

SWEDISH LEGISLATION ON PESTICIDES

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The Swedish Environment Protection Act, Public Health Act, Poisonous Substances Ordinance and Pesticide Ordinance enable the authorities to restrict the use of substances dangerous to the environment or prohibit their use if this is considered necessary. Certain organic mercury compounds, phenoxy acids, aldrin, dieldrin, DDT, lindane, polychlorinated biphenyls and aminotriazole are thus restricted or prohibited. The author discusses the motives and objects of the legislation.

The legislation concerning the use and handling of pesticides has been adopted mainly during the last decade.

Central legislation in the field of environmental protection in Sweden is to be found in the *Environment Protection Act* which came into force July 1st 1969. This Act is a comprehensive legislation against water pollution, air pollution, noise and other nuisances from real property. The Act prescribes that certain types of factories and other establishments may not be constructed or altered, or that certain effluent discharges may not take place until special permission has been obtained and the required specifications for the prevention of pollution have been laid down. The Act is also applicable to factories and other establishments which were in existence when the Act came into force and to effluent discharges which were then taking place. Furthermore, it contains regulations which specify the conditions under which discharge may take place and activity dangerous to the environment may be carried out, inter alia in relation to the choice of the site for the activity inimical to the environment. There are rules concerning safety regulations and protective measures and also prohibition of particularly harmful activities if this is considered necessary.

The siting of roads, railways, aerodromes and nuclear power stations is also regulated in certain respects by means of other provisions.

The *Public Health Act* enables action to be taken against sanitary inconvenience in the form of impurities, noise and other nuisances. Matters related to the control of substances harmful to the environment and to public health are regulated in several statutes.

The *Poisonous Substances Ordinance* regulates the use of poisonous substances and certain other goods which constitute a danger to public health. The ordinance contains regulations concerning e. g. manufacture, use, import and sale of and other forms of handling of such substances. In accordance with the terms of the *Pesticide Ordinance*, pesticides may not be sold or used without prior registration. Several compounds which were permitted previously have been refused registration or have restrictions placed on their use.

Present Swedish legislation does not, however, provide for the control of all substances that may constitute a danger to the environment. A Royal commission has therefore been set up with the task of investigating the extent to which legislation concerning the control of products harmful to the environment should be expanded. One of the matters to be considered is the introduction of compulsory registration for products others than pesticides whose use may entail danger to the environment because of their components.

Before I penetrate more deeply in the main regulations and ordinances on pesticides I will give a brief sketch of the different administrative bodies responsible for these questions.

On the Government level, environmental protection is chiefly dealt with by the *Ministry of Agriculture* and its *Environmental Advisory Committee* through which the Government can consult representatives of science, industry, local authorities, Provincial administration and others on matters associated with environmental protection.

The administrative body in the field of environmental protection is the *National Environment Protection Board*. It is the central administrative body for nature conservancy, water and air pollution control, noise abatement, protection of wildlife, mobile open air recreation and environmental protection research. The Board is partly responsible for the examination of applications for licenses and for control in accordance with the Environment Protection Act.

The *Franchise Board for Protection of the Environment* is an authority, working like a court of law, which in more important cases deals with applications by industry and local authorities of permits in accordance with the Environment Protection Act.

The *Poisons and Pesticide Board* registers pesticides and controls the use of these and other substances which are toxic or injurious to health.

The *National Board of Health and Welfare* deals with water- and air pollution, noise, etc. in cases where public health is involved.

The *National Board for Food Control* takes action in cases where pollution threatens foodstuff and animal hygiene.

And finally *The National Board for Occupational Safety and Health* has the responsibility for all those situations where the professional handling of pesticides endangers the health of the worker during production or distribution of these compounds. Since July 1972 the former *Institute of Occupational Health* in Stockholm has taken integrated with this Board as a special department.

I will now try to give a somewhat more detailed description of the Pesticides Act and some other regulations concerning the use of some special substances or compounds.

The basic principle in *the Pesticides Act* is that a pesticide can not be sold, handed over or used unless registered with a Government authority which in this case is the *National Poisons and Pesticides Board*. By the term »pesticide« a substance or a preparation is understood meant to be used as a protection against damage to property, sanitary disadvantages etc caused by herbs, animals, bacteria, or virus. Thus insecticides, rodenticides, fungicides, molluscicides, herbicides, etc are included. The term does not apply to drugs or compounds meant to preserve foods or drugs, nor to paint, varnish, tar, etc under certain conditions.

