

Overview of pesticides in Romania

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Mankind wishes to live longer, better and to dominate nature; in order to satisfy his inborn curiosity, he discovered fire, agriculture, wheel, steam power, *chemical organic synthesis*, artificial intelligence, to enhance his lifestyle.

In the perpetual confrontation between bad and good, the seen and unseen, pesticides have their own fate. They were created to help man, but currently pesticides are global contaminants, which can be found in air, rainfall, snow, soil, ground- and surface water, fog and even in ice from Arctic regions. Globally all living creatures are contaminated with pesticides. The circle is closing, man is the starting point and it is paradoxical those who integrates by bio-concentration, pollution from every environmental media, via food chain.

Data on worldwide pesticides sales and use are difficult to find, however many of these older products are still produced and sold in developing country markets, either by domestic companies or by some multinationals acting through subsidiaries or joint ventures. Approximately 70,000 to 80,000 of these compounds were applied in developing and formerly socialist countries in 1995, including public health and veterinary use.

Economic disruption and decline during the 1990s has depressed pesticide use considerably in Central and Eastern Europe, Romania being included. The collapse of intra-regional trade, break-up of state farms, and sharp reduction in consumer purchasing power reduced agricultural demand.

At the same time, Romanian state - owned pesticide plants, which dominated production, faced marketing and financial constrains and imports were curtailed by foreign exchange shortages. (Figure 1)

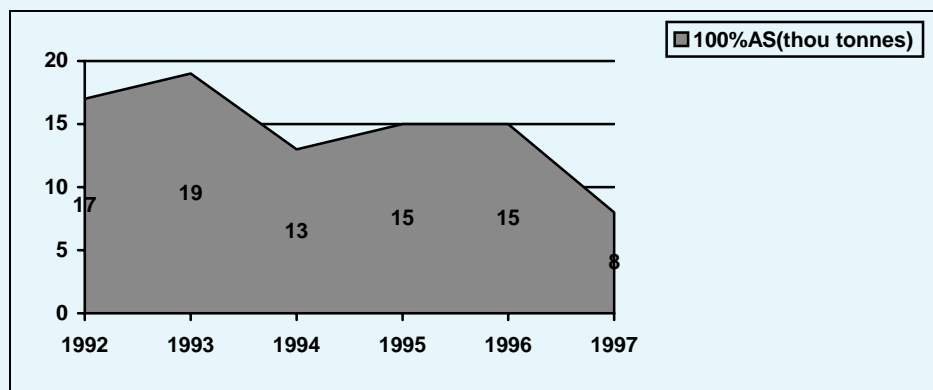
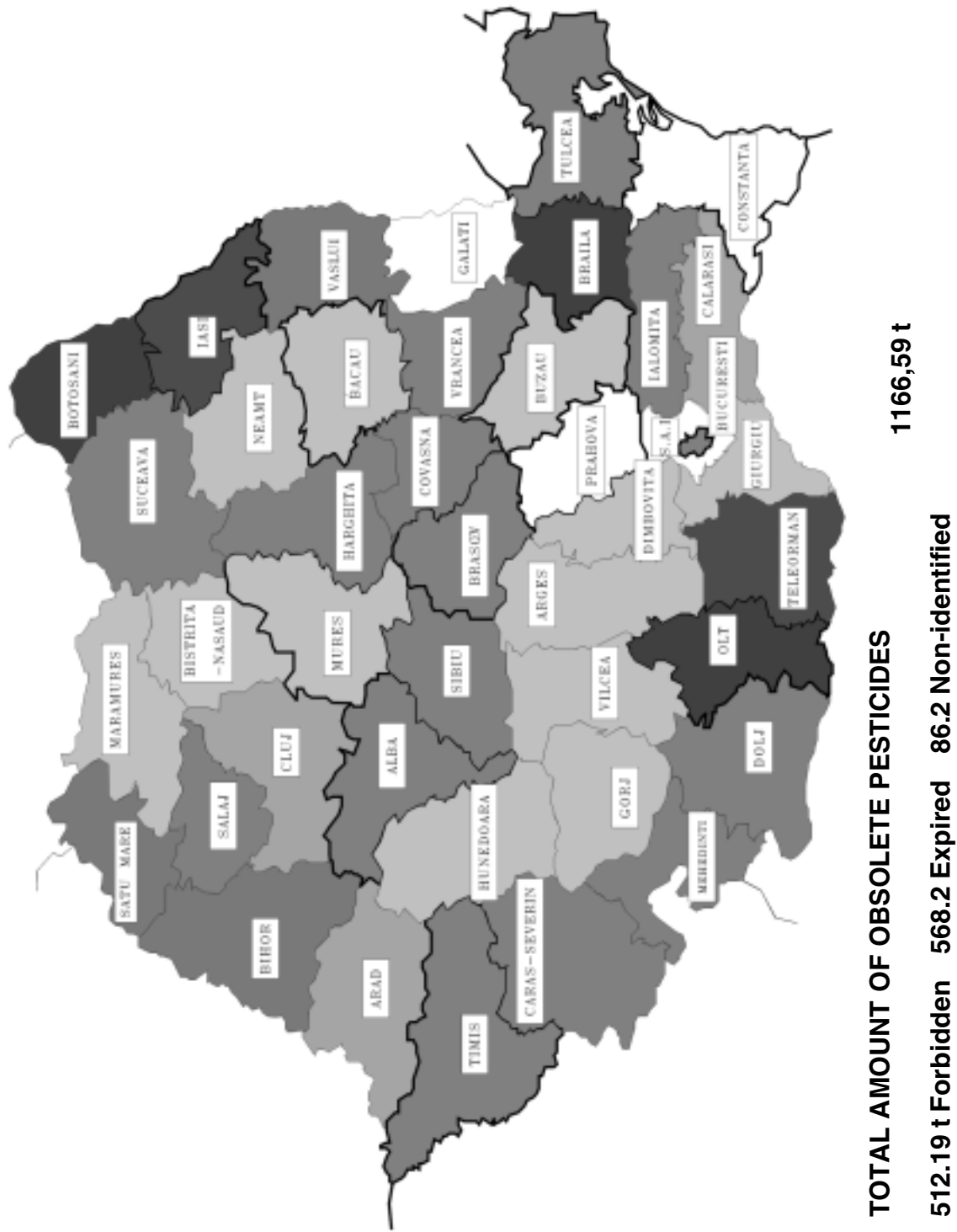


