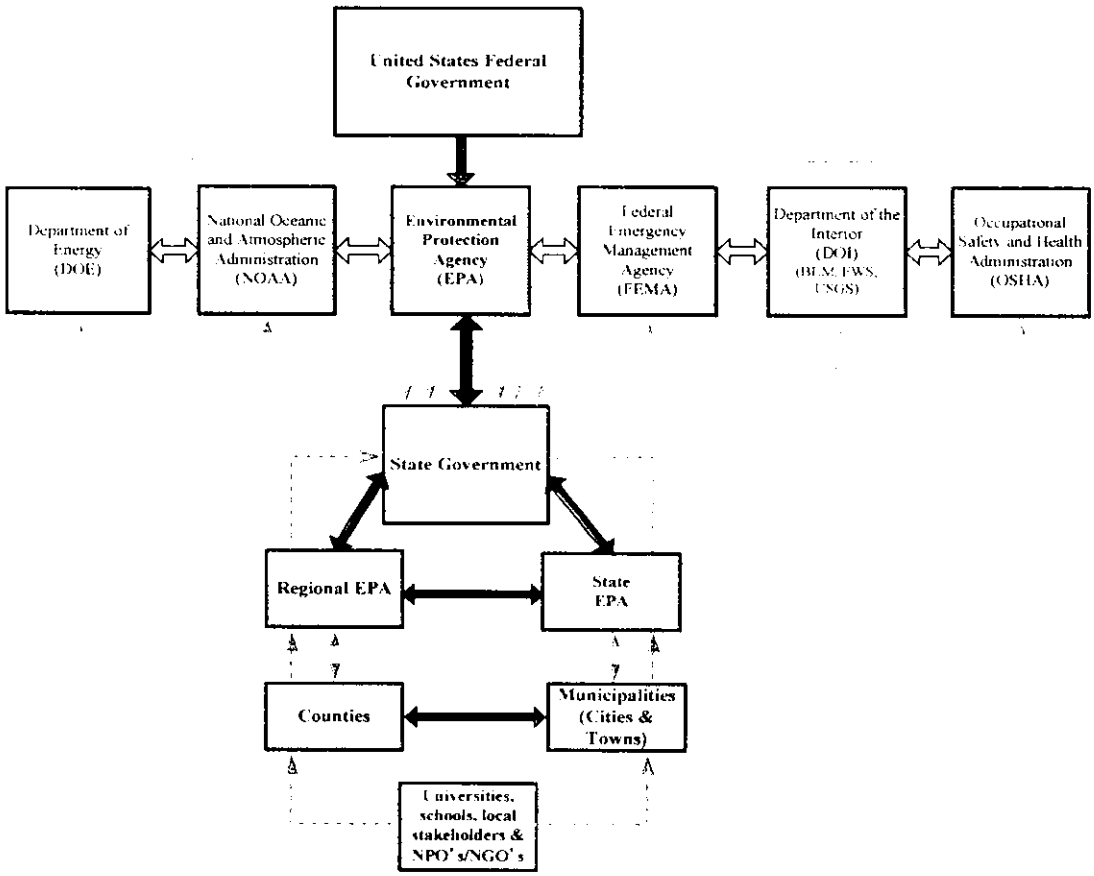

Figure 4.1: Flow Chart of United States Environmental Decision Making
(By Author)

Federal and State Powers Decision Making Powers for the Environment

The fundamental principal of separation of powers maintains the democratic process as written into the United States Constitution. It includes the Executive Branch, Congress and the Judicial. This policy has made U.S. more pluralistic than Germany and Japan, and it has been the main force to maintain a

democracy, but it has also hindered environmental progress. The often conflicting environmental activities that each of the three government branches, environmental groups, and the scientific community carry out to propagate their agendas has made it difficult for progress to be made on either side of the economic or environmental sustainability argument. When government inaction or stalemates have occurred, states have adopted their own pollution control and prevention programs. Oregon, Washington, and New York are three states in particular that have been environmentally proactive. The following provide common examples on how states have used their autonomous power to protect the citizens.

1) Even before the federal government had proposed legislation for air pollution, Oregon established its own comprehensive air pollution program in 1962. A year later, the U.S. government created a modest air pollution plan, but established to stimulate research and provide funds for states to establish projects to abate air pollution. The U.S. government showed interested in cleaning up the air; however, it expected the states and cities to introduce pollution control programs.

2) The U.S. took the lead in trying to vastly reduce, and finally replace chlorofluorocarbons (CFCs) use worldwide to protect the ozone layer, but other developed countries like Japan and Germany were not convinced that CFCs like Freon were really the cause for ozone depletion. While the U.S. government was working on a global scale to convince those involved in production and discharge to adopt reduction measures, Oregon and New York introduced their own regulations to deal directly with CFCs. Oregon passed a law in 1976 prohibiting the sale of spray cans containing CFCs, and New York required warning labels put on all spray cans containing CFCs [19].

3) In 2003, Attorneys General in 12 states and three cities from the West coast to the East coast, including New York City and Baltimore were unsatisfied with President Bush's stance on global warming, so they filed suit to challenge the EPA's failure to regulate greenhouse gas pollutants. This was the largest collaborative legal action taken to date involving states, local governments, and environmental groups on this issue [20]. States have taken these advanced measures even with limited funds. One reason for the aggressive efforts initiated by states has been the Not-In-My-Back-Yard (NIMBY) mind-set, and a more significant reason has been the importance for politicians to maintain a positive relationship with local constituents in order to be reelected.

Partnerships Between Government and Stakeholders

President Nixon urged Congress to establish the EPA in 1970 to develop programs and enforce environmental legislation to improve and protect the living environment of U.S. citizens. State and local governments are responsible for monitoring and assessing the environment to assure compliance. Recently, EPA's goal has changed from a strictly regulatory organization to a supporter of non-regulatory and stewardship projects. There are several definitions of stewardship, but the EPA's defines it as, "behavior that includes, but also exceeds, required compliance with environmental laws and regulations" [21].

Funding for the voluntary pilot projects is available from the EPA, other federal departments appearing in figure 4.1, and the state government. It offers information to various levels of society from elementary school students to business leaders and scientists. Its web site includes lesson plans for students and teachers about environmental protection, safety, and health information. Agency staff members also conduct lectures around the country that inform the public on various types of pollution control, pollution prevention, promote partnerships. Grant availability information and application procedures for obtaining funding for the private sector and non-profit organizations are also available on the web site. Fifty-two percent of EPA's costs (expenses for services rendered or activities performed) went for grants in 2005. Clean Water and Drinking Water grants made up a majority of the total amount of funding. Other major beneficiaries were states and tribes, research grants to universities, and NPO's [22]. It also finances nine research programs and 16 research offices listed in table 4.1. Some of these programs and offices collaborate with the academic scientific community to develop innovative strategies and technology that protect the environment.

Table 4.1: EPA Research Programs and Research Offices in the U.S.

(EPA homepage: http://www.epa.gov)

Research Programs	Research Offices
Office of Research and Development	National Air and Radiation Environmental Laboratory
Environmental Monitoring and Assessment Program	National Enforcement Investigations Center Laboratory
Great Lakes National Program Office	National Exposure Research Laboratory-Research Triangle
Microbiology Home Page	National Exposure Research Laboratory-Ecosystems Research Div
National Center for Environmental Assessment	National Exposure Research Laboratory-Environmental Sciences Div.
National Center for Environmental Economics	National Health and Environmental Effects Research Laboratory
National Center for Environmental Research	National Health and Environmental Effects Research Laboratory-Gulf Ecology Div.
National Environmental Scientific Computing Center	National Health and Environmental Effects Research Laboratory-Mid Continent Ecology Div.
Office of Science and Technology (OST)	National Health and Environmental Effects Research Laboratory-Western Ecology Div.
Office of Water	National Risk Management Research Laboratory
	National Risk Management Research Laboratory-Subsurface Protection and Remediation Div.
	National Risk Management Research Laboratory-Water Supply and Resource Div.
	National Risk Management Research Laboratory-Air Pollution Prevention and Control Div.
	National Vehicle and Fuel Emissions Laboratory
	Radiation and Indoor Environments National Laboratory

Decision Making Process for Soil Contamination and Protection

In 1980, the enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), often referred to as the "Superfund", to clean up sites determined to be extremely hazardous to the public and in need of immediate remediation action. Sites that meet the CERCLA criteria go on the National Priority List (NPL), and receive funding for remediation construction. As of 2006, there are 1,246 final sites on the NPL, with another 61 proposed sites awaiting final EPA action. According to

EPA records, the responsible party [23] funds nearly 70 percent of Superfund remediation. However, there were many more non-NPL sites that state and local governments' desire remediation to undergo, but the Superfund program has proven to be too slow in responding to their demands, and the amount of federal funds initially set aside was not enough to cover the expense of cleaning up all hazardous sites in the U.S. Therefore, states established their own Superfund programs. New Jersey was the first state to enact a clean up law. The New Jersey Spill Compensation and Control Act promulgated in 1976 became a model for CERCLA [24]. In 1979, New York became the first state to create a "Superfund" law to remediate sites for "orphan sites" a year before the federal government's Superfund program was established. Special bond and state funds covered the costs of these sites where there was no responsible party. Responsible parties, individuals, or developers interested in purchasing the site fund non-NPL remediation [25]. In some cases, funding is from federal or state general budgets, or by special bond issues.

The Resource Conservation and Recovery Act (RCRA) supplies important data on the storage, handling and disposal of hazardous materials, and that data is shared at all levels of government related to environmental and soil protection. The EPA set up The Office of Emergency Management to respond to natural and human made disasters. The office collaborates with other federal agencies, state and local authorities to respond to oil spills, improve nationwide chemical accident prevention, and respond to other soil contamination issues.