A pesticide cannot be registered if it is found to be so poisonous or else thought to cause such damage to man, domestic animals, wild life, beneficial insects and domestic plants, that it ought not very well to be used as a pesticide. Registration is also to be refused for a preparation that is obviously inappropriate for the declared purpose on account of non-effectiveness. The application for registration of a certain pesticide should be given in to the Poisons and Pesticide Board by the manufacturer of the preparation or, in case he is foreign, by his representative in Sweden. The application should contain, among other things, a complete declaration of the ingredients and necessary information about poisonous properties of the preparation as well as other hazards and risks to man, farm domestic animals, etc. Samples of labels, directions for use and, as a rule, samples of the containers should be sent in with the applications. The registration documents remain strictly confidential with the Poisons and Pesticide Board, unless the Board finds that the documents should be available to others on account of public interest.

A pesticide may be sold only in its original container, which should be labelled according to special regulations, the label including i. a. adequate text of warning and name and quantity of active ingredients. Nonactive ingredients, dangerous substances to human health, should also normally be declared on the label. All information required on the label as well as directions for use etc are to be in the Swedish language.

When registering a pesticide the Poisons and Pesticide Board places it in one of the 3 classes or groups according to the health risks connected with the preparation, where class 1 stands for the most dangerous substances. This classification is of importance e. g. where trade with and use of the preparation is concerned. Thus trade with a class 1-pesticide is limited and requires a special license unless the party concerned is entitled to trade in poisons according to the Poisons Act. The use of class 1 preparations requires a personal license, which can be obtained only after special training. Pesticides belonging to class 1 should be locked up when not in use and all pesticides are to be kept well away from foodstuff.

There are special regulations for *pesticides poisonous to pollinating insects*.

Dressing of seeds with pesticides containing *organic mercury* is restricted and is only allowed after special permission from the *Central Board for seed control*. The seed should be tested on its quality as regards contamination by fungi. Farmers dressing their own grain in quantities below 500 kg are free to use pesticides without any restrictions.

Use of organic mercury compounds has been limited to those of alkoxyalkyltype. Alkylmercury and combinations of mercury-compounds and aldrin are thus prohibited as they are dangerous to birds. Mercury compounds are not allowed for use in paper- and pulp-industry and for fruit-production.

The Poisons and Pesticides Board in March 1971 banned temporarily the use of *phenoxy acids* for control of woody weeds in forests, along road-wedges etc. The control of herbaceous weeds with phenoxy acids was however still allowed for agricultural crops including grass seed crops on the same conditions as before. Then bann applies to public parks and similar areas but not to private gardens. The ban does not include treatment of individual trees by »pocketing« which means an injection into a cut in the trunk. The use of phenoxy acids is not allowed against aquatic weeds in lakes and watercourses. The dilution of phenoxy-preparations with mineral oils as well as the spraying of these substances on the immediate waterfront are likewise banned.

These decisions have been taken after a thorough discussion of a report presented by a group of experts appointed by the Board of Poisons. The report does not give any support to the earlier suspicions that a human foetus can be harmed by these preparation. No member of the group found a motif for general prohibition. However the group considered that more or less stringent restrictions were necessary.

The Board has attached great importance to the matter that the continued use of phenoxy acids must not take place in such a way that people are unknowingly exposed to them. This is the reason why the temporary ban applies to the use along roads, in forests etc but not in arable fields and suchlike.

In 1972 a law was passed along the same lines. The spraying by air-planes over other areas than arable fields is now also prohibited.

According to customary law in Sweden the general public is allowed to move about freely in all parts of the open country and forests (public as well as private) as long as they do not cause harm or disturbance. Being within the sight or hearing distance from a house is generally considered to be the extent within which the passing of the public is a disturbance. Crop fields should not be trodden on.

In a statement of the Poisons and Pesticide Board of March 1969 the use of certain *chlorinated hydrocarbon pesticides* became prohibited in Sweden. The decisions imply the following:

1. Every use of *aldrin* and *dieldrin* is forbidden from January 1st 1970.
2. The use of *DDT* and *lindane* in household preparations and similar preparations for homegardening are forbidden from the same date.

3. Other uses of DDT are forbidden for a test period of two years from January 1st 1970. In exceptional instances there will be a possibility of an exemption.

These decisions were preceded by a conference in which eminent experts inside and outside Sweden took part. It was stated at the conference that there is *no immediate health risk to man* due to the present use of chlorinated hydrocarbon pesticides. As to the environment regarded as an integrated biological system considerable risks have been shown. It was stressed at the conference that every compound within the group of chlorinated hydrocarbons must be judged by itself when risks are being weighed against benefits.

It has also been stressed that variations of climate and differences in other conditions influence the need for and the risks of these preparations in different parts of the world. Among other things it has been pointed out that it is important to have an insecticide which is innocuous enough when handled, and which has the necessary effectiveness for the use in campaigns against malaria and other vector-borne diseases in those parts of the world where such diseases are of importance. The WHO considers it at present *not possible to do without DDT*.