Figure 1. Pesticides' use in Romania

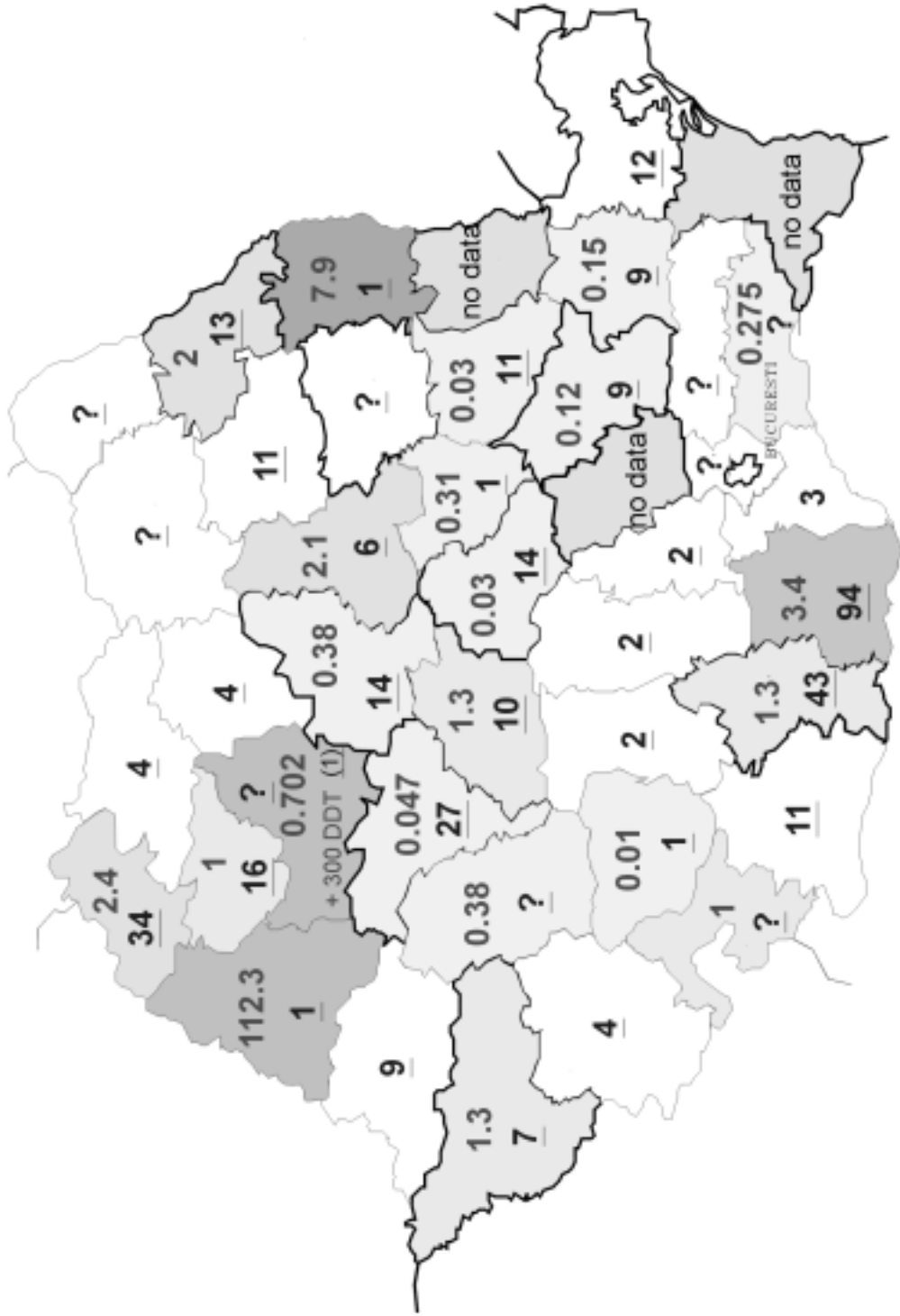
An important source of environmental contamination with pesticides besides pesticide plants and pesticides use in different fields of activity, are the stockpiles with obsolete compounds. Data regarding the amounts of forbidden, expired and non-identified pesticides are figured on the map of Romania, following a geographic information system (GIS), using a colours code, according to the amounts of obsolete pesticides disposed in each district. (see Figure 2)

