

# Establishment of the Soil and Groundwater Management Information System

## 1、Origin

Soil and groundwater pollution remediation is complex and diverse in nature. With a view to providing swift and efficient response to soil and groundwater pollution conditions across the country, the informatization of relevant works has been initiated on the principles of integrativity, innovation, personalization, immediacy and interactivity. The ‘Soil and Groundwater Management Information System’ (the SGM System) was therefore constructed to offer decision support and help promote remediation works. Besides, the ‘Soil and Groundwater Pollution Remediation Web’ (the Web) was created to provide multiple channels for greater public involvement in soil and groundwater protection.



▲ The Homepages of “Soil and Groundwater Management Information System” and “Soil and Groundwater Pollution Remediation Web”

## 2、Objectives

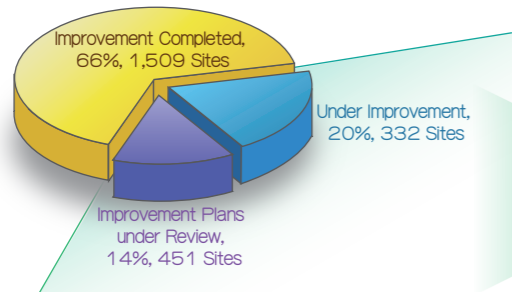
The objectives of the soil and groundwater information management are to:

- create a data warehouse platform and strengthen administrative efficiency
- provide spatial information in real time, and construct a national soil and groundwater environmental quality map
- increase public involvement and improve public services

## 3、Outcomes

(1) Create a data warehouse platform and strengthen administrative efficiency :

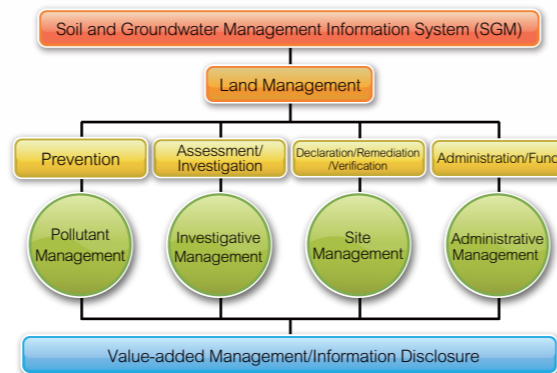
The SGM system serves as a shared platform for inter-system and inter-agency data announcement, access, and exchange to meet the purpose of information sharing. Data format are specified with reference samples available to streamline data upload process, reduce the waste of human resources and expenditures of industries and environmental agencies, and avoid filing errors.



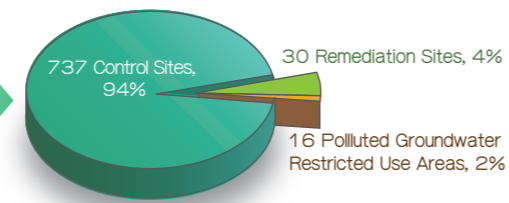
▲ Soil and Groundwater Improvement Status in Taiwan (up to Sep. 15, 2010)

(2) Provide spatial information in real time and construct a national soil and groundwater environmental quality map :

The SGM system serves as a shared platform for inter-system and inter-agency data announcement, access, and exchange to meet the purpose of information sharing. Data format are specified with reference samples available to streamline data upload process, reduce the waste of human resources and expenditures of industries and environmental agencies, and avoid filing errors.



▲ The Framework of Soil and Groundwater Management Information System



▲ Spatial Presentation of Soil and Groundwater Environmental Quality

(3) Increase public involvement and improve public services :

Investigations and pollution remediation have been undertaken to prevent soil and groundwater pollution and the results of all the work done have been made public. The real-time data on listed sites of soil and groundwater pollution nationwide is delivered using Google Maps on the principle of information services and applications and presented in a way that is integrative, comprehensive, diverse, statistical, aesthetic, and focused. Services are provided in an active rather than a passive manner to encourage greater public involvement in the issue of environmental pollution.

A focused navigation scheme is designed for the Web according to different needs of the public, operators, students, and professionals. Data and literature in distinct areas are released, including 6 yearbooks, 22 technical manuals, and 4 publicity brochures on laws and regulations.



▲ Real-Time Information Retrieval of Polluted Sites in Taiwan

## 4、Prospects

Continuous efforts will be made to construct the national soil and groundwater environmental quality map. Soil and groundwater data stored in the database are to be translated into texts of analytical significance, which are further converted into spatial graphics to enable their effective use. Various types of data including spatial graphics, locations of polluted sites, regional distribution, investigation points, and other layer information can be cross-referenced for value-added applications. Management and decision support is expected with the establishment of the e-management system.

**Light Control**

**Model Simulation**

**Mobile Office**

**圖層開關控制**

- ☑ 飲用水水源水質保護區
- ☑ 農地土壤重金屬潛源渠道
- ☑ 列管工廠或場所
- ☑ 農地污染潛勢
- ☑ 工業區污染潛勢
- ☑ 廢棄工廠污染潛勢

**亮燈說明及統計資料**

- ☑ 高度污染潛勢區 共計 5 鄉鎮
- ☑ 中度污染潛勢區 共計 20 鄉鎮
- ☑ 低度污染潛勢區 共計 3 鄉鎮
- ☑ 具污染潛勢區 共計 3 鄉鎮

▲ Future Applications of Taiwan's Soil and Groundwater Information