

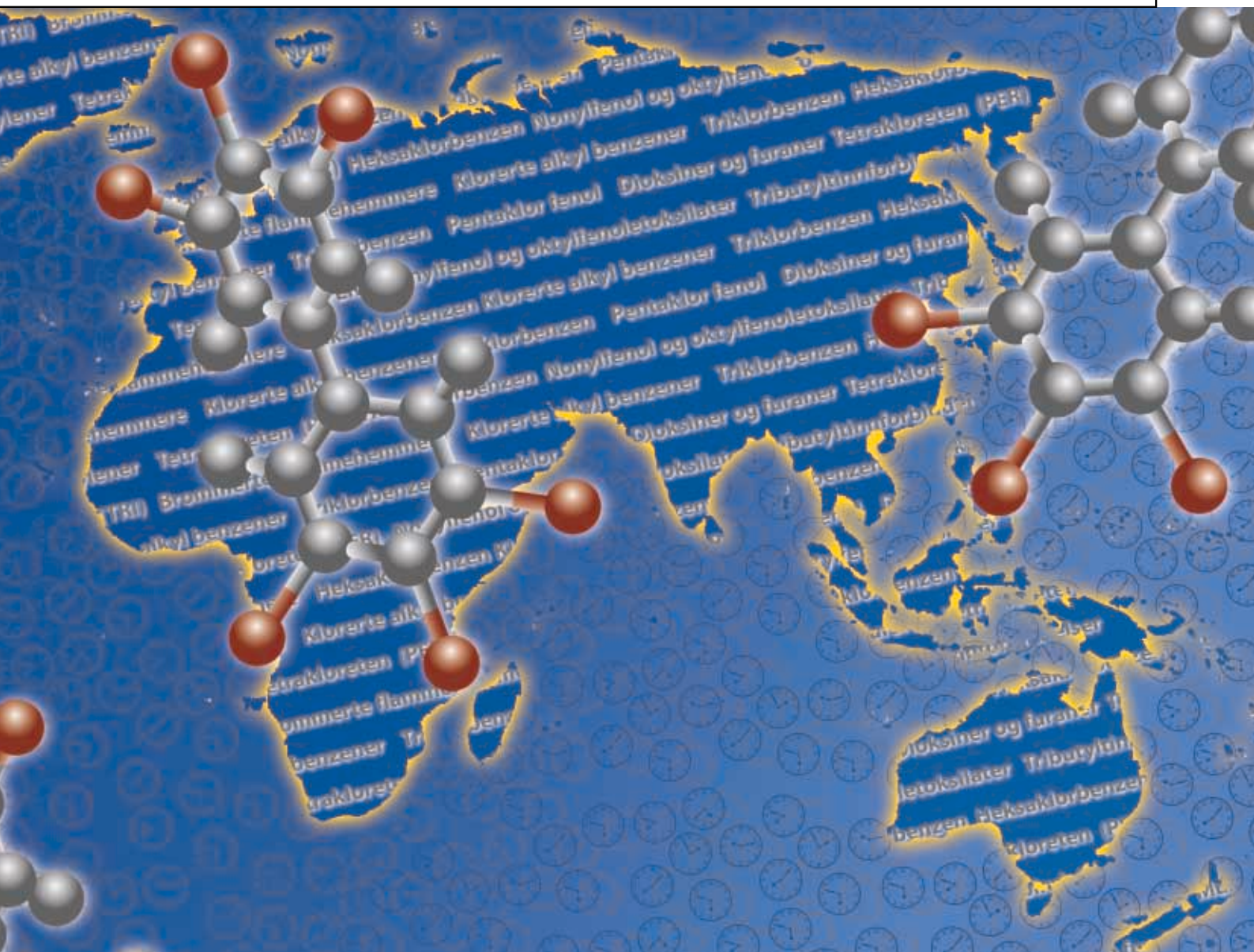


MILJØVERNDEPARTEMENTET

Ministry of the Environment

Action plan

Norway's action plan for hazardous substances



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Introduction

The most serious threats to sustainable development at the turn of the century are the global dispersal of hazardous chemical substances, climate change and the loss of biodiversity. The insidious contamination of water, soils and air and the accumulation of hazardous substances in food chains are a threat to the very basis of life on earth, to our food supplies and to the health of future generations. Hazardous chemicals have received a great deal of publicity, and the general public is very concerned about their impact on health and the environment.

The Norwegian Government has decided that much higher priority must be given to efforts to deal with hazardous chemicals. For many substances, we already have sufficient information to decide which restrictions or prohibitions on use are needed, and will continue this work, which has proved to be effective. Nevertheless, we still know too little about many chemicals that we use on an everyday basis. In my view, it is essential to learn more, particularly about the long-term impact of chemicals and the effects of many substances in combination, both in the human body and in the environment. The quantities of PCBs released into the environment in the past and the costs of dealing with them now show how important it is to take action as early as possible. In science, the threshold of proof is necessarily high, but if we are to protect human health and the environment, we cannot always wait for full scientific proof of the links between a substance and adverse effects. We must therefore be guided by the precautionary principle.

We have managed to reduce direct industrial emissions by between 50 and 95 per cent in the past twenty years, so that emissions from products are now viewed as the main challenge for environmental policy. Tens of thousands of hazardous substances are used in an unknown number of products and are sold freely on the European market, and we know too little about most of these. The challenge of dealing with these problems is formidable. This is why I have considered it so important to identify the most important problems that we will have to deal with in the next few years and to draw up an action plan.