4.3.2 ENVIRONMENTAL DECISION-MAKING SCHEMA IN GERMANY

German environmental management programs follow the precautionary principle; polluter pays principle (PPP), and the cooperative principle. When drafting new legislation these policies guide policymakers toward how to implement the law. The precautionary principle is significant in that it not only represents remediation of contaminated sites, but also includes minimizing risks of further contamination by addressing potential hazards to preserve resources through safe development for future generations. The polluter pays principle discourages polluting by demanding the offender assume the cost, but the government covers the cost when the responsible party cannot be identified. The cooperative principle puts the responsibility of maintaining the protection of the environment on all in society from public entities, corporate organizations, to individuals.

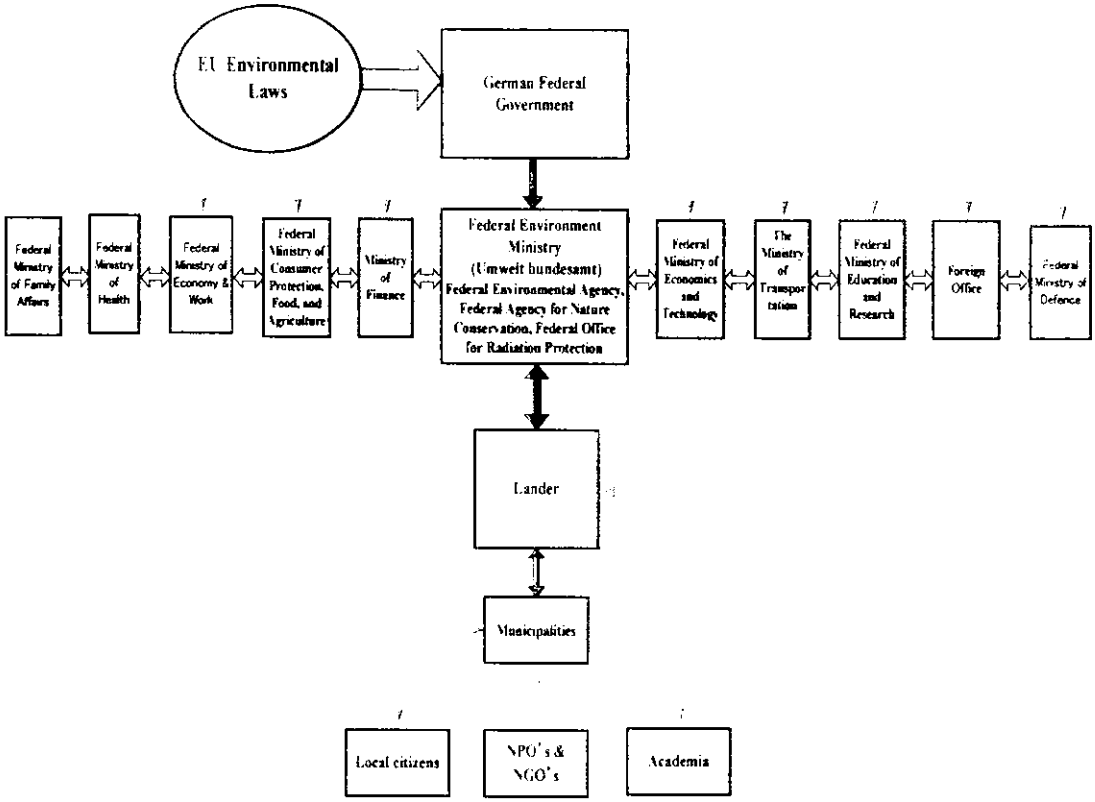

Figure 4.2: The Flow Chart of German Environmental Control

(By Author)

Federal and Länder Decision Making Powers for the Environment

The Federal Environmental Agency, which was established in July of 1974, is in charge of the following seven tasks [26].

1) Scientific support to the Federal Environment Ministry on air pollution control, noise abatement, soil protection, waste management, water management, and health-related aspects of environmental protection, especially for the preparation of regulations
2) To study and develop the basis for suitable measures and to check and analyze processes and institutions
3) The development and operation of an information system for environmental planning and central environmental documentation
4) To conduct measurement of national air pollution
5) Provide the public with information about environmental issues
6) To provide central services for research and development for the Federal Ministry for the Environment and to coordinate the environmental research on the Federal level
7) To support the Federation in environmental impact assessment

According to an OECD report, the control of responsibilities by the Federal, the Länder, and municipal

governments for German environmental laws and regulations are complex [27]. This is exasperated further by the increasing need to consider EU laws. Nevertheless, any laws passed by the EU must coincide with the German Basic Law, and if it is going to directly affect the Länder, serious consideration must be taken, and the Basic Rights state provisions that the Länder shall participate in EU matters according to Article 23 [28].

The Federal Government creates the laws and the 16 Länder governments (see map Appendix III) are required to provide supporting legislation, and municipal governments must implement the environmental policies. Each Länder has its own constitution and participates in federal legislation, but the highest authority lies with the Federal Government. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety established in 1986 has been responsible within the Federal Government for directing national environmental policy. The Federal Environment Ministry responsibility covers three federal agencies: the Federal Environmental Agency (Umweltbundesamt), the Federal Agency for Nature Conservation (Bundesamt für Naturschutz), and the Federal Office for Radiation Protection (Bundesamt für Strahlenschutz). The ministry accepts expert opinions from independent organizations like the Council of Environmental Advisors (Rat von Sachverständigen für Umweltfragen), and the Advisory Council on Global Change (Wissenschaftlicher Beirat Globale Umweltveränderungen). The Federation is the leader for policy-making and legislation. The 1998 Federal Soil Protection Act supplies an example of the power that the Federal government can take in order to provide well-being of the whole country. Article 72 (2) of the Basic Rights allows the Federation the right to legislate on establishing equal living conditions throughout the Federal territory [29]. The Länder possess the capacity to influence legislation related to nature conservation and water management through the Bundesrat. Municipal governments have separate powers to pass legislation aimed at local problems unless there is a conflict with Federal or Länder regulations (Art.28.2). Typical municipal environmental functions are [30].

1) Building planning
2) Landscape planning
3) Municipal cleaning
4) Water supply
5) Wastewater disposal
6) Advice to the public
7) Environment hotline

All three levels of government are responsible for monitoring and assessing the environment, and promoting environmental awareness.

Most ministries have created their own division responsible for environmental affairs because they must

form environmental policy. The ten ministries in the flow chart work together on many important issues and new legislation. Länder working parties coordinate activities like water management, nature conservation, and land protection between the Federal state and the Länder to guarantee vertical integration. "Existing horizontal integration mechanisms have not always proved effective enough. The environment units of most ministries strongly influence environmental policy-making; they are much weaker with regard to integrating environmental concerns" [31]. In addition, insufficient financial and human resources weaken the efficiency of these units, especially at the Federal level, where only 10.2 percent of the 5.1 million public workers are Federation employees [32].

In an effort to overcome the funding dilemma and improve environmental protection, the government introduced its Ecological Tax Reform (ETR) in 1999, and later amended it in 2003. It main goals are to protect the environment and create jobs. It consists of incremental tax increases on energy sources like oil and electricity. In theory, the increase of energy prices should also motivate consumers to become more energy efficient and adopt more renewable energy sources. The ETR is designed to be revenue neutral which is accomplished by the transferring the revenue from ETR taxes to the public pension fund. This in turn lowers the non-wage labor costs which makes labor less expensive; consequently, motivating businesses to increase employment [33]. Many scholars, business leaders, and the public were skeptical and critical when this tax came into affect because of the exemptions given to the manufacturing and agriculture sectors. In order to answer its critics, the German Federal Environmental Agency commissioned the German Institute for Economic Research to conduct an ex-post analysis in 2005. The results of the study uncovered that the ETR has accomplished it goal of reducing CO_2 emissions and it has increased employment. Gross Domestic Product increased half a percent during the reform with an increase of 250,000 new jobs. CO_2 decreased by 2.4 percent in 2003 compared to pre-ETR data [34]. In addition, public surveys support the theory ETR motivates consumers to reduce energy consumption and seek more efficient energy measures. Forty-three percent of Germans said that ETR had motivated them to become more energy conscientious [35].

Partnerships Between Government and the Local Stakeholders

Local citizen groups are very active in dealing with all levels of government, and expect the government to pass legislation that will protect their health and environment. This is the same in the United States and Japan, but the public voted the Greens into the Bundestag in 1984, and the party has continued to maintain a strong influence on environmental policy. This is quite different from the United States and Japan because neither has a party that represents environmental activism. Non-profit organizations wield power, but function by interacting with each political sector and elites in a cooperative decision-making manner [36].

In an effort to modernize their operations, the Länder collaborate with universities and private institutions to perform environmental policy. Some Länder subsidize universities or private institutions to conduct monitoring and environmental research. Rhineland-Palatinate created a company with two private disposal companies to transport hazardous waste [37]. This has freed up public workers from work that they had to perform before the joint venture was established, and has provided a more efficient method to handle hazardous waste for the Länder.

