



行政院環境保護署

Environmental Protection Administration

Executive Yuan, R.O.C.

Current and Future Policies of Managing Contaminated Soil in Taiwan

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Outline

- **Background**
- **Current policies of managing contaminated soil**
- **Status of management of contaminated soil**
- **Current problems**
- **Future directions of managing contaminated soil**
- **Conclusions**





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Background



Background

- Environmentally conscious countries started to manage air, water, waste, toxic chemicals pollution. Since soil and groundwater are the final receptors of the aforementioned pollution, these countries later established laws to protect the subsurface environment.
- Although Taiwan followed the global trend to enact the “Soil and Groundwater Pollution Remediation Act,” most governmental offices, companies, and citizens still do not have a good understanding of the law.





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Status of Management of Contaminated Soil



Achievements

- Listed and deleted sites
- Proposed sites
- Ongoing investigation
- National four-year plan of soil and groundwater pollution prevention and remediation
- Health risk assessment
- Redevelopment of contaminated sites



Sites (up to 2007/8/23)

	Listed	Deleted	Current
Farmland	1,736	1,206	530
Gas station	68	17	51
Storage Tank	13	3	10
Factory	40	5	35
Illegal Dumping	5	1	4
Other	14	2	12
Total	1,876	1,234	642



Proposed Sites

- Implemented “Project of Investigating Soil and Groundwater Pollution Caused by Petroleum Storage Tanks in Military Sites” in 2006-2007
- Investigated 20 sites
- Found 11 contaminated sites



Ongoing Investigation

- Evaluation of due diligence of industrial sites (year 2007)
- Investigation of soil and groundwater pollution of abandoned factories (year 2007)
- Investigation of soil and groundwater pollution of gas stations (fourth terms)
- Investigation, verification, and technical assistance of soil and groundwater pollution event (year 2007-2008)
- Source Investigation of contaminated groundwater in military bases



National Four-year Plan of Soil and Groundwater Pollution Prevention and Remediation

- Started to implement on September 19, 2006
- Objectives
 - Investigate sites that are highly possible to be contaminated
 - Supervise remediation work of contaminated sites
 - Complete regulatory codes, establish technical protocols of risk assessment and remedial technologies
 - Establish database of soil and groundwater quality
 - Promote the redevelopment of contaminated land
 - Educate and train professionals in soil and groundwater remediation
 - Define responsibilities of ministries of the central government



National Four-year Plan of Soil and Groundwater Pollution Prevention and Remediation (cont.)

- Participating ministries of the central government:
 - Environmental Protection Administration
 - Ministry of Economic Affairs
 - Council of Agriculture
 - Ministry of Finance
 - Council for Economic Planning and Development
 - Ministry of the Interior
 - Ministry of National Defense
 - National Science Council



Health Risk Assessment

- Article 17
 - If a person who submits a groundwater pollution remediation plan is unable to lower the pollutant concentrations below the groundwater pollution control standards by remediation because of factors such as geological conditions, pollutant properties or contamination remediation technologies, he may submit a remediation target for groundwater pollution based upon environmental impacts and an assessment of health risks.



Health Risk Assessment (cont.)

- Article 17
 - When Local Authorities prepare soil pollution or groundwater pollution remediation plans, they may propose remediation targets for soil pollution or groundwater pollution based upon environmental impacts and an assessment of health .



Health Risk Assessment (cont.)

- Amended the “Soil and Groundwater Pollution Control Site Preliminary Assessment Regulations ” on March 29, 2006
 - The local authority for a control site can inform the perpetrators of pollution at the control site, all land users, land managers, and landowners of their right to apply for a health risk assessment.
- Issued the “Essentials of Reviewing Risk Assessment Reports of Control Sites” on May 8, 2007



Health Risk Assessment (cont.)

- Four gas stations were permitted to submit applications for carrying out risk assessment
- Only one report was approved



Redevelopment of Contaminated Sites

- Completed proposal of “Measures to Redevelop Remediation Sites” in January, 2006
- Public and private entities participated forums
 - Taxation Agency, Banking Bureau, Insurance Bureau, Construction and Planning Agency, Industrial Development Bureau, Department of Land Administration
 - Bankers Association, Non-Life Insurance Association
 - Banks



Redevelopment of Contaminated Sites (cont.)

- Comments
 - Provide incentives such as increasing plot ratio and relaxing land use
 - Avoid purposely polluting lands to get benefits
 - The Construction and Planning Agency can not wait until Remediation Sites are deleted from the list to issue non-urban planning land development permits



Redevelopment of Contaminated Sites (cont.)

- Comments
 - Must consider fairness of taxation when providing financial incentives
 - Must set duration and amount limits for reduction of income and land taxes
 - Must consult taxation bureaus of local governments about house tax and land value tax reductions
 - Developers are only eligible for land tax reduction if they are also the owners of the lands





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Current Problems



Current Problems

- Imperfect structure of government
- Lack of professionals in government
- Lack of governmental budgets
- Lack of incentives to promote the redevelopment of contaminated lands
- Remediation Fund mainly comes from petrochemical industries
- Lack of experience on investigation and remediation





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Future Directions of Managing Contaminated Soil



Focus of Future Policies

- Revise the Soil and Groundwater Remediation Act
- Promote the classification of contaminated lands and manage them accordingly



Key Revisions of the Soil and Groundwater Remediation Act

1. Modify the definition of a polluter and define a potential polluter
2. Require interested person of the polluted land to assume more responsibilities
3. Require industrial and similar parks to monitor groundwater quality
4. Require signatures of certified professionals on related documents
5. Halt auctions of remediation sites



Key Revisions of Soil and Groundwater Remediation Act (cont.)