The POPs identified in these stockpiles are Toxaphene, Heptachlor and DDT and they are figured on the second map together with the number of stockpiles in each district. (see Figure 3)



(Source: Ministry of Agriculture and Food / 21 of July 1995)

Figure 2. Regional distribution of stockpiles obsolete of pesticides per district in Romania in tonnes



(Source: Ministry of Agriculture and Food / 21 of July 1995)

Figure 3. Regional distribution of number of stockpiles of obsolete pesticides and number of POPs (toxaphene + heptachlor + DDT) in Romania

Although a legal frame regarding the regime of pesticides exists in Romania, it is at the beginning and still has gaps and non-concordances. There are also many laws that are under the harmonisation process to the Aquis Communautaire.

Legislation:

- Environmental Protection Law - 137/1995
 - Sect. 2 - Rules for dangerous substances and wastes
 - Sect. 3 - Rules for chemical fertilisers and pesticides
- Codex of pesticides used in Romania
- Standards for quality of soil, air, water, food, occupational environment
- 1985 Ban of DDT and technical HCH to be used in agriculture

Romania as well as many other developing countries, is confronted with inadequate safety and hygiene practices regarding applying, formulating, storing, transporting and manufacturing of pesticides.

Due to this fact, millions of people are exposed to these substances each year. Although the pesticides use pattern indicates that farm-workers and their families are on the first places as potentially exposed groups, pesticides residues on foodstuffs and in water demonstrate potential non - occupational exposure.

• Population:	22,545,925 inhabitants	55% urban	45% rural
• Agricultural area:	14,794,000 hectares	63.2% arable land	
• Pesticide use:	8,000 tonnes (100% A.S.)		

(Romanian Statistical Yearbook 1998)

The risk for human health could be defined as the probability that one or more exposures to chemical substances may lead to injuries, diseases or death for that exposed person. Health risk assessment involves the analysis of previous exposures and related adverse effects that either occurred or might appear in the future, together with the prediction of the most likely consequences of subsequent exposures. Risk may be expressed in quantitative terms or can be described qualitatively.

Risks associated with exposure to pesticide cannot be evaluated and quantified easily. Any risk assessment of chemical exposure that does not cause immediately or observable effects is a very complex work. Scientists are unable to establish conditions under which the exposure to a chemical substance is of zero risk, but only to describe the conditions where the risks are so low to be considered to have no practical consequence to a specific population. In technical terms, the safety of a chemical substance is defined as when the exposure leads to absence of effects.

Based on the evidence already accumulated about the harmful effect of pesticides on human health, it might be of interest to present some public health data in Romania.

