

# IDENTIFICATION OF PROBLEMS RELATED TO SOLID WASTES IN BULGARIA - NATIONAL REPORT

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Practically the problem related to waste treatment and disposal in Bulgaria has not been resolved at an up-to-date level. In the last few years different specialists, institutions and departments have been worked on this problem and especially in standard and legislation direction in order to remedy the situation.

From the great diversity of wastes only domestic wastes are eliminated according to a worked out system, i.e. landfill disposal. Nowadays this method is solving the problem from health and ecological point of view. Although, despite this fact, after complex investigations of landfills in Sofia, Plovdiv, Burgas and other big towns in this country arises the problem with ground water pollution coming from domestic waste components – heavy metals, phenols, microbiological unfavorable indices. Next steps of the investigation will be a complex study of the population living near these landfills in order to determine the unfavorable effect on human health. Utilization of large area for landfills, the lack of separate waste collection and reuse of domestic wastes are making this method economically not effective (1).

From a health point of view the situation with other types of waste, as industrial, agricultural, hospital, hazardous, is very much bothering. For the disposal of these types of wastes modern methods and technologies are used in most of the cases as for example incineration, but the existing equipments for this purpose are inconvenient and they polluted the environment. This pollution, directly or through ecological sets, has an unfavorable effect on human health.

Quantities of the basic types of industrial solid wastes for 1992 are 5 493 032 tons per year. Up to 1990 in the environment they have been 2,1 milliards of tons of industrial wastes, so that each year industry has polluted the environment with 2,5 millions of tons hazardous wastes (Table 1).

More than 471 000 decare agriculture areas are polluted with heavy metals (Cu, Pb, Zn, Cd, Hg, As...) at a level above norms, so that for a total of 230 000 decare limit values are exceeding twice. Waste producers, including hazardous waste producers, are the following industrial branches – energy, non ferrous metallurgy, chemistry, ferrous metallurgy, paper, building, nutrition. Investigations show that 400 g hazardous substances are inhaled per year per person in this country and the main part is coming from industry (2, 3).

Environmental pollution coming from industry is predetermined mainly from its characteristics in its development and particularly:

- prevalent part of heavy industry branches, which are great environmental polluters;
- manufacturing industry using big quantities of raw materials, energy, fuels with great waste production;
- concentration of many industries in a same area producing different type of wastes.

The degree of industrial pollution depends on the following factors:

1. Producing structure of industrial branches.
2. Technological level of industrial production.
3. Quality of raw materials.
4. Lack of purification equipment and non effective work of the existing equipment.
5. Unsufficient social concern for environmental protection.

Studies have been made proving undesirable effect of wastes produced by great metallurgical plants.

A study of the population living around the area with accumulation of great quantities of industrial wastes – the villages of Iana, Gorni Voden, Pirdop and Zlatiza – is performed. In biological samples from blood, urine, hair, nails and teeth we observed a tendency of accumulation of heavy metals – Pb, Cu, Zn, Cd.

Because of the specific landscape and climatic conditions components from these industrial wastes, through atmospheric and horizontal routes, reach the population.

Studies of the degree of soil pollution near big industrial plants – in Sofia, Plovdiv, Pirdop, Kardjaly, show above the standard content of heavy metals in the areas around them. Studies of vegetable samples from these areas proved also the above of standard content of heavy metals in these products. This fact is coming to direct our attention to the assumption of a possible health risk for the population.

The principal way to eliminate different pesticides is to bury them in special places. Observations are coming to prove that these places are not enough safeguarded. There are frequent underground water pollution as a result of the migration of the buried pesticides. Recently emergency situations are arising in places where pesticides are buried as a consequence of fire, inundation, etc., which in most of the cases are due to the lack of security guards and storage accomodation owners for pesticides.

In addition solid wastes from great livestock breeding farms are sources of pollution of surface and underground waters and of vegetation production.

Especially unsatisfactory is the situation from health point of view in hospital waste disposal. In this country the elimination of these types of wastes is organized by their deposition in sanitary landfills at determined places, as well as their incineration in furnaces in the hospitals themselves, but these equipments are not in conformity with hygienic requirements. During the incineration of hospital wastes atmospheric air is polluted. In most cases these furnaces are located in the

Table 1. Industrial solid wastes for the period 1980-1989 (tons)

1980	1981	1982	1983	1984
98 946 293	92 243 857	104 535 913	114 062 570	281 993 558
1985	1986	1988	1989	
291 641 764	290 694 282	305 287 456	331 096 646	