For both individual people and the environment, the crucial factor is the total pollution load. We must therefore try to reduce the risk posed by the widespread and general use of chemicals. Both business and industry and ordinary consumers must take more responsibility for their actions. Improving information at all levels is therefore a high priority task. Everybody has a right to know about the risks involved in using hazardous substances. At the same time, information of crucial importance if we are to succeed in shifting to more environmentally-friendly patterns of consumption.

This is the background for our action plan, which consists of three main strategies:

1. Elimination of the most dangerous substances

Strict regulation, including national legislation and international agreements, will be used to phase out the use of the most dangerous substances. Stricter controls will ensure compliance with the legislation.

2. Reduction of risk. The environmental authorities must provide a framework that allows business and industry to assume more responsibility. Business and industry are in turn responsible for ensuring a continual reduction of the risk associated with the use of substances that are hazardous to health and the environment. This means that the substances used in manufacturing and found in products and waste must be less hazardous.

3. Better information. Everyone must have access to information on the risks to their own health or the environment involved in using hazardous substances. Information is also essential to allow people to choose substances with less impact on health and the environment. The primary responsibility for providing information lies with business and industry. The information strategy includes the right to receive information, the duty to provide information and the use of information as a tool to reduce the use of hazardous substances.

Ten important measures to deal with substances that may be hazardous to health and the environment

We will eliminate the most dangerous substances by:

1. Strictly regulating the most dangerous substances
 - evaluating prohibition or restriction of the use of chlorinated paraffins by 2000, certain endocrine disruptors in 1999 and brominated flame retardants
2. Collecting products that contain dangerous substances to ensure that waste receives appropriate treatment
 - removing PCBs from old lighting fixtures by the end of 2004
 - collecting PCBs in construction materials and heavy metals in electronic waste

We will reduce risk by:

3. Introducing a requirement to replace substances that are hazardous to health and the environment by less hazardous alternatives - introducing the substitution principle as a statutory requirement from 1 January 2000
4. Giving more responsibility to business and industry - documentation of health and environmental hazards will have to meet higher standards
5. Giving clear signals about which substances are considered to be undesirable in the course of 1999, by
 - developing criteria for undesirable properties, including toxicity, low degradability, mutagenicity and high bioaccumulation potential

- developing an "observation" list, i.e. a list of substances with undesirable properties that users should treat with special caution
6. Implementing measures to protect children and other vulnerable groups against hazardous substances
 - prohibiting the use of phthalates (endocrine disruptors) in toys for children under three years old in 1999

We will improve the provision of information by:

1. Ensuring that the public have a genuine right to receive information on the state of the environment
 - A special committee is to report on its findings as regards environmental information by the end of 2000
2. Developing a database system for information on substances that may be hazardous to health and the environment, to be open to the public. This work will begin in the near future
3. Publishing the database held by the Norwegian Pollution Control Authority on emissions from industry during spring 2000
4. Developing and coordinating environmental product declarations

These measures cannot be implemented by the environmental authorities alone. All of us must take a share of the responsibility. I am convinced that our ability to deal with the problems associated with chemicals and their use will be one of the criteria by which the next generation will judge us.



Guro Fjellanger
Minister of the Environment

What are the problems?

1 Have the risks to health and the environment been reduced?

During the past 50 years, the numbers and quantities of chemicals used have risen alarmingly. World production of organic chemicals has risen from about seven million tonnes in 1950 to about 250 million tonnes today. The use of chemicals is closely connected with production and consumption patterns in a modern society like Norway, and brings many benefits, for example enabling us to manufacture better products and making production processes easier. Chemicals can also be used for the benefit of health and the environment, for instance by lengthening the lifetime or improving the durability of products. On the other hand, many substances that have been used over the years and that are still in use today have harmful effects. In addition, most substances end up in the environment, where they have an impact on health and the environment.

The most serious problems involve substances that are only very slowly broken down by natural processes. Such chemicals may persist in the environment for generations, and are gradually dispersed over large areas, far from the site of origin. Many of them can also injure people directly in various ways - through our food, by their effects on the indoor environment, and, not least, when we come into direct contact with many types of products. We

Chemicals

This action plan applies primarily to chemicals that are used in the production of goods and services, and that are not governed by other legislation. The effects of chemicals in the workplace are regulated by the working environment authorities. Pesticides, medicinal products, cosmetics and chemicals in food are also regulated by other bodies, not by the environmental authorities. Because the responsibility for managing chemicals is split between a number of sectors, it is important to develop an integrated policy on chemicals.

still lack sufficient knowledge of the effects of most chemicals on our health and the environment. As we learn more, new problems are often revealed, and the environmental problems we are aware of now may be only the tip of the iceberg.

Hazardous substances constitute one of the most serious threats to the global environment. Chemicals that are hazardous to health or the environment are now present in air, water and soils and are transported throughout the world by global ocean currents and atmospheric circulation. Pesticides used near the equator can be found in soils and water in Norway, decades after their use has been discontinued. The consequences of earlier emissions and forms of waste disposal show that more and stricter preventive measures will be needed in the future.

Emissions from the largest point sources in Norway, such as existing industrial installations and mines, have been reduced by between 50 and 95 per cent in recent decades. But at the same time, new sectors such as the offshore oil industry have expanded, resulting in more use of chemicals and large emissions.

Thus, even though emissions from onshore industry and mines have been greatly reduced, we cannot say the same of the overall risks to health and the environment posed by chemical substances.