Decision Making Process for Soil Contamination and Protection

The Federal/ Länder Working Group on Soil Protection (LABO) established in 1991, consists of the supreme soil protection authority of the Länder and the Federal Government. The group discusses policy issues, makes recommendations, and formulates solutions for soil protection. The group's work is vital for maintaining a uniform enforcement of the soil protection law in for all the Länder. It is comprised of the following five committees that convene bi-annually [38]:

1) Law
2) Information Resources
3) Soil Protection Planning
4) Soil Pollution
5) Contaminated Sites

Expert scientists on the Scientific Advisory Council on Soil Protection (WBB) established in 1998, provide advice to the Federal Environmental Agency in the following areas [39]:

1) Assessing, developing and supplementing the science and methods connected to the precautionary principle, and the mechanisms associated with the Federal Soil Protection Act.
2) Aid in reaching a consensus on the science in the areas mentioned above.
3) Make Assessment recommendations on the impacts of pollutants on soil functions.
4) Make soil quality measurement standards used in regional planning decision-making.
5) Prepare expert opinions on other related issues.

4.3.3 ENVIRONMENTAL DECISION-MAKING SCHEMA IN JAPAN

National and Prefecture Decision Making Process for the Environment

Japan's government has a parliamentary cabinet with ministers chosen by the prime minister. After Junichiro Koizumi took over as prime minister in April 2001, he and the ruling Liberal Democratic Party instituted several reform changes. His reformation package included consolidating some ministries that reduced the number from 22 to a mere ten. Most significant change was the promotion from the Environment Agency to the Ministry of Environment. This was the only new agency created during his term as prime minister. In addition, his administration promulgated an impressive nine new

environmental laws until he stepped down in September 2006 [40].

1) Law Concerning the Recovery and Destruction of Fluorocarbons (2001)
2) Law for the Promotion of Nature Restoration (2002)
3) Law for the Recycling of End-of-Life Vehicles (2002)
4) Soil Contamination Countermeasures Law (2002)
5) Law Concerning Special Measures for the Restoration of the Ariake and Yatsushiro Seas (2002)
6) Law Concerning the Conservation and Sustainable Use of Biological Diversity Through Regulations on the Use of Living Modified Organisms (2003)
7) Law for Enhancing Motivation on Environmental Conservation and Promoting of Environmental Education (2003)
8) Law Concerning the Promotion of Business Activities with Environmental Consideration by Specified Corporations, etc., by Facilitating Access to Environmental Information, and Other Measures (2004)
9) Invasive Alien Species Act (2004)

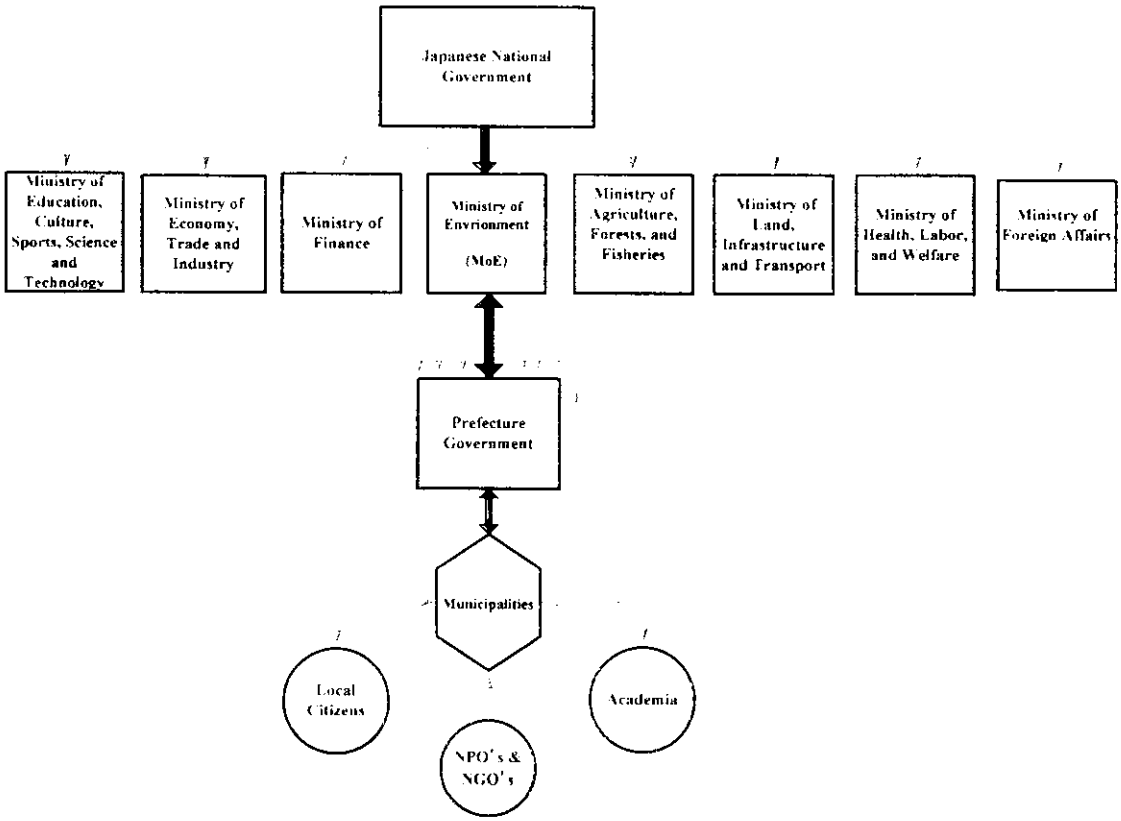

Figure 4.3: The Flow Chart of Japanese Environmental Control

(By Author)

Even though no political party is similar to the Green Party in Germany, these positive changes suggest

that Japan has become more environmentally active than it was in the 1980s and 1990s. However, the major question facing the government is how to fund the monitoring and enforcement of all the laws because tax revenue is decreasing due to the low birthrate that is further complicated by the ever-increasing government payments for pensions as more baby-boomers reach retirement age. Local governments are facing difficulty dealing with environmental problems due to the lack of funds from the central government, and it will become more severe considering the financial pressures facing the national government. There are main three possibilities to overcome the financial shortfall. One possibility is to use a system that was used in the past in which municipalities join together to make an alliance with one of the ministries connected with environmental policy as shown in Figure 4.3, in order to solve a local problem [41]. The second option is for a local government to qualify for central government environmental grants like Kitakyushu City in Fukuoka Prefecture, Yokkaichi in Mie Prefecture, and Minamata City in Kumamoto Prefecture. These cities applied for, and received grants allocated to the Zero Emission projects under the Eco-town program. However, the national government continued funding of these projects is dependent upon an already unstable national budget. The last alternative, which could prove to be the best long-term solution, is a special environmental tax on carbon emissions or energy. The MOE has recommended establishing a national Carbon Tax that would cost each household about ¥2,000 a year. It conducted a survey over the Internet from November 28 to December 1, 2005 and received 1,442 answers from citizens aged 20 and over. When asked if they support sharing the cost according to carbon emissions, 52.4 percent of respondents 'generally approved' and 13.5 percent 'approved' of such an environmental tax. When asked about the cost of such a tax to an individual at a rate of ¥180 per month, 51.1 percent 'generally approved' and 26.6 percent 'approved' [42]. Even though there is substantial public support for an environmental tax, the government has been unable to promulgate a new law because of political pressure. Some lawmakers and business leaders fear that it might impair economic development and international competitiveness. The author perceives another serious problem regarding the use of revenues. The Japanese government has already applied taxes to oil and gasoline for road maintenance and construction, but has used these funds inefficiently, which creates doubt that the new Carbon Tax revenues will actually be neutral-revenue and help support the pension fund as proposed by the government.

However, many local governments in need of current funding for waste disposal and incinerators have already established environmental taxes on industry and household waste. The creation of the Local Tax Law in 2000 made this self-governing capacity possible. This tax reform measure is a part of the national government's continuing decentralization policy [43]. The national government laws must be implemented on the prefecture and local level, but in order to improve performance, the national government has chosen to take an administrative guidance approach, voluntary agreements, and a mix of incentive plans. This style has proved successful in implementing environmental laws over the years.

At the same time, the central government has allowed local governments to use extra-legal pollution agreements with businesses that have led to even stricter regulations on the local level than at the national level [44].

Seven Regional Environmental Affairs Offices throughout the country are assigned to:

1) The Collection and Study of Environmental Information and Consultation
   Officers collect information, study major environmental issues, and deal with cases lawsuits. Officers also conduct follow-up studies after an environmental assessment is completed, and offer consultation for interested parties in the region.
2) Waste and Recycling Measures
   Officers search for illegal dumping and carry out spot investigations of waste treatment facilities. Officers conduct on-the-spot inspections of firms involved in hazardous waste, and review applications for export or import of hazardous waste. The staff offers consultation about the registration for permits necessary under the Law for the Promotion of the Utilization of Recyclable Food Resources.
3) Environmental Education and Environmental Conservation Activities, and Measures to Arrest Global Warming
   Regional officers are working to develop education directors and train environmental counselors to establish an environmental network with non-profit organizations. One main role is to increase public awareness on the global warming issue and promote various local projects that take proactive measures using technology and citizen participation [45].

The national government established the National Environment of Research and Training Institute in 1973 to train Environment Agency personnel on administrative management. Since conception, the center has trained 38,000 government employees and 70 percent of those were from local governments. The National Institute for Minamata Disease is the other national government organization that has been carrying out research in collaboration with the WHO since 1986. It disseminates its research findings domestically and globally to analyze the effects and treatments of mercury poisoning [46].