There has been an increase in alternative preparations and methods for such needs in combatting pests etc actual in Sweden, that have hitherto been met by preparations containing persistent chlorinated hydrocarbons. There is an opinion that chlorinated hydrocarbons can be spread to other areas than the one they have been used in. To what extent and in what way is not sufficiently known.

The need for insecticides is rather small in Sweden compared with other countries. This makes it possible to do without the now forbidden compounds. This fact gives us the possibility to arrange for and wait for the results of scientific research on this subject. Also to test the effect of alternate means for combatting pests.

The Poisons and Pesticide Board cancelled the registration of *Amitrol* (Aminotriazol) on 18th April. This substance had been classed as a class 2-substance in January 1971. The reason for the cancellation of registration was a suspicion that *Amitrol*-treatment of weeds had caused cases of lung cancer among railway-workers spraying the substance. It was considered that if this suspicion had existed at the time of registration, the compound would not have passed the registration tests.

There is also an *Act on PCB* from June 1971. It gives the background for restricting the use and handling of *polychlorinated biphenyls* or compounds containing PCB. It puts a ban on the use or handling of PCB without permission by the Environment Protection Board in paints, hydraulic oils, for heat transfer, electric condensers and other purposes.

Lastly I will mention that in April 1972 the *Board for Occupational Health and Safety* started a *Pesticides surveying project* which aims at giving a complete picture of the risk situation for workers handling pesticides. It includes an evaluation of the exposure level, taking of air sam-

ples, technical methods and equipment, medical control and other safety precautions. It is carried out by factory inspection officers and specially employed physicians and will also contain an interview with the workers in question. Until this project is finished we have given temporary regulations about methods of work and other information about precautionary measures.

Sažetak

SVEDSKO ZAKONODAVSTVO O PESTICIDIMA

Švedski Zakon o zaštiti okoline, Zakon o javnom zdravstvu, Odluka o otrovnim tvarima i Odluka o pesticidima omogućili su vlastima da ograniče ili zabrane upotrebu onih tvari koje su opasne za okolinu ako se utvrdi da je to nužno.

Tako je upotreba nekih organskih spojeva žive, fenoksi-kiselina, aldrina, dieldrina, DDT-ja, lindana, polikloriranih bifenilnih spojeva i aminotriazola ograničena ili sasvim zabranjena.

Autor raspravlja o povodima i predmetima spomenutog zakonodavstva.

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CONCLUSIONS

The 2nd Swedish-Yugoslav Days of Occupational Medicine held at Miločer, Montenegro, Yugoslavia, from 4 to 8 December 1972 in the organization of the Yugoslav Association of Occupational Health were entitled »Symposium on Pesticides«.

A total of 17 papers were presented and discussed in a congenial, constructive atmosphere by nine Swedish and eight Yugoslav authors. There were also approximately thirty Yugoslav observers attending the Symposium.

The topics discussed may be summarized as follows:

Organochlorine pesticides should be handled with care because most of them are not easily degraded in nature. For the time being there is no reason for alarm. However, the situation must be observed carefully in the future in order to prevent unacceptable general and local accumulation. The least toxic and most rapidly degradable substances should be preferred.

Cholinesterase inhibitors — first of all organophosphorus insecticides — are, as a rule, easily degraded in the environment. The acute toxicity of these compounds has to be considered a priority and the control of persons potentially exposed should be carried out. The residual problems related to this group are of less importance.

As regards *mercurial pesticides*, there are two facts to be considered: mercury compounds may be degraded but there is also a decomposition product containing mercury which is inherently toxic. Under certain conditions prevailing in nature, mercury may also be methylated to some very toxic methylmercury compounds. The use of mercurials must therefore be kept on the lowest possible level.

It was generally agreed that the use of pesticides is necessary in the future but it should be based on the sound judgment and strict control in order to diminish the negative effects on humans and the environment. Attention must be paid to adequate safety measures in connection with the production, transportation, handling and application of pesticide products. Furthermore, the appropriate control of the residue levels in food of animal and vegetable origin should be carried out. Also the harmful effects of pesticide chemicals on ecosystems should be studied and adequately prevented.

In order to achieve this goal it is necessary:

- to organize a systematic collection of epidemiological data as a basis for a sound pesticide policy;
- to expand the knowledge of the toxic and ecologic effects of today's and tomorrow's pesticides;

- to prepare instructions for the safe and efficient use of pesticides and
- to promote the spread of information on pesticides on all levels including public health, agricultural, forestry and veterinary institutions and authorities, pesticide producers and formulators, users and the general public.

Miločer, 8 December 1972