2 The global product market

Chemicals are used in large quantities in modern production processes. Global production is rising, both in terms of total volume and in terms of the number of product types. Global trade has a major impact on emissions of hazardous substances, because it contributes to their global dispersal in finished products. The expected international growth in consumption thus also means that emissions of hazardous chemicals are likely to rise.

One important goal of the liberalization of world trade is to eliminate national restrictions that act as barriers to trade. Both WTO rules and the

Agreement on the European Economic Area (EEA Agreement) include provisions designed to remove such barriers. Countries are still permitted to introduce national measures that affect trade in chemical products, but these must be based more clearly and firmly on environmental grounds if they will also have a negative impact on trade.

Since chemicals spread so freely around the world both by means of long-range transport of pollutants and by means of international trade, national efforts to reduce emissions will only have a very limited effect. International cooperation is essential if we are to reduce environmental contamination.

3 We know too little about most chemicals

Since 1981, it has been mandatory to notify new substances and investigate whether they are hazardous to health or the environment before they may be put on the market in the EEA. This makes it possible to implement any necessary restrictions on their use, etc. So far, barely 3 000 substances have been notified, most of them special chemicals that are used in small amounts.

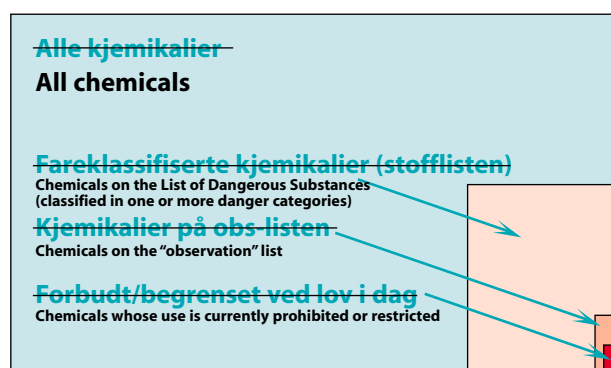
There is no corresponding requirement to investigate the harmful properties of substances that were already on the market before the rules entered into force, the existing substances. Very few of these have in fact been satisfactorily investigated. There are more than 100 000 chemicals on the list of existing substances, roughly 50 000 of which are probably in fact in use on the European market. About 20 000 substances are marketed in large or moderate amounts. It is estimated that half of these may be hazardous to health or the environment. The existing substances include those that are marketed and used in the largest amounts. In other words, our knowledge of the substances to which people and the environment are most frequently exposed is inadequate.

In 1993, the EU adopted a council regulation that provides the authority to require risk assessment of existing substances. Although this has resulted in the collection of data on the most widely-used substances, it has not yet given concrete results in the form of new restrictions on their use. There is still a need for a concerted international effort to acquire more knowledge about existing substances and to ensure that any substances that are hazardous to health or the environment are subject to adequate restrictions and control.

4 A more general approach is needed

Until now, efforts to reduce emissions of chemicals in Norway and other countries have focused on

selected substances or groups of substances. There has been broad international agreement on the harmful effects of these chemicals. In general, efforts have been concentrated on the most dangerous organic compounds, such as DDT, PCBs, PAHs, dioxins and furans, and on certain heavy metals and ozone-depleting substances. More recently, endocrine disruptors have been given high priority. The figure below gives an indication of the number of chemicals whose use is regulated in some way. The largest rectangle corresponds to all the chemicals used to produce chemical products and other goods on the European market, and the smaller,



shaded rectangles show the numbers of substances that are regulated in various ways or that will be included on the "observation" list. The largest of these includes the roughly 4 500 substances that are on the List of Dangerous Substances. The classification and labelling of these are harmonized throughout the EEA. The proposed "observation" list, or substances the authorities consider to have undesirable properties (discussed later in the document) will probably include 100-150 chemicals. As a result of international commitments, implementation of EEA legislation and national priorities, about 40 substances and groups of substances are subject to strict restrictions or prohibited in Norway. The figure shows that the various forms of regulation include relatively small numbers of substances. Nevertheless, they have been important in reducing risks to health and the environment, since the chemicals regulated are considered to be very hazardous. For substances to which the goals of the North Sea Conferences apply, emissions have been reduced by between 50 and 100 per cent compared with the 1985 level.

However, given the large numbers of chemicals in use, substance-by-substance regulation is not an adequate response. This does not take into account the fact that chemicals do not occur in isolation, either in the environment or in the human body. On the

contrary, many kinds of chemicals act together, and people and the environment are also exposed to various other factors with adverse impacts. It is therefore necessary to take a more general approach in a policy on chemicals. The new environmental goals adopted at the fourth North Sea Conference in Esbjerg in 1995 are a first step in this direction. Norway's long-term strategic objective is based on the Esbjerg goals:

Emissions and use of hazardous substances must not damage the productivity of the natural environment and its capacity for self-renewal. Concentrations of the most hazardous chemicals in the environment shall be reduced towards background values for naturally occurring substances and close to zero concentrations for man-made synthetic substances.

As a first step towards this strategic objective, Norway has adopted the following goal, known as the one-generation goal or Esbjerg goal.

The continuous reduction of emissions of substances that pose a serious threat to health or the environment, with a view to eliminating them within one generation (by the year 2020).

2.5 Lack of knowledge and the precautionary principle

Our knowledge of the health and environmental hazards associated with many chemicals is still inadequate, and this applies even to substances we use on an everyday basis. More knowledge of individual chemicals is therefore needed. We know even less about the effects of combinations of chemicals in the body or the environment. The threshold of proof is necessarily high in science. However, if we are to protect human health and the environment, we cannot always wait for full scientific proof of the links between a substance and adverse effects. People and nature are exposed to many chemicals acting together, and serious damage may not become apparent until a long time after exposure. We must therefore be guided by the precautionary principle in dealing with hazardous substances. A lack of full scientific certainty about adverse effects must not be used as a reason to delay protection measures.

The action plan

A description of the Ministry of the Environment's action plan for hazardous substances follows below. It is essential to ensure that all relevant parties are involved in the work of achieving its goals. The action plan therefore includes not only the steps to be taken by the authorities, but also how the authorities expect business and industry to become involved.

Since we have managed to reduce direct industrial emissions by between 50 and 95 per cent in the past twenty years, emissions from products are now viewed as the main problem in environmental policy. Tens of thousands of hazardous substances are used in an unknown number of products and are sold freely on the European market. We know too little about most of these. For both individual people and the environment, the crucial factor is the total pollution load. We must therefore try to reduce the risk posed by the widespread and general use of chemicals. If we are to succeed in shifting to more environmentally-friendly patterns of consumption, it is of crucial importance to provide better information at all levels. Everybody has a right to know about the risks involved in using hazardous substances. It will be no small task to achieve these goals.

The action plan is based on three main strategies:

1. Elimination of the most dangerous substances

Efforts to phase out the use of the most dangerous types of chemicals and limit emissions are being given high priority. The authorities must set clear goals and make use of effective instruments such as direct regulation and control. In addition to national efforts, international cooperation is needed to achieve both national and international goals for emission reductions.

2. Reduction of risk

Even though chemicals are an essential part of modern society, their use must not expose people or the environment to unnecessary risks. We must therefore take steps to ensure that the substances used in manufacturing and found in products and waste are less hazardous, and that chemicals are used in ways that minimize the risk of environmental damage or injury to health.

The environmental authorities must provide a framework that allows business and industry to take a larger share of the responsibility. This applies particularly to efforts to reduce the risks involved in using substances that may be hazardous to health or the environment, where business and industry must be involved and encouraged to take a much greater share of the responsibility.

3. Better information

We must know about the risks to our own health or the environment involved in using hazardous substances. If we are to be in a position to avoid the chemicals that most seriously affect our health and the environment, we need better access to information about chemicals, and the risks involved in using hazardous substances must be more clearly communicated. This will allow market mechanisms to promote the development of more eco-efficient products. The primary responsibility for providing information about chemicals in products lies with business and industry.

The information strategy therefore includes the right to receive information, the duty to provide information and the use of information as a tool to reduce the use of hazardous substances.

1. Elimination of the most dangerous substances

1.1 First goal: the priority list

The Government's first goal is to phase out or substantially reduce emissions of the thirty or so substances and groups of substances on the priority list. The deadlines for achieving this are 2000, 2005

and 2020. The substances on the priority list include some of the most environmentally-hazardous chemicals, and it is therefore important to use effective means of reducing emissions or phasing out their use.

Priority list of environmentally hazardous substances	
A: Emissions to be substantially by 2000 and if possible eliminated by 2005	B: Emissions to be substantially reduced by 2010 at the latest:
Heavy metals	
	<i>Heavy metals</i> <i>Lead</i> <i>Cadmium</i> <i>Copper</i> <i>Mercury Chromium</i>
Organohalogens	
<i>Chlorinated short chained paraffins</i> <i>PCBs</i> <i>Pentachlorophenol</i>	<i>Brominated flame retardants</i> <i>1,2 Dichloroethane (EDC)</i> <i>Dioxins and furans</i> <i>Hexachlorobenzene</i> <i>Chlorinated alkyl benzenes (CABs)</i> <i>Musk xylene</i> <i>Tetrachloroethene (PER)</i> <i>Trichlorobenzene</i> <i>Trichloroethene (TRI)</i>
Other environmentally-hazardous organic chemicals	
<i>Nonylphenol and nonylphenoethoxylates</i> * <i>Octylphenol and octylphenoethoxylates</i> * <i>Certain surfactants</i>	<i>PAHs</i> <i>Tributyltin compounds</i> <i>Triphenyltin compounds</i>
* to be eliminated by 2000	

1.2 Priorities based on the undesirable properties of chemicals

It was appropriate to give first priority to the substances on the priority list, but the scope of our efforts must be widened if we are to succeed in eliminating emissions of the most hazardous substances within one generation. Because so many different chemicals are in use and their effects on health and the environment are so complex, it will be important to draw up systematic priorities for our work based on which substances have the most serious effects on health and the environment. It is therefore necessary, and an also effective strategy, to use a set of objective criteria based on the

intrinsic properties of chemicals to identify the most hazardous types.

In Report No. 58 (1996-97) to the Storting on an environmental policy for sustainable development, the Government identified a number of undesirable properties. The Norwegian Pollution Control Authority has further refined this list to develop more operative criteria for undesirable properties. These are being used as a basis for deciding priorities and for drawing up the "observation" list (see chapter 3, "Better Information", for more details). These criteria are also being used in Norway's international work and in the Norwegian Pollution Control Authority's control activities.

The criteria also give a message to anyone who uses or handles chemicals that special caution is required if chemicals have these properties. This information is particularly useful if companies or individuals wish to take into account restrictions that the authorities are likely to introduce.

Before the authorities regulate the use of substances, the risk to health and the environment must be assessed. In other words, regulation of the use of chemicals is not to be based only on their intrinsic properties: the probability that adverse effects will arise must also be assessed on the basis of the quantities of chemicals used, how they are used, the exposure of people and environmental compartments, and other factors.

1.3 Elimination of the most dangerous substances

Nationally

The authorities will:

- prohibit new application of TBT to ships, at the latest from 2003, thus following up the decision by the International Maritime Organization (IMO); prohibit all use and remove any TBT previously applied to ships, at the latest by 2008
- reduce remaining inputs of PCBs to the environment - see box for a more thorough presentation
- evaluate prohibition of the use of:
 - highly chlorinated, short chained paraffins by 2000
 - pentachlorophenol by 2000
 - phthalates (endocrine disruptors) in toys for children under three years old in 1999
- consider more stringent measures to achieve the goal of eliminating emissions of the endocrine disruptors nonyl- and octylphenols and their ethoxylates by 2000 if current cooperation with industry is not sufficient
- evaluate the introduction from 2000 of environmental taxes on
 - pressure-treated wooden materials impregnated with the heavy metals copper, chromium or arsenic
 - the solvents trichloroethene (TRI) and tetrachloroethene (PER), which are carcinogenic and environmentally hazardous
- survey the use of brominated flame retardants in 1999, and evaluate regulation of their use

Internationally

Norway will:

- maintain the derogations from EU rules in the EEA Agreement which permit Norway to retain stricter rules, for example on the warning labelling for carcinogenic and sensitizing chemicals and solvents
- seek to persuade the EU to lay down strict restrictions on the use of substances on the priority list
- work towards making the goal of eliminating emissions of hazardous substances within one generation an explicit goal of international cooperation, and towards ambitious targets. This should result in binding commitments under the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic. Norway will head OSPAR's efforts to draw up criteria for selecting priority chemicals
- lead the work of devising harmonized procedures for reporting commitments under earlier North Sea Declarations to the fifth North Sea Conference in Norway in 2002. This is to be completed in 2000
- work towards the adoption of international, legally binding agreements at both regional and global level that as far as possible prohibit or set strict limits on the production, use and emissions of substances that may be hazardous to health or the environment. More specifically, Norway will:
 - contribute to effective international implementation of the two new Protocols to the 1979 ECE Convention on Long-range Transboundary Air Pollution, on persistent organic pollutants (POPs) and heavy metals. In cooperation with other countries, Norway will draw up proposals for including additional substances, such as pentachlorophenol and chlorinated short chained paraffins. These proposals can be put forward as soon as the protocols enter into force
 - try to ensure that the forthcoming global convention on persistent organic pollutants (POPs) strictly regulates the production and use of PCBs, aldrin, dieldrin, endrin, chlordane, hexachlorobenzene, mirex, toxaphene and heptachlor, with a view to eliminating their use. Norway will work for effective measures to limit emissions of dioxins and furans. It should be relatively easy to add new substances to the initial list of 12 to be included in the convention. Norway will, in

- cooperation with other countries, propose further substances to be included on the list.
- support effective international implementation of the new global Convention on the Prior Informed Consent Procedure. Norway will in cooperation with other countries seek to increase the number of substances to

- which the convention applies
- continue its efforts to ensure that if the manufacture and use of a substances is no longer permitted, it may not be imported or exported either. Remaining stocks of prohibited substances must be destroyed in an environmentally acceptable way.

Criteria for undesirable properties

The properties listed below are those which are particularly undesirable. Limit values have been laid down for each of them, and these values constitute the authorities' criteria for undesirable properties.

Undesirable properties:

- acute toxicity
- sensitizing properties
- chronic toxicity
- toxicity to reproduction, or possible effects during lactation
- mutagenic properties
- carcinogenic properties
- high bioaccumulation potential combined with low degradability

- high bioaccumulation potential combined with very high acute toxicity
- low degradability combined with very high acute toxicity
- very high acute toxicity to aquatic organisms
- high bioaccumulation potential combined with very high chronic toxicity
- low degradability combined with very high chronic toxicity
- very high chronic toxicity

Phasing out the use of the most important endocrine disruptors

A number of substances are suspected of being endocrine disruptors, i.e. they can disturb hormonal regulation and thus have adverse effects on reproduction. In 1996, a thorough survey was made of a number of chemicals suspected of having such effects. This showed that ordinary consumer products contain very little of such substances, and that in Norway it is mainly octyl- and nonylphenol and their ethoxylates that are potential environmental problems. In the same year, it was therefore decided to phase out the use of alkyl phenols and alkyl phenoethoxylates by 2000. In addition, the use of chemicals such as TBT and PCBs, which are suspected of being endocrine disruptors but also have other very hazardous properties, is being regulated.

Measures to eliminate the use and emissions of endocrine disruptors:

Norway will:

- consider regulation of individual substances if this is necessary on the basis of hazards to health or the environment, for example:
 - octyl- and nonylphenol and their ethoxylates (evaluation in 1999)
 - phthalates in children's toys: regulations prohibiting their use will be introduced
 - phthalates in PVC: to be re-evaluated
- ensure that no endocrine disruptors are used as additives in rotenone mixtures
- seek to persuade the EU to regulate endocrine disruptors strictly
- use the "observation" list to indicate that endocrine disruptors are undesirable in products and industrial discharges
- obtain more information on endocrine disruptors, for instance by focusing on them in the research programmes Environmental contamination and health and Pollutants: sources, dispersal and effects run by the Research Council of Norway
- give higher priority to endocrine disruptors in the Norwegian Pollution Control Authority's control activities.

Long-range transport of environmentally hazardous substances: international efforts are the most important means of limiting inputs to the environment in Norway

The use of PCBs and the most dangerous pesticides, such as DDT, lindane, aldrin and dieldrin, is not permitted in Norway, but they are still manufactured and used in a number of countries. There is no global system of regulation for these substances at present, despite the fact that they are some of the most dangerous man-made chemicals that exist. They are only very slowly degraded in the environment. This means that they persist for many years as environmental contaminants, and are transported throughout the world by winds and ocean currents. Norway is in a vulnerable position, being in the path of one of the important global air currents towards the poles. The global distillation process shown in the diagram transports environmentally hazardous substances towards the poles, increasing their concentrations on the way. Chemicals that become airborne go through repeated cycles of precipitation and evaporation which cause their condensation and concentration. Thus, they are transported towards the poles in a series of steps: this is known as the "grasshopper" effect. Traces of environmentally hazardous substances can be found throughout Norway today as a result of long-range transport.

National efforts cannot stop the transport of such substances. The best way of improving the environmental situation in Norway is for other countries to reduce their emissions. Norway is working towards international environmental agreements that are as ambitious and binding as possible, and that will make it possible to reduce emissions of persistent organic pollutants such as PCBs, DDT, dioxins, furans and a number of pesticides. Two protocols on persistent organic pollutants and heavy metals were signed in 1998 for the ECE region. Negotiations are in progress for a global agreement on persistent organic pollutants. According to plan, the drafting of the treaty is to be completed by the end of 2000, and this will be the first global agreement to control the production and use of dangerous chemicals.



Reduction of remaining inputs of PCBs to the environment in Norway

All new manufacturing and use of PCBs has been prohibited in Norway since 1980. The largest sources of PCB emissions have been large capacitors and transformers. These are being collected and destroyed in an environmentally sound way.

PCBs have been used in a wide variety of applications, and can therefore still be found in buildings, for example in older filling compounds and adhesives, and in capacitors in lighting fixtures. Anybody involved in maintenance, renovation and demolition of existing buildings is required to separate out waste containing PCBs and deliver it as hazardous waste. To deal with the remaining sources of PCBs, the environmental authorities will:

- require the removal of capacitors containing PCBs from lighting fixtures by the end of 2004. New regulations on PCBs were circulated for comment in June 1999
- use the recently-adopted regulations on electric and electronic products in dealing with electrical waste containing PCBs
- ensure that PCBs in construction and demolition waste are dealt with in an environmentally sound manner by:
 - encouraging the construction industry's own efforts to improve the handling of construction waste, e.g. through grants to the Økobygg programme (see 2.4 on measures to reduce risk)
 - evaluate the use of more stringent measures to ensure that all construction waste, including hazardous waste, is dealt with in an environmentally sound manner.

Because PCBs were previously so widely used, soils and sediments have also become contaminated. The Norwegian Pollution Control Authority has carried out an extensive survey of contaminated sites and sediments in mainland Norway and contaminated sites on Svalbard. The localities were grouped according to the severity of the pollution. Measures to deal with the pollution have been initiated at all sites where there was severe pollution. The aim is to clean up these localities so that there is no risk of the spread of serious pollution, or ensure that they are safe for current forms of land use. Measures to deal with contaminated sediments will be very demanding in both technical and economic terms, and the environmental benefits can be uncertain. The Norwegian Pollution Control Authority completed its nationwide survey of contaminated sediments in 1998, and it is now important to find suitable priorities and the appropriate level of resources necessary for dealing with them.

PCBs also enter the Norwegian environment as a result of long-range transport via the atmosphere and ocean currents. Norway wishes to see strict international agreements that can reduce emissions of PCBs and other dangerous chemicals. See the box on PCBs for details of international efforts.

2 Reduction of risk

2.1 Steady reduction of risk

People come into regular contact with growing numbers of chemicals today. We cannot exclude the possibility that new, serious effects of chemicals on health and the environment will be discovered, just as endocrine disruption has been recently. Prevention will become even more important because the patterns of use and dispersal of chemicals means that they become very widely distributed.

This is why Norway wishes to substantially reduce the risk that emissions and use of chemicals will cause injury to health or environmental damage. Reducing the overall risk will require sustained efforts to ensure that the substances used in manufacturing and found in products and waste are less hazardous, and that chemicals are used in ways that minimize the risk of environmental damage or injury to health.

In addition to the precautionary principle, the substitution principle is of fundamental importance in work with chemicals. This is internationally recognized as an important environmental principle and a useful tool for reducing the level of risk. The basic idea is simple: anyone who can achieve equally good results by replacing a hazardous substance with one that is less hazardous or non-hazardous, should do so. If the risk of injury to health or environmental damage can be reduced without an unreasonable burden for the user, the principle of using the "best available technique" should be applied to the use of chemicals. The goal is to reduce the unnecessary risks associated with using chemicals. If the substitution principle is followed, there should also be a continuous reduction in the level of risk as new information and new products become available. When substituting one substance for another, it is important to ensure that the alternative substance really does have less impact on health or the environment. It is therefore also necessary to carry out a risk assessment of any relevant alternative substances.

2.2 Products are the main source of emissions

Emissions of hazardous substances can take place at all stages of the life cycle of a product, from the extraction of raw materials to production, transport,

use and waste management. Previously, the main sources of emissions were raw material extraction and the production process, but today most pollution tends to occur during use and in the waste stage of a product's life cycle. This requires an integrated product policy.

2.3 Greater responsibility for industry

If we are to avoid a rise in the level of risk as the volume of chemicals used increases, we must develop products that are not so dependent on the use of hazardous substances. Industry is responsible for developing more eco-efficient products, i.e. products that on a life-cycle basis have less impact on the environment in relation to the value added they provide. Only industry can do this and has the necessary expertise. Manufacturers and importers are also responsible for risk assessment and for classifying and labelling chemicals. They have a special responsibility for helping the general public to obtain better information on the health and environmental impacts of products.

The main role of the authorities is to provide a suitable economic and legislative framework for business and industry to make active efforts to reduce the use of hazardous substances. The introduction of a statutory requirement to use the substitution principle in the Product Control Act, integrated product policy and the authorities' focus on better information on chemicals are all instruments based on the premise that business and industry will be taking a greater share of the responsibility for the impact of their products. There are already signs that industry is indeed taking more responsibility. One example is the process industry's programme of environmental responsibility (MIA), which is part of the international programme Responsible Care.

2.4 Measures to reduce risk

Nationally

The authorities will:

- make the substitution principle a statutory requirement. This will set a standard for what is considered to be acceptable use of chemicals

- give priority to integrated product policy by:
 - providing financial support for a project at the GRIP Centre for Sustainable Production and Consumption on the development of a tool for the substitution of less hazardous substances for substances that are hazardous to health and the environment
 - inviting all stakeholders to join in broad-based cooperation to reduce the health and environmental impact caused by chemicals during the development, manufacture, use and waste management stages of the life cycle of paints and varnishes
 - providing financial support for the development of more eco-efficient products, e.g. support for the project Økobygg, which is run by the construction industry and aims to raise eco-efficiency within the industry. It will for instance be looking at eco-efficiency as regards the use of chemicals and during the construction, renovation and demolition of buildings
 - working towards the integration of environmental considerations into state-sector activities, including chemical use, within the framework of the project Grønn stat (Green State) which is a green procurement scheme involving 11 state-sector institutions
- focus particularly on vulnerable groups, especially children (see separate box for more details)
- include limits for chemical emissions and use in licensing requirements. The main focus will continue to be on sectors that use large quantities of chemicals, for example the offshore industry (see separate box)
- evaluate the establishment of an approval scheme for biocides (pesticides) in the course of 2000 (see separate box)
- focus on the provision of better information on chemicals - see chapter 3, "Better Information", for more details
- enforce the legislation by
 - increasing the frequency of controls by the Norwegian Pollution Control Authority
 - making the results of control activities more widely available to the public. This will motivate enterprises to follow the rules. It will also mean that consumers receive more information on products that do not satisfy the requirements, and that individuals can find out more about the use of chemicals by local firms
 - focusing more on information about the legislation in connection with control and inspection, particularly in the case of small and medium-sized enterprises.

- improve coordination of administrative responsibility for chemicals. Because this is shared by several sectors, it is difficult to achieve a properly integrated policy on chemicals. The ministries involved have therefore started a project under the auspices of Statskonsult to improve coordination of their responsibilities.

Internationally
Norway will:

- seek to influence the development of EU legislation on chemicals to ensure a steady improvement in the protection enjoyed by people and the environment
- take part in EU working groups on classification and labelling of chemicals with respect to health and environmental hazards, notification of new substances and restrictions on the marketing and use of chemicals, and the programme for existing substances. Norway will contribute to joint Nordic initiatives vis-à-vis the EU and to projects under the auspices of the Nordic Council of Ministers.
- do its share of the work within the framework of the EEA Agreement. Norway is funding a position for one of its experts at the European Chemicals Bureau (ECB), and is responsible for risk assessment for two substances, butylbenzylphthalate (BBP) and pentane, within the programme for existing substances
- work to ensure that both developing and industrial countries are better able to meet their international commitments, and that their own administrative bodies and control routines for chemicals are strengthened. This will require better international financing. To ensure wide adoption and implementation of the new POPs convention, chemicals should be given higher priority within the framework of the Global Environmental Facility (GEF)
- give priority to continued efforts to deal with environmentally hazardous substances within the framework of Norwegian development cooperation
- strengthen research on chemicals. Funds have been set aside for research in this field in the last few years, and it has been decided to give this even higher priority in the period 1999-2001
- monitor chemicals more closely to improve our knowledge of their quantities and effects in the environment. In the course of 1999, the Norwegian Pollution Control Authority will draw up a proposal for how monitoring of chemicals should be organized

Stricter control

Experience of control and inspection shows that particularly in small and medium-sized enterprises, too little is known about the chemicals used and not enough is done to comply with the legislation. Control and inspection is an effective means of ensuring compliance. Control of illegal imports, sales, use and waste treatment has therefore been tightened, and will be stepped up further. This will also improve communication between the authorities and business and industry.

Integrated product policy (IPP)

Integrated product policy takes into account all the environmental impacts and problems associated with products at all stages of their life cycles. Measures should be implemented at the stage of a product's life cycle where they will be most effective. All parties are also urged to take their share of the responsibility. IPP can include a wide variety of measures, both those based on voluntary action and instruments such as taxes, regulations, etc. Environmental information, extended producer responsibility and green purchasing policies are all important. These efforts must be coordinated with the authorities' information strategy, which includes developing environmental product declarations, promoting wider use of voluntary labelling schemes by branches of industry, and cooperation with distributors to provide environmental information for customers.

The Government is introducing the substitution principle as a statutory requirement

In 1999, the Government proposed the introduction of the substitution principle as a statutory requirement. This proposal has since been adopted, and means that all public- and private-sector enterprises which use substances that may be hazardous to health or the environment in their operations, in manufacturing and in products must evaluate whether they can substitute less hazardous substances for these. However, they are not required to do so if this would result in unreasonable costs or inconvenience. No legally binding rules will be introduced for consumers, mainly because the information available at present is not sufficient for consumers to compare any health or environmental impacts of products. Nevertheless, it is important to encourage consumers to use the substitution principle when deciding what purchases to make and what goods to use. One of the most important elements of Norway's policy on chemicals is therefore to provide consumers with better and more easily accessible information on chemicals they use on an everyday basis.

Children must not be exposed to dangerous substances

Hazardous substances are found in all kinds of products, even those manufactured especially for children or that children are liable to come into contact with. Children may be more sensitive than adults to certain chemicals, because they breathe, eat and drink more in relation to their body weight, absorb relatively more through the skin and break down chemicals less effectively than adults. Unlike adults, children cannot take precautions against the possible ill-effects of chemicals. Small children frequently put objects in their mouths, whether or not this is what they are intended for. In addition, regulation of the use of chemicals has often been based on the needs of healthy adults.

There are still important gaps in our knowledge: for example, we do not know enough about the chemicals to which children are exposed, or about how they react to different chemicals.

The authorities will:

- prohibit the use of phthalates in children's toys in 1999. Phthalates are carcinogenic and suspected endocrine disruptors. Large quantities have been found in toys made of soft PVC
- prohibit dangerous substances in textiles in 1999. Azo colorants and formaldehyde are carcinogenic and sensitizing. These substances have previously been found in children's bedclothes and other textiles children normally come into contact with
- increase the frequency of control for products intended for children
- make a survey of substances and sources that constitute a risk for children. In 1999, Norway is in charge of a project under the Nordic Council of Ministers to investigate areas where children are particularly vulnerable and where measures should be implemented
- identify areas in the EU system where children's sensitivity to chemicals is not sufficiently taken into account, and work for improvements
- evaluate the need for new measures from 2000 onwards

The offshore industry

The offshore industry is a major consumer of chemicals. The legislation regulating chemical use in this sector focuses mainly on production discharges. Before the Norwegian Pollution Control Authority processes applications for discharge permits, the properties of the chemicals in question shall have been evaluated. These include their degradability, bioaccumulation potential and toxicity. This information forms the basis for the Norwegian Pollution Control Authority's evaluation of licensing conditions such as emission limits and requirements to replace hazardous chemicals. The operating companies know the criteria by which chemicals are evaluated, and are responsible for listing the substances they will make most effort to replace.

The operating companies may replace chemicals provided that they switch to substances with less environmental impact. This is an example of an already existing use of the substitution principle. The inclusion of the principle as a statutory requirement in the Product Control Act will also apply to the offshore industry. For the industry as whole, a zero-emissions strategy has been drawn up as a means of achieving the Government's national emissions as described in its report on an environmental policy for sustainable development. The operating companies are required to describe the measures they intend to take to reduce discharges by 1 March 2000.

A new chemicals policy in the EU

As a party to the EEA Agreement, Norway is required to harmonize its legislation on chemicals with EU legislation. The latter consists of four main directives and various regulations that lay down rules on prior notification, risk assessment and classification and labelling for all chemicals, and on any restrictions or prohibitions on the use of chemicals. Through this extensive legislation, the EU has made great progress in regulating the use of chemicals. Both NGOs and business and industry have nevertheless severely criticized the legislation, particularly because so little progress has been made in risk assessment of existing substances. This means the approximately 100 000 chemicals that were already on the EU market in varying amounts before the legislation was introduced (see section 3 in the first part "What are the problems" for more details).

The EU ministers of the environment have asked the European Commission to evaluate the central legislation in this field and propose a new policy for chemicals in summer 1999. The discussion in the Council of Ministers was the result of a proposal by the "green" member states. They have put forward several ambitious elements for inclusion in a new chemicals policy:

- group classification and computer programmes should be used to speed up work on classification and labelling
- all existing substances for which no information has been received by a specific date, for example 2005, should be treated as new substances. This means that they will be subject to the notification procedure for new substances before they may be used
- a fee should be introduced for existing substances if they are to retain this status.
If no fee is paid, substances will be treated as new

Norway will cooperate with other countries to achieve the necessary changes in chemicals policy, in particular:

- the development of an integrated policy on chemicals. This should be based on the one-generation goal and on the precautionary principle, the polluter pays principle and the substitution principle. In addition, business and industry must take greater responsibility for risk assessment
- measures to speed up the process of risk assessment for existing substances. The burden of proof as regards the properties of chemicals should be shifted from the authorities to business and industry, and it should be possible to base the regulation of chemicals on more targeted risk assessment procedures

New system for approval of biocidal products in the EEA

Biocidal products are used to control harmful organisms. They include disinfectants for hygienic purposes and in drinking water, wood preservatives, rat poisons, antifouling preparations and insect repellents. There are several thousand products on the European market, containing more than 800 active substances. Biocides can injure human health and cause environmental damage.

Until now, Norway has had no special system for the regulation and authorization of these products and chemicals. Most products and active substances on the Norwegian market are covered by other legislation that applies either to products in general (the Product Control Act) or to chemicals in particular. Nevertheless, the need for more thorough evaluation and authorization of biocidal products has arisen in recent years in connection with accidents and the use of dangerous chemicals.

To implement the EU directive on biocidal products and their authorization, a Norwegian authorization system for biocides must be established during 2000. This will mean that before a biocidal product may be sold on the Norwegian market

- thorough documentation must be provided of any toxicological and ecotoxicological properties of the product and the active substances it contains
- the product must be authorized by the authorities, i.e. it must satisfy the requirