JAPAN'S POLICIES ON SOIL ENVIRONMENT PROTECTION - HISTORY AND PRESENT STATUS

Sukehiro GOTOH and Akihiko UDOGUCHI

1) National Institute for Environmental Studies, Japan Environment Agency (JEAO
2) Water Quality Bureau, Japan Environment Agency (JEAO

1. ABSTRACT

Soil pollution or contamination as having been conceived in Japan is reviewed to provide the basis for taking policy measures to abate soil pollution and to protect the soil environment.

Soil pollution problems started in Japan as contamination of rice paddy fields by such heavy metals as cadmium (Cd), copper (Cu) and arsenic (As) mainly from mining and smelting activities. Based on the Law enacted for this purpose in 1970, polluted agricultural soils have been remediated since, having achieved considerable clean-up works and other countermeasures.

On the other hand, contaminated soil problems in areas other than agricultural land use or "urban" soil problems as they are called in Japan, have been recognized rather recently. Policies and measures taken to cope with these issues by the National as well as local governments for the past decade or so have been numerous, but of rather immediate or provisional nature. In this paper, they shall be detailed and critically reviewed.

Finally, as the environmental quality standards for soil protection were set in 1991 for the first time in 20 years since the Government decided to do so in late 1970 in "The Basic Law for Environmental Pollution Control (1967)", Japan's present and future prospects in soil protection policies and legislative action will also be discussed.

2. INTRODUCTION

Historically, soil contamination problems in Japan have been dealt with first for managing the agricultural land of mainly rice paddies, then later for managing the land of former industry and other uses than the agricultural. Soil of the latter land is conveniently called the "urban" soil, because the land is mostly located in a rather populated urban area or region.

Problems of soil contamination of agricultural land have been dealt with in the scheme of measures set by "The Agricultural Land Soil Pollution Prevention Law (Law #139 of 1970)". Cadmium (Cd), copper (Cu) and arsenic (As), and their compounds had been consecutively designated by the Cabinet Order as the Specific Harmful Substances, and also criteria of these contaminants for taking countermeasures determined. Accordingly, the designation of contaminated area by the local Prefectural Governor and subsequent clean-up works and/or other countermeasures with the financial assistance from the National Government have been taken to date. By November 1991, of 7050 ha totally designated, clean-up and countermeasures had been completed for 4480 ha (63.5%).

In the meantime, problems of urban soil contamination, triggered by "The Hexavalent Chromium Incident" of Tokyo in 1975 and later widely publicized by the following similar incidents throughout the nation, have attracted much of public concern since mid-1970s. Because of this mounting public concern, several local governments have responded to these issues and, in January 1986, the JEA (of the National Government) released a Provisional Guideline for

F. Arendt, G.J. Annokeee, R. Bosman and W.J. van den Brink (eds.), Contaminated Soil '93, 3-10.
Clean-up targetted mainly for contamination of Government-owned land. In the Guideline, criteria for soil contamination and level of actions/measures for clean-up were provisionally proposed for nine (9) contaminants of mainly heavy metals.

In the following, history and present status concerning the urban soil contamination and its policies in Japan will be presented.

3. HISTORICAL REVIEW OF JAPAN'S URBAN SOIL CONTAMINATION ISSUES

In Japan, cases of soil contamination of former industrial and other activities than agricultural have become gradually known since the beginning of the 1970s. In most cases, contamination was "found" at the time of new land use and/or urban redevelopment plan. For instance, soil contamination with mercury (Hg) and lead (Pb) of the land formerly used for a factory of "A" Electrochemical Co. in Arakawa Ward near the Bay of Tokyo was found in 1977 when the Tokyo Metropolitan Government (TMG) purchased the land from the Company for the purpose of constructing a sewage treatment plant and small civic park and examined the site.

Tables A-1 and A-2 (JEA, 1986 & 1992) of Annex list such cases found before and after the JEA's Provisional Guideline of 1986 mentioned above, respectively. Tables 1 and 2 (JEA, 1992) list causes of contamination and the ways how these cases were found, respectively. In Table 1, the reason that a considerable number of cases were found by local ordinances and administrative guidelines is accounted for the fact that since mid-1970s many local governments have started an environmental impact assessment procedure which normally requires a site investigation in one way or another before the new land use. Based on data of these known cases, Table 3 (JEA, 1992) summarizes the number of cases according to the category of industrial activities and contaminants.

In the earlier stage of development of these cases, namely, roughly before 1980, clean-up and other remedial actions of rather provisional and immediate nature had been taken based on each individual cases to the extent as far as the "suspected" polluter and the local authority had agreed. Later in the 1980s, however, based on experiences on these earlier cases, several local authorities have started drafting up regulations or technical guidelines and more systematic remedial actions have been taken accordingly. Table 4 (JEA, 1992) summarized directives and guidelines on countermeasures for urban soil contamination that have been established so far by local governments.

4. BASIC POLICY DIRECTION AND REMEDIAL ACTION FOR URBAN SOIL

Having recognized the increasing urban soil contamination cases and actions being taken by the local authorities to cope with these issues, JEA as the