6. Establish the protocol of performing risk assessment
7. Require more industries to pay the Remediation Fund
8. Provide financial incentives for the redevelopment of contaminated lands
9. Modify measures to manage contaminated lands caused by natural processes



1. Modify the Definition of a Polluter and Define a Potential Polluter

- Current

Definition of polluter : (Article 2)

- 1) Engaging in the illegal discharge, leakage, infusion or disposal of pollutants;
- 2) Serving as an intermediary or allowing illegal discharge, leakage, infusion or disposal of pollutants; or
- 3) Failing to dispose of pollutants pursuant to applicable laws or regulations.



1. Modify the Definition of a Polluter and Define a Potential Polluter (cont.)

- Future
 - Delete illegal discharge and disposal of pollutants
 - Define parties who pollute lands by legally and continuously discharge pollutants to the environment as potential polluter, and require them assume costs of investigation and remediation. However, the costs will be less than those paid by polluters.



2. Require Interested Person of the Polluted Land to Assume More Responsibilities

- Current

- An interested person of the polluted land shall prevent soil pollution and groundwater pollution by exercising the degree of care of a good administrator.
- When the land of an interested person of the polluted land is declared as a Remediation Site due to his or her gross negligence, such interested person shall be jointly and severally liable with the polluter for the costs incurred by the competent authorities at each respective level pursuant to Paragraph 1 of Article 12, Article 13 and Article 16.



2. Require Interested Person of the Polluted Land to Assume More Responsibilities (cont.)

- Future
 - Both the Japanese and German laws require interested person of the polluted land to assume remediation responsibilities according to the principle of liability without fault (Strict Liability)
 - Delete “gross negligence”
 - Responsible for Control Site or Remediation Site



3. Require Industrial and Similar Parks to Monitor Groundwater Quality

- Current
 - No requirement
- Future
 - Require annual monitoring



4. Require Signatures of Certified Professionals on Related Documents

- Current
 - No requirement
- Future
 - Require signatures of certified professionals when providing or submitting information of investigation and remediation of contaminated soil and groundwater under the Act.



5. Halt Auctions of Remediation Sites

- Current (Article 15)
 - Local Authorities shall notify the land registration authorities having jurisdictions over the land concerned to record the prohibition against the disposition of the land belonging to polluters or interested person of the polluted land within the Remediation Site.
- Future
 - Halt auction if the remediation site is being forced to put up for auction.



6. Establish the Protocol of Performing Risk Assessment

- Current
 - No protocol
- Future
 - The protocol will be established by Taiwan EPA



7. Require More Industries to Pay Remediation Fund

- Current (Article 22)
 - To remediate the soil pollution and groundwater pollution the central competent authority may levy soil pollution and groundwater pollution remediation charges on the manufacturer and importer of chemicals designated and declared by the central competent authority based on the quantity of production and importation of such chemicals, and establish a Soil Pollution and Groundwater Pollution Remediation Fund. .
 - Six categories; 125 chemicals
 - 90% from petrochemical industries



7. Require More Parties to Pay Remediation Fund (cont.)

- Future
 - Fees charged not only from the manufacturers and importers of “designated chemicals” but also those of substances or products which are likely to cause pollution
 - Declare the “designated substances”



8. Provide Financial Incentives for the Redevelopment of Contaminated Lands

- Current
 - Before the cancellation announcement of the control of the soil or groundwater Remediation Site and the implementation of the land development plan, the land developer shall contribute to the Soil Pollution and Groundwater Pollution Remediation Fund thirty percent of the then current value of the soil-polluted area in the original Remediation Site, which value is assessed based on the government-prescribed value of the land after its rezoning plus forty percent.



8. Provide Financial Incentives for the Redevelopment of Contaminated Lands (cont.)

- Future
 - Developers need not to contribute to the Remediation Fund



9. Modify Measures to Manage Contaminated Lands Caused by Natural Processes

- Current (Article 6 in the Executive Measure)
 - Any authority at each respective level shall perform auditing and examination according to the Article 5, Article 7, and Article 11 of the mother law. If the authority discovers the pollutant concentration is reaching the soil and groundwater pollution monitoring standard but not caused by any pollution, then the result has to forward to agriculture, health, water, industry executive branches, department of land, department of construction or any relevant organization for further action.



9. Modify Measures to Manage Contaminated Lands Caused by Natural Processes (cont.)

- Future
 - Move the related explanations and measures to the mother law



Promote the Classification of Contaminated Lands and Manage Them Accordingly

- Working on “Policy of Managing Contaminated Lands According to their Usages and Characteristics” project
- Set Soil Pollution Control Standards according to land usages (e.g. industrial, agricultural, or residential area) and soil characteristics (e.g. depth or pH)





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Conclusions



Future Goals to be Pursued

- Establish the protocol of performing risk assessment and promote the classification of contaminated lands and manage them accordingly
- Provide financial incentives for accelerating the redevelopment of contaminated lands



Future Goals to be Pursued (cont.)

- Enhance the expertise of the government by providing trainings and restructuring organizations
- Strengthen cooperation among ministries of the central government to execute “National Four-year Plan of Soil and Groundwater Pollution Prevention and Remediation”





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Thank You for
Your Attention