Partnerships between Government and the Local Stakeholders

The former Environment Agency established the Global Environment Centre in 1996 to promote partnership efforts and develop human networks across various sectors. In an effort to support Japan's underfinanced and understaffed non-profit organizations the center offers support and disseminates information about NPO/NGO activities. (http:plaza.geic.or.jp). On a more comprehensive scale, the center is working to solve global environmental issues through partnerships between U.N. organizations, national governments, and non-profit organizations [47]. The National Institute for Environmental

Studies (NIES) was a national government organization until 2001 when it became an independent organization. It conducts research on a wide variety of pollution issues from the main pollutants like air, water, and soil, to environmental information, effects of chemicals on human health, and new technology. It shares this knowledge with stakeholders in Japan and internationally [48].

Decision Making Process for Soil Contamination and Protection

The Soil Contamination Countermeasures Law enacted in 2002 which was modeled after the CERCLA law in the United States, has increased the financial risks to prefectures, municipalities, land owners and businesses because it requires the polluter or the land owner to pay for all liabilities related to remediation. Chapter Three detailed the financial risks that exist without sufficient risk management measures to prevent soil contamination. This situation is the same for government owned land either through its own activities, or from soil contamination from illegal dumping, and it exposes local governments to potentially high remediation costs. When the SCCL was promulgated there was no plan to establish a system similar to the U.S. Superfund system, but in 2006, the government established a system illustrated in figure 4.4 that includes the national government, certified remediation companies, prefecture and local governments to fund remediation of sites where responsible parties are unidentifiable. The national government and approved remediation companies supply half of the funds, the prefecture/local governments contribute a quarter, and the property owner funds the remaining quarter to the superfund [49].

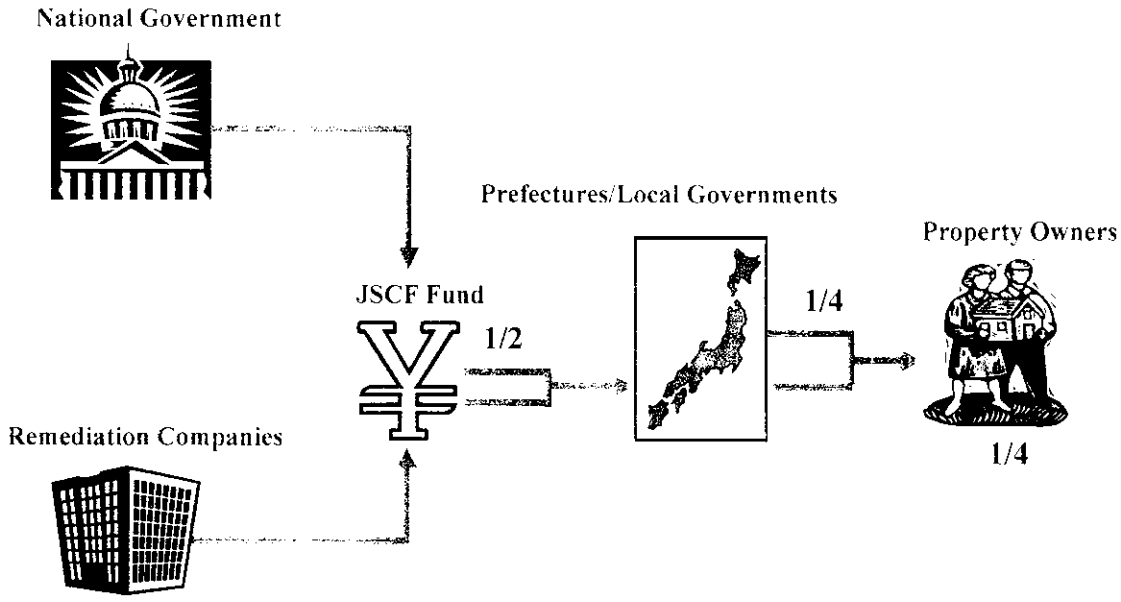

Figure 4.4: Japan Soil Contamination Fund

(Hanshutsu onsen dojō kanrihyo no shikumi, Ministry of the Environment)

Each prefecture, city and town office has its own Environment Department, and some like Fukuoka

Prefecture have a special Soil Contamination Section. Chapter Two introduced the fact about the decreasing number of environmental staff responsible for environmental protection in prefectures, cities and towns, budgets reductions at all levels of government, and the future financial dilemma facing the national government, all these dilemmas provide significant support for the necessity of increasing collaboration between local governments, businesses, and local stakeholders.

4.3.4 PART II CONCLUSIONS

Effective policy implementation relies on good interaction between the main participants and quality of information transmitted to the all stakeholders. The three figures: 4.1; 4.2; 4.3, demonstrate how the vertical and horizontal cooperation between the various levels of government and between ministries takes place for each country. In the U.S., the EPA's efforts to pass on information, and supply various new management tools and training to local governments, businesses and stakeholders provides a valuable approach to improve environmental risk management for soil contamination. Tax incentives and reward programs to increase voluntary compliance and preventive measures are also approaches worth considering for Japanese local governments that want to promote a voluntary ERM. Cases in the U.S. showed that the federal government's response to problems can be too slow for the citizens' needs, but local governments and stakeholders employing their power and influence, and proving that they are capable of succeeding in achieving positive outcomes in spite of the national bureaucracy have overcome this weakness.

In Germany, the very complex political system has loopholes on the local level that provides solutions to meet the needs of each Länder, city, or town. The German Länder use funds from eco-taxes, Federal government subsidies, or participate in joint ventures with private organizations to reduce costs. The LABO working group with its focus on improving and protecting the soil, and sharing its findings with local governments provides a positive aspect to collaboration, and worth serious consideration for modeling in Japan.

The Japanese government is rapidly moving towards privatization of government-controlled institutions as seen by the reform measures instituted by the Koizumi administration that included national research institutes like NIES becoming an independent entity. This new strategy has been influenced by the decreasing capital available to the government and the present market-driven economic policy of the LDP. Instituting an environmental tax has been discussed in the Diet and a proposal for a Carbon Tax drafted by MOE, but no new legislation has been passed yet. Japan has become a country dedicated to environmental protection with its many new domestic laws, a more streamlined approach to governance, but it has yet to commit its sufficient efforts toward soil contamination remediation or prevention.
Chapter Six will propose modeling that considers the facts covered in earlier chapters about the measures

the United States and Germany have taken regarding soil contamination prevention.

PART III

4.4 CAPACITY-BUILDING FOR COLLABORATION BY LOCAL GOVERNMENTS

The challenges, benefits, and processes behind local government's collaboration management policies with private organizations and NGOs/NPOs are examined in this section. There are several different definitions of collaboration, but the author's definition is as follows:

> Individuals, groups within an organization, or a combination of individuals and organizations that are involved in a dynamic process committed to sharing knowledge in order to achieve a specified goal unattainable by an individual, cooperative or coordinative effort alone.

Technology had less affect on people in the past and the hierarchical system worked well within corporations and the government. A majority of workers accepted the vertical order of "Top-Down" management as the most efficient until new inventions allowed for worldwide access to instant information acquisition and transfer. In the agricultural and industrial periods, top management owned or controlled the necessary tangible assets; on the contrary, politics, economics, and technology have changed administration from strictly vertical to a combination of horizontal and vertical, and in some cases mostly horizontal. Governments, organizations, and individuals now have access to quick connections that have stimulated not only the desire for instant satisfaction, but have created a lack of tolerance for poor performance. The motivation for public organizations to seek cross-boundary collaboration comes from internal demands to achieve their mission of delivering high-quality service, improving performance, and positive outcomes for stakeholders and the community in the growing world of knowledge overflow. In the U.S., this phenomenon can be traced back to the Creative Federalism period brought into existence by President Johnson's administration. "Intergovernmental relations between 1964 and 1968 became bigger (in dollars, programs, and jurisdictions involved), broader (in the range of governmental functions affected), deeper (in terms of intrusive grant conditions and of expanding number of recipient local governments and nonprofit organizations), and certainly more complicated when compared to the relatively neat, narrowly focused, inexpensive, basically two-tier intergovernmental pattern of 1960" [50]. The most significant change in Creative Federalism period was a redirection of funds to urban and metropolitan areas to form partnerships with NPOs, thereby giving local governments new opportunities to broaden their partnership base. This continued throughout the 1970s until President Reagan took office in 1981 after which he changed the political direction away from federal support to giving more power to the states and market forces. Intergovernmental reform was essential, which meant changing the balance of power, making state administrative agencies more the focal point of federal programs in areas like environmental protection, transportation, and human services [51]. This meant that city managers had fewer funds to work with, but more opportunities to search for jurisdiction, rather than a specific federal program [52].

4.4.1 CHALLENGES AND BARRIERS TO COLLABORATION

Identifying and dealing with challenges and barriers is important in order to make the system work because forced change is borderless in organizations and this creates a negative affect on the organization. Linden lists three complex challenges that make it essential for public and nonprofit organizations to collaborate.

1) "People lack a consensus on the goals. The environment for example, some people want to focus on reducing air emissions that lead to global warming. Others fight for saving habitat for endangered species. While a growing number, insist on focusing on adopting the precautionary principle to reduce risks and assure a better environment.
2) People lack agreement on the best means to go about solving the issues they believe are most important. There is obviously more than one-way to reach a goal, but for efficiency only one must be chosen to achieve the agreed upon goal.
3) There are a growing number of specialists and active stakeholders for each environmental issue. Developers in the 1950s had to only submit their proposal to the city-planning department, attend some planning commission meetings, and meet with top officials to get their proposal approved. In the present day, developers must consult with neighboring residents, state and federal government agencies, transportation experts, and archeologists if development is proposed on possible significant Indian land, or with some other historical roots. This large increase in the number of relevant stakeholders with different goals means that more flexibility is required to have a project approved, and this can best be achieved by collaboration" [53].