Tumours represent the second cause of death in Romania and cancer mortality shows a slightly increasing trend for the period 1970 -1997. Cancer mortality in woman (51% out of total population) shows that breast and cervix cancer were the first and second causes of women mortality by cancer after 1983, with an increasing trend. (see Figure 4)

0/0000 Females (Stand. Eur)

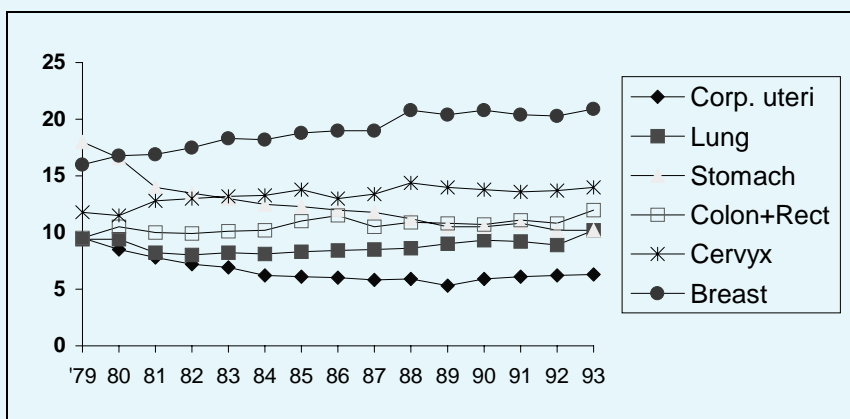
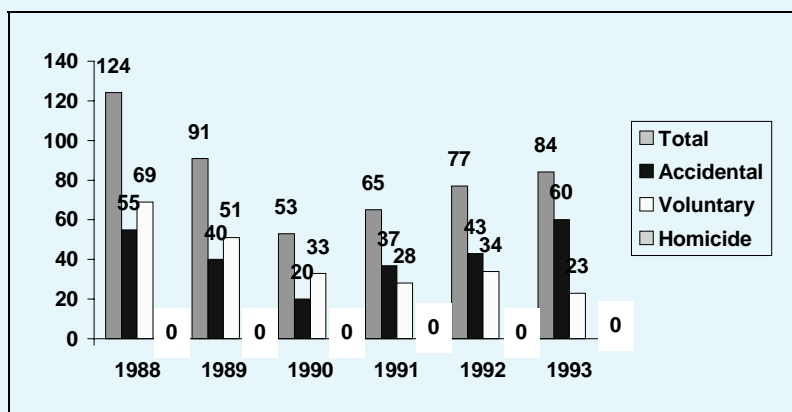


Figure 4. Cancer mortality in women

Cases of non-occupational intoxication with pesticides, registered in 26 counties of Romania for the period 1988-1993, show an elevated death rate of 10.1 - 26.4%. Products or active substances, which contributed to intoxication,

were identified only in 30% of cases. The total number of deaths by pesticide intoxication shows an increasing trend due especially to the accidental deaths. (Figure 5)

No. of cases



(Source: IPH Bucharest, Lab. of Vector Control)

Figure 5. Mortality by intoxication with pesticides, in general population

POPs represent an issue of concern in Romania both for the environment and public health protection. In this respect few problems and priorities could be mentioned:

- There is no transparency -correct and systematic information of public and managers- on POPs issue, and no awareness regarding the danger of POPs on human and environmental health;
- There is no inventory of pollution sources with POPs (location, type of substance and quantity) at national level;
- There are no available public data about production of PCBs, and for pesticides there are reported only the global figures of the Active Substances (thou tonnes/year);
- There is no systematic control of food production and consumption on internal market, in order to identify the harmful chemicals and protect the consumers' health;
- There are no systematic studies to identify human and environmental burden with POPs and the links between them;
- The use of DDT and lindane is still allowed in public health.

A possible prioritisation of the problems we are confronted with, is:

- Improving the legal framework;
- Rising awareness of public, managers and politicians on POPs danger;
- Developing educational programs for consumers;
- Promoting the participation of NGOs, women organisations and local groups;
- Participating at international cooperative studies.

Risk minimisation measures should be based on:

- Ban of pesticides with long environmental persistence and high soil mobility;
- Risk communication to the consumers.

Risk management should be a tool for setting priorities, determining target levels and standards, deciding "How clean is clean?" or "How safe is safe?" and balancing risk, cost and benefit.

Each step of risk assessment and risk management process requires explanations and in this sense the process itself is a form of communication. The subject is complex, explaining health hazards to the public being a difficult task, but the final target is to create a public level of information and knowledge on health hazards.

References

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