James Austin, Professor of Business Administration at Harvard University Graduate School of Business Administration puts the future of collaboration at the forefront of future management policies:

> "Increasingly, leaders are seeing that functions that might have been viewed as clearly the government's domain, such as public education or public safety, also require attention from the business and nonprofit sectors. Cross-sector partnering between business, government, and nonprofits will be the collaboration paradigm of the 21st century." [54].

Contrary to Austin's business led collaboration paradigm; the author argues that local governments are better situated, and local stakeholders expect the government to take the lead in bringing about successful long-term environmental improvements. Even though governments have been closed to outside inclusion or influence, the recent trend in developed countries is for more 'activated participation' [55]. More local governments are bringing in professional experts, environmental organizations, and interested local stakeholders to resolve complex issues. "State and local governments, in particular, are paying increasing attention to their leadership role in bringing people together, listening to their concerns, being

open and sharing information, searching for common ground, helping the community to establish a vision and develop a strategy. . ."[56]. The following list outlines the benefits and barriers realized when collaboration is the chosen strategy.

Benefits Acquired Through Collaboration

1) Better informed decisions.
2) Better use of scarce resources.
3) Provides the chance to create something you could not alone.
4) Improved service or product delivery.
5) Increased chances for individual and group learning.
6) A wider network to assist in future projects.
7) Better customer satisfaction and service.
8) Better capability for reaching the organization's mission [57].

Many local governments in Japan; however, prefer to keep an arm's-length approach with NPOs and businesses while working harmoniously with them. The author proposes a closer working relationship, one where there is a shift from government towards governance. The local government gives direction and provides the proper conditions that can promote a proactive use of knowledge and technology to address issues like soil contamination not simply have a system to enforce laws and regulations and react to violations. This would improve dialog, assist in increasing trust, and reduce the existing barriers. Linden divides the barriers into four broad types: individual, organizational, societal, and systemic, and within each of the types, he lists seventeen specific challenges [58]. The author's list varies from Linden's in order to match conditions necessary for governance in the CERM system proposed for Japanese local governments.

Individual Barriers to Collaboration

1) *The Fear of Change*: As was true with establishing an EMS, organizational change will always meet a degree of resistance.
2) *The Fear of Sharing Knowledge*: People naturally do not want to share their knowledge or their best ideas. However, a study from Sweden finds that if there is not enough transparency providing the basic information then no matter how interested an individual or group is in collaborating, and even if they can express their opinion, they will not continue collaborating [59].
3) *The Fear of Losing Control*: The change towards governance means that political participants will increase, and with more participants, it is possible to lose control or be overwhelmed.
4) *Lack of Trust and Confidence Toward Newcomers*: Staff members will tend to react initially with distrust in the program, or the participants, because group activities produce leaders,

followers and frequently a slacker. If an outsider tries to become a leader then the issue of "turf control" can become serious. Personal ego relates closely to turf control, but job experience plays a significant role as well. If the group perceived someone to be or actually is a slacker, this person has to be dealt with immediately to maintain group trust and unity.

5) *Lack of Motivation*: This barrier relates to Japanese government workers because in Japan, performance is rarely linked to promotion. Until recently, Japanese government workers promotions were based solely on seniority unlike their U.S. counterparts who are promoted based on both seniority and performance. However, the recent trend of using a performance-based system in some local governments may eliminate or reduce this barrier in the future, but it still must be considered significant.

Organizational Barriers to Collaboration

1) *Immediate Costs Overshadow Benefits*

Even though the proposed model in this paper centers on volunteer activity, there are costs for staff, materials, networks, and these tend to overshadow the expected insignificant short-term gains. It is essential that team members, especially top management that may include the mayor or prefecture governor, realize that the evaluation this type of program is on long-term gains.

2) *Reactive Rather Over Proactive*

The mind-set by public workers centers on making and enforcing laws. This alone is difficult to achieve, so there is an aversion to attempt a proactive approach. If proactive measures are effectively in place then the cases of non-compliance, will more than likely decrease and reduce enforcement duties, so there is a high possibility that positive performance will go unnoticed.

3) *Funding*

Acquiring funds that will be available over the long-term are difficult to maintain, especially considering the short-term benefits are marginal at best. Grants from the national government or research funds are options along with the support of local top officials to finance the program on a long-term basis.

4) *Organizational Buy-in*

This collaborative effort must show that it has something to offer to each organization, and team members must feel that their efforts have merit.

5) *Working Culture Conflicts*

Bringing together team members from different types of organizations will have to deal with different work cultures and find an appropriate way to reach the common goal.

Social Barriers to Collaboration

Bias Against Volunteering

According to a report by Ministry of Internal Affairs and Communications conducted in October 2001, only 10 percent of Japanese citizens involved in volunteer activities spend time trying to improve the environment. Overall, there has been a slight increase since 1996 in people who participate in volunteer activities in their leisure time from 28 percent to nearly 30 percent of the population [60]. The figure for volunteering in Japan is comparable to that in the U.S. for any volunteer activity, as well as the number of those volunteering for environmental protection efforts. Even though these barriers exist, Ellinor Ostrom has done extensive research on what determines effective governance and concludes that "there is surely a sufficiently wide body of research which confirms the importance of local capacity-building and participation in avoiding the policy failures that have often characterized centralized planning schemes" [61]. In Europe, the media and NGOs support social capacity building. In Munich, a civil organization reported that the influence of the local media is very high. Readers follow the five daily newspapers report on local environmental activities. In Norway, "the influence of the media on local politics is very high and the media shape public opinion" [62]. The media in the United States and Japan has a significant influence on public opinion. Local governments need to focus more effort to encourage an increase reporting of both positive and negative environmental activities to garner greater support from local stakeholders that will in turn pressure the business community into action.

The next section details the processes involved in overcoming the barriers mentioned here, and the how many public and private organizations attain positive results through collaboration.

4.4.2 PROCESSES FOR CREATING A COLLABORATIVE ENVIORNMENTAL RISK MANAGEMENT (CERM) SYSTEM

Collaborative management is either vertical or horizontal, but in reality, both overlap. Vertical collaboration refers to interactions between levels in the national and state/prefecture government, whereas horizontal collaboration includes multiple and local interests from the community. In this dissertation, the focus is on the horizontal interactions, but with the understanding that an overlap naturally occurs for any program like the one proposed in this paper. Table 4.2 shows the twenty different types of collaborative policy making and managerial activities examined in a study conducted by Agranoff and McGuire on U.S. state and local governments [63].

Table 4.2: Collaborative Management Activities

(*Collaborative Public Management, New Strategies for Local Governments*, Agranoff, Robert; McGuire, Michael)

Vertical Activities	Type*	Horizontal Activities	Type*
Seek general program information	IS	Gain policymaking assistance	PM
Seek new funding for projects	IS	Engage in formal partnerships	PM
Seek meaning of standards and rules	IS	Engage in joint policymaking and strategy-making	PM
Seek general program guidance	IS		
Seek technical assistance	IS	Consolidate policy effort	PM
Regulatory relief or waiver	AS	Seek financial resources	RE
Statutory relief or flexibility	AS	Employ joint financial incentives	RE
Request change in official policy	AS	Contract for planning and implementation	RE
Seek funding innovation of existing programs	AS	Establish partnership for a project	PB
Request model program involvement	AS	Seek technical assistance	PB
Request performance-based discretion	AS		

IS = information seeking; AS= adjustment seeking; PM= policymaking and strategy-making; RE = resource exchange; PB = project based.

The study found that new technology, globalization, and businesses competitive response to perform better, faster, and at lower cost are motivating governments to adopt some of the horizontal activities listed above. In a report written by a three-sector group in the United States studying the relationship between government, business, and NPOs, five ways were discovered about how the government is responding to pressures from business and stakeholders [64].

1) Rethinking the basic roles and responsibilities of all social institutions
2) Shifting its focus from government to governing approach, and utilizing knowledge, networks and the experience of NPOs
3) Trying to establish policy frameworks, competitive markets, and better social service systems that match the needs of the different sectors
4) Building up their role as motivators, brokers, and partners
5) Improving performance by system analysis and by acquiring knowledge from businesses

The author proposes a system that motivates a Japanese local government to adopt a more horizontal

approach to exchange knowledge with industries, NPOs, and universities. In addition, increase their role as a proactive catalyst towards soil contamination prevention to reduce the financial and health burdens associated with the soil contamination issue.

In order to establish a successful proactive CERM scheme, the author proposes from the initial stage adopting following basic elements [65]:

1) There must be a shared goal that cannot be accomplished individually.
2) Both parties must be willing to collaborate and contribute something to the project.
3) The people in charge of the program have to be the best person suited to maintain a long-term effort.
4) Transparency and trust building must be established and maintained between the group members.
5) Leadership is essential. Someone with credibility and respect must take the lead to create a successful program.
6) Training and education must be built-in to the program

A major impediment to collaboration has been getting the government, industry and local stakeholders to come together for discussions on soil contamination because it has been a low priority topic compared to air and water pollution in Japan. Nevertheless, there have been some recent major cases mentioned earlier in this dissertation that have captured the media's and the public's attention, and created more concern than before. In order to promote the necessity of a CERM for soil contamination, Japanese local governments must communicate the immediacy for buying into collaboration and promote the win-win situation that it offers. As an initial step, details on how much money has been spent on remediation by businesses since the Soil Contamination Countermeasures Law came into effect in 2003, publication of serious violators, and the potential threat to human health as evidence of the severe consequences for not developing a CERM. According to Japanese environment-related industry associations, a huge sum of $120 billion will be necessary to remediate the presently contaminated land. An increasing amount of money from $800 million in 2003 to $1.2 billion in 2005 was spent on engineering costs and technology by businesses to remediate contaminated sites [66], diverting money away from Research and Development (R&D) and other investments. Those losses would be preventable if a good CERM system was in place. Compensation for existing remediation is unavoidable according to the SCCL, but preventive measures by businesses to remove old polluting practices will provide a positive return on investment. Local governments are also at risk in cases involving illegal dumping where the polluter cannot be identified, or in the case contamination occurs on government owned land, the remediation costs must be covered by the prefecture/local government.

Another important and challenging area is that the government must prove it is committed to the program to corporate partners by presenting the specific areas the program will contribute toward decreasing environmental costs and improve performance. This is where bringing in a university knowledge base to the CERM system can add extra value to the collaborative program. One idea is to include undergraduate and graduate students under the guidance of professors in the program to utilize their theoretical knowledge in a practical setting. This would provide beneficial on-the-job training and volunteer experience, businesses; especially SMEs, would receive support at no cost, and the local government with its limited staff would not have to demand its personnel to make significant changes in their work routines to carry out the new program. This potentially would aid in breaking down some of the barriers listed in section 4.4.1. Figures and the following explanations 4.5; 4.6; 4.7, provide detail on how both negative and positive forces can create motivation for participating in the CERM program for soil contamination proposed by the author.

4.4.3 COLLABORATION MODELS USED BY LOCAL GOVERNMENTS

Agranoff and McGuire discovered six dominant styles of collaboration management models in their study on local governments [67].

1) The most common is what they termed, "Jurisdiction-based Management." This type is highly active and opportunistic in seeking out funding for projects or expert knowledge to assist in program development. This type of management involves the basics of clarifying the mission, goals, and setting strategy; however, not in an insular manner, but with local stakeholders, input so greater support and synergy can exist to support a long-term program.

2) The "Abstinence Model" is the antithesis of the first because a city adopting this stance refuses to engage in any joint agreements or collaborative projects. A study found that few local governments used federal or state funds in the 80s and early 90s because they did not want to be involved with the complexity of following federal or state rules. In addition, some of these cities simply did not have enough resources to consider getting involved in collaboration. A third reason is that some communities viewed themselves as financial well enough off that there was no need to get involved in the complexities of horizontal or vertical collaboration.

3) The "Top-down" model which comes from the remnants of the federalist system in the United States that dominated national programs from the 1920s to 1970s. The model centers on "how to achieve goals and objectives that are established by the national government, through the actions of other governments, state and local, that are legally independent and politically may even be hostile" [68].

4) The "Donor-Recipient" model involves people within a collaborative system that have a cooperative attitude rather than a go it alone attitude. This model centers on vertical cooperation between local and federal channels. Jeffery Pressman first identified this relationship and argued that; "The donor and recipient need each other, but neither has the ability to control fully the actions of the other. Thus, the aid process takes the form of bargaining between partly cooperative, partly antagonistic, and mutually dependent set of actors" [69].

5) The "Reactive Model" is a city that may choose to collaborate or not, but the decision to participate or not is not as clear as in other models. One reason for this unpredictable behavior is that leaders in this type of city view their position as providing only the basic needs of the citizens. Any extraneous activity is unnecessary and duplication of other organizations. If they get involved in these overlapping activities, it means they are not only wasting time, but also poorly managing their city.

6) The "Contented Model" which is a city that is strategic in that it is opportunistic, but it does not aggressively search out collaborative arrangements with other stakeholders. Cities following this model are satisfied with their present position, so it does not spend much effort in vertical negotiations for grants. This type of city will work horizontally with other players to develop land or real estate value and maintain its present state of wealthy returns, keeping collaborative activity very limited.

4.4.4 POSITIVE AND NEGATIVE BOOSTERS FOR CERM UNDER LEGAL PRESSURE

The initial buy-in factor to participate in a collaborative program provides the inertia for the program to move forward, and it determines if it will produce significant results that will radiate throughout all organizations involved in the program, or be terminated as many other well-intentioned programs have in the past. The following subsections explain the negative and positive forces that exist to bring the proper participants together to develop the Soil Contamination Collaboration (SCC) in the CERM program.

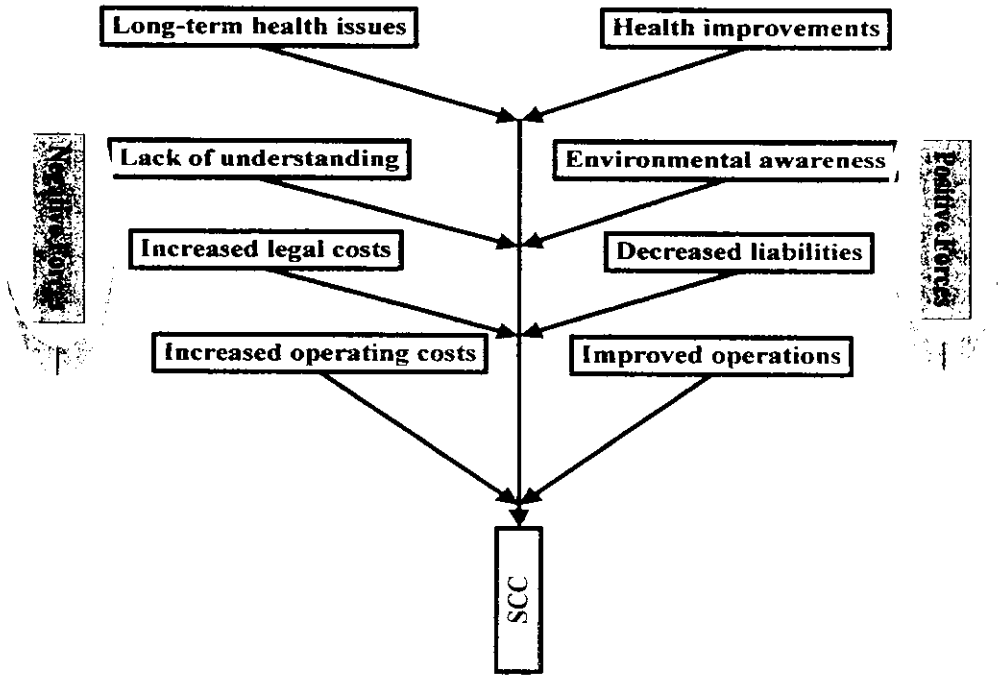

Figure 4.5: Local government drivers to promote CERM program

(By Author)

Local Government Negative and Positive Booster for Collaboration

The negative forces are often overlooked or are overshadowed by the positive drivers, but they have a significant influence on the decision making process. As a symbol, long-term health issues appear at the end illustration to emphasize the trailing effects that are associated with exposure to hazardous materials. There is mixed evidence about which toxins in the environment including air, water, food, and soil cause cancer and serious disease, but scientists at least agree that the following hazardous chemicals: Polychlorinated biphenyl (PCB), Perchloroethylene (PERC), and dioxins can cause cancer and other serious illnesses. Many other potential carcinogens are included on the Toxic Release Inventory (TRI) and even though releases have decreased in developed countries, the author contends more proactive action is necessary to limit citizens' exposure as much as possible. More local governments in the United States, like San Francisco and Seattle, have adopted the precautionary principal in order to protect their citizens from these potential health threats [70]. If a city is environmentally unsafe and it is not actively cleaning up the hazards, property value will decrease, investment opportunities from outside sources will diminish, and citizens will take legal action. If this negative force exists, it would provide local governments with a certain amount of motivation to consider ways in providing long-term safe living conditions.

The lack of information and knowledge about contamination by local stakeholders was troubling to

administrators at the EPA, so in a response the Congress promulgated the Emergency Planning Community Right-to-Know Act (EPCRA) in 1986 and later added revisions in the Pollution Prevention Act in 1990. The act requires companies dealing with specified toxic chemicals to report transfers and releases of those chemicals in their TRI report. Japan passed similar legislation in 2000 called the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements. The Japanese government requires companies handling Class I Designated Chemicals to report their chemical transfers and releases in the Pollutant Release and Transfer Register (PRTR). The result has been to empower stakeholders by holding businesses and local governments accountable for proper management of hazardous chemicals, increased preparedness in case of an accident, and has in some cases, improved risk management at reporting facilities.

The third and fourth negative forces share some overlapping causes. The potential for legal liability requires employing expensive legal staff and procedural fees.

On the positive side, data indicates that in state and local governments environmental awareness improved staff morale, and operational efficiency. The opportunity to acquire these benefits provides motivation for a government to participate in a CERM program.

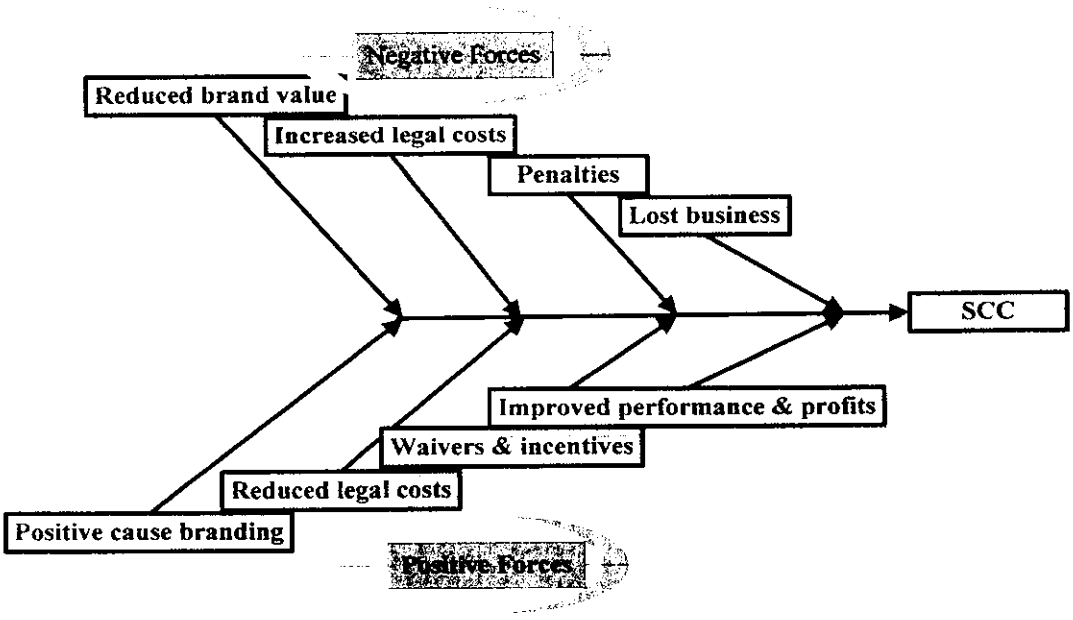

Figure 4.6: Motivating "Boosters" for firms to participate in a CERM program
(By Author)

Motivators for Firms to Participate in a CERM Program

Some important negative forces dealing with financial risks were discussed in Chapter Three; and expanded here, to include the possibility of increased legal costs and penalties due to violations. A recent case in Japan involving Ishihara Sangyo Kaisha Ltd., which is a chemical producer based in Osaka, illustrates the wide negative impact that a contamination case can have on a firm. The company reported that it expects a loss of seven billion yen for the year ending March 2006 because of costs for cleaning up contaminated land. The company will have to pay 19.7 billion yen and company executives face possible criminal charges for violating the Waste Management Law. The company also reported that it would not be paying a dividend to its investors this year [71]. Companies naturally want to avoid the unnecessary financial losses, criminal punishment, penalties, and negative public image, so the author suggests this potential negative force has high potential to motivate participation in the CERM scheme.

On the positive side, cause branding and improved environmental performance are two incentives for firms to join in the program. A large number of Japanese firms have become ISO 14001 certified as cause branding with the expectation that their green consumers market will increase [72]. Most large corporations and even SME's publicize their ISO certified EMS programs on web sites, advertisements, and even on company vehicles as part of the marketing strategy. Even though there is debate about the true value ISO 14001 contributes to environment performance, the increasing participation by Japanese firms proves that cause branding along with the apparent enhanced performance, suggest these are strong potential motivators for participation. Another positive factor is improved performance through collaboration. In the United States, 90 percent of more than 600 firms surveyed by the Pew Partnership for Civic Change reported that forming partnerships with the local community and non-profits is important for their business [73].

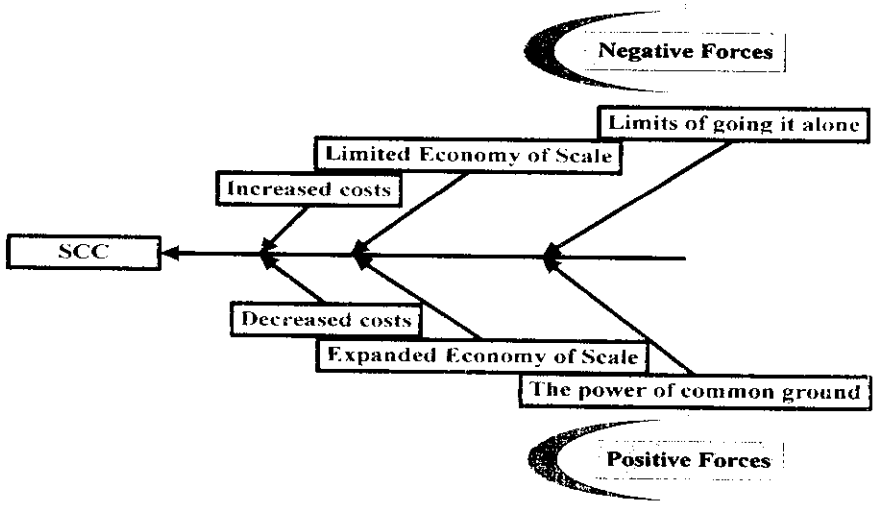

Figure 4.7: Motivating "Boosters" for local stakeholders to participate in a CERM program (By Author)

Motivators for Local Stakeholders for CERM

The term "local stakeholder" has several possible interpretations, but the author's definition refers to any affected or potentially affected citizen, non-profit organization, and educational facility in a community by point or non-point soil pollution.

The advantages of public participation in environmental issues are [74]:

1) It provides low-cost source of information for government agencies.
2) An increase in confidence and trust in government decisions because local stakeholders have input into decisions.
3) It empowers community members by educating them on issues that affect them.
4) It advances democratic ideals.

Other positive factors over the traditional C&C environmental regulation include decisions that are "locally-based", less adversarial, and produce short-term results [75]. However, others point out that community members lack technical knowledge, approach problems with an emotional response rather one based on scientific proof, and lack the time, energy and commitment necessary for long-term participation [76]. However, governments overcome this barrier in the U.S., Germany, and Japan by providing opportunities for local governments to develop Community-based Environmental Protection (CBEP) systems.

Environmental groups, non-profit organizations, and environmental justice groups have long argued that the top-down federal regulation and enforcement methods lack flexibility necessary to deal with the complex issues associated with non-point source pollution and habitat loss. It is argued that with a CBEP system, communities can locally-customize it to create effective solutions that meet their needs better than any one-size-fits-all federal system. "The push to reinvent environmental regulation is being driven in part by the recognition that local, multi-stakeholder involvement in environmental decision making is key to effecting better environmental results" [77].

However, after more than a decade of government, academic and environment support organization support for CBEP; "relatively little effort has been devoted to understanding how communities function, evaluating the efficacy of different models for community involvement and participation, or analyzing whether community-based decisions are, in fact, better decisions" [78]. It has two diverse spectrums of environmental protection efforts that involve state and local governments and local citizens. One is what has been termed as "civic environmentalism" [79] that are typically non-regulatory and depend on voluntary action by participants. The other end of the spectrum are programs that are regulatory in principle, but federal and state agencies pass authority to local governments, but retain the right to set

minimum standards, maintain the right to reassume program responsibilities if the local government's implementation is deemed insufficient (principal of partial preemption). These types of CBEP are referred to as "implementory". Two examples are the local implementation of the federal clean air regulations by districts in California, and the wetlands protection implementation on a local level in Massachusetts [80]. Meyer and Konisky carried out a study concerning the wetlands in Massachusetts and found strong evidence that a CBEP actually does produce positive environmental performance as hoped by scholars and environmental organizations. "The fact that these CBEP efforts, which go beyond the "implementory" CBEP created by the Massachusetts Wetlands Protection Act, result in better environmental outcomes suggests that more expansive community-based action can produce improve outcomes" [81].

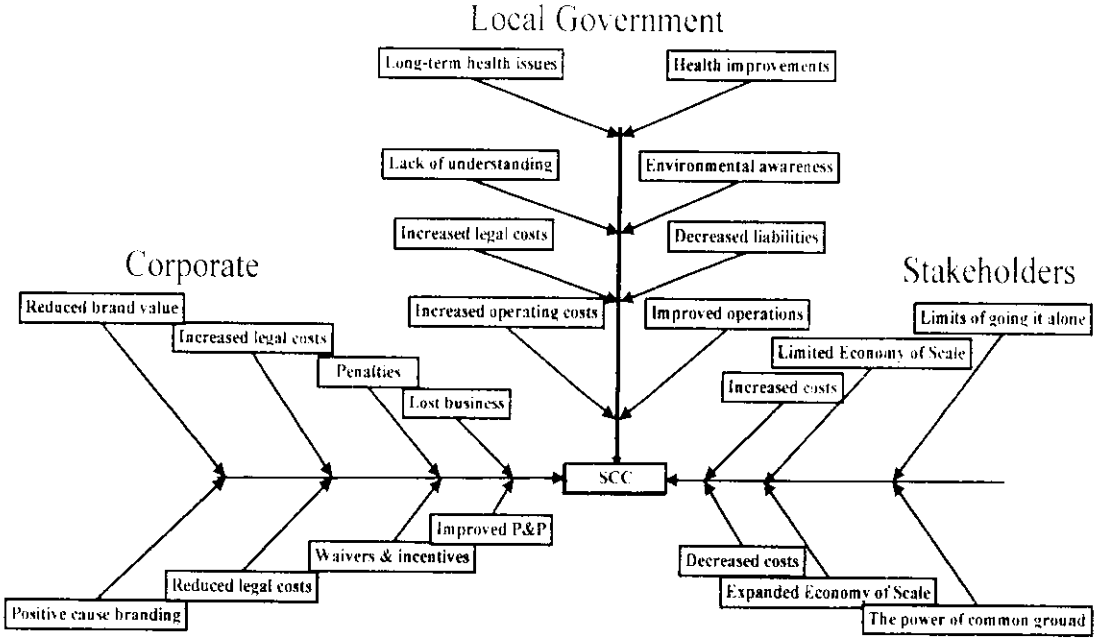

Figure 4.8: The complete CERM Booster scheme
(By Author)

The complete scheme as illustrated in diagram 4.8 shows the local government at the head of the triad providing the leadership to initiate the CERM system for soil contamination. It is vital for the Environment Department staff to effectively communicate the goal of the program and follow the prescribed steps outlined in the previous sections and chapters. The initial major challenge is to determine the best method to communicate the significant risks that the negative forces have if no action is undertaken, and how the positive forces can provide much needed protection from the risk of further

soil contamination. The local government has the option to expand its network by collaborating with academia, thereby increasing it knowledge base. The next section examines the necessity of collaboration for soil contamination prevention in Japan.

4.4.5 COLLABORATION BETWEEN GOVERNMENT, ACADEMIA, AND INDUSTRY IN THE UNITED STATES, GERMANY, AND JAPAN

This section begins with the historical background behind the collaboration movement in each country to highlight the similarities and differences. Each country's approach to stimulate collaboration have complex laws and dilemmas that slow progress, but these laws have stimulated new innovative businesses that have provided each economy with positive returns on investment.

Collaboration between U.S. academic institutions, the government, and businesses goes back more fifty years when the renowned scientist-businessman Vannevar Bush proposed to President Truman in 1947 that a National Research Foundation should be established to encourage the U.S. government to fulfill its responsibility in supporting research. A senator from Washington introduced a bill to provide government funding for the foundation, but it failed to get enough support from Congress or the president, so the bill was dropped [82]. However, the federal government later began providing funds for research grants, and at about the same time, U.S. academic institutions began collaborating with industry in cooperative research. Cooperation was limited at first, but began to grow in the 1970s, and then flourished after the creating the Bayh-Dole Act in 1980, which clarified important issues related to Intellectual Property rights (IP) that had impeded earlier collaboration efforts [83]. Currently, universities fiercely compete for grants from the private, federal, state and municipal governments to raise their prestige and advance innovative business opportunities for profit.

The German Federal Republic has had a different approach to R&D collaboration than the U.S. government. It clearly separated fundamental and applied research, but this approach is now changing. "Now, even the ivory tower Max Planck Society (MPG) has undertaken steps to harness the results of basic research carried out at its institutes for addressing societal needs. Under the motto 'between science and industry', it has created the Garching Innovation GmbH, a commercialization arm of the MPG, mandated as the technology transfer center for the society's research institutes" [84].

The Ministry of Education controlled Japan's education system until reform measures during the Koizumi Cabinet reduced the number of ministries, currently it is the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The former Ministry of Education provided funds for universities and established policies through a centralized decision-making system that made collaboration between universities, industry and the government difficult. This changed when the 1998 Law Promoting

Technology Transfer from Universities to Industry was promulgated, and shortly after that, national universities were privatized that added a new dilemma for the highly invested national universities to maintain their level of excellence, and be competitive with private universities. The new law changed the status quo that had existed for decades by suddenly providing funding for Technology Licensing Offices (TLOs). This was the first step to supply national universities with a way to compete in the free market. The government introduced four different changes starting with the 1999 Article 30 of the Law on Special Measures for Industrial Revitalization (the Japanese version of Bayh-Dole Act) that halved the patent fees for approved TLOs, and permits consignment of research results by the national government to be reverted to private companies. In 2000, the Law to Strengthen Industrial Technology allows professors to be paid for consulting work and have management positions in companies commercializing their product. In 2002, revisions were made to authorize university-based venture companies to use national university facilities and promote venture business activities. Finally, the 2003 Basic Law on Intellectual Property changed the legal status of national universities [85].

The recent interest in collaboration between universities and private industry in Japan is similar to Germany's changing approach from basic research to applied research. Both countries want to revitalize their stagnant economies, revitalize research strategies, and create innovative business opportunities [86]. However, in a report drafted by the Japan Intellectual Property Association, two major problems with Article 30 have made collaboration between national universities and industry less attractive than for parties covered by the Bayh/Dole Act in the U.S. The first problem relates to the obligations imposed on the consignee (private company) regarding the execution of the agreement. The second involves results assignment in the case of re-consignments [87].

Figure 4.9 outlines how the triad is interacting according to Article 30 and how it is contributing to society. The CERM scheme for soil contamination prevention is in a developmental stage, so the author suggests following the KISS rule by keeping the level of involvement with academia limited to advisory or adopting an on-the-job training program as illustrated in figure 4.10.

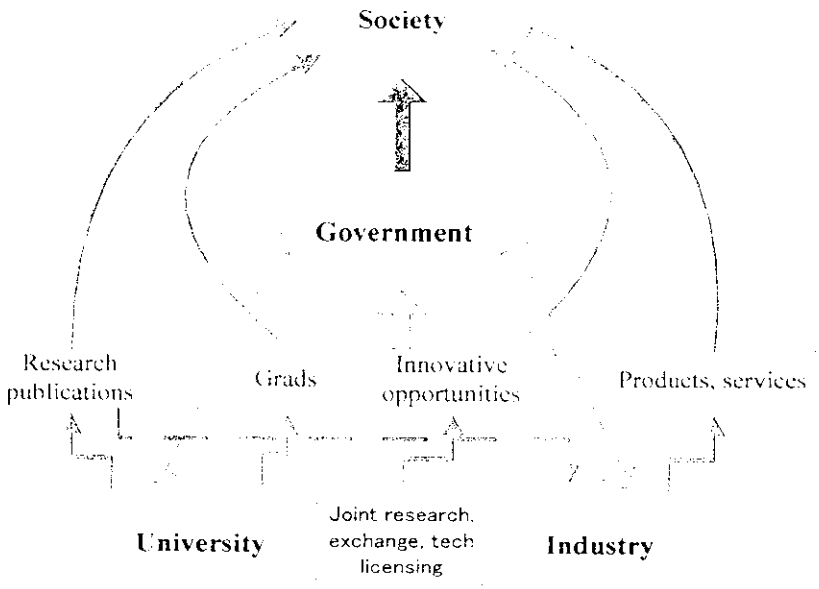

Figure 4.9: Collaboration between Government, University and Industry for Innovation (By Author)

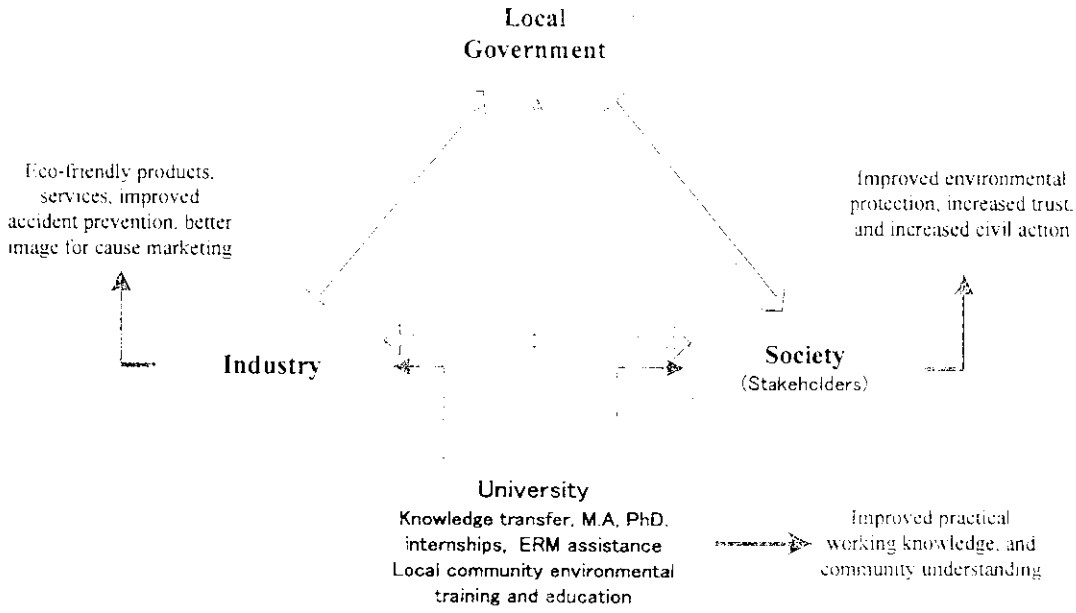

Figure 4.10: Basic Framework for the CERM System for Preventing Soil Contamination (By Author)

4.5 PART III CONCLUSIONS

This section examined the barriers and challenges facing local governments and found that people

generally resist change, but if strong leadership supports it, proper training and communication, people can become motivated to accept new ideas and make them succeed. Comparing the motivations of the United States, Germany and Japan, the common factors for the three to initiate collaboration is that limited financial resources can be more efficiently utilized, improved horizontal networking, and an increased opportunity to obtain an organization's environmental goal. These constitute the basis for the capacity-building framework for a CERM system for soil contamination.

The original CERM system based on the author's conclusions from the comparative studies carried out and reported in the previous chapters, involves a model for soil contamination in which the local government plays the leading role in the system. It is responsible for generating the interest in preventing soil contamination so that industry and local stakeholders will understand the value to their health and the community's future well-being. As with any new program, the buy-in factor for other members is crucial. The author separated and labeled the motivating drivers as "positive and negative boosters." It was explained that both positive and negative reinforcement if communicated clearly to industry and local stakeholders could provide the necessary motivation to form a lasting collaborative relationship.

Finally, background on the growing collaboration between academia, government and industry revealed that there have been innovative new businesses and products to emerge from joint ventures in the United States and Germany, but in Japan joint ventures only recently have become possible with the promulgation of the Law on Special Measures for Industrial Revitalization in 1999. A study uncovered that there is reluctance by industry to collaborate with universities because of some inconsistencies with the law. The CERM system proposed in this dissertation relies on university staff and students' voluntary participation rather than business venture scheme. One suggestion is to incorporate the volunteer activities into the university curriculum. This will provide the teaching staff and students a chance to share their tacit knowledge in a practical setting and contribute to community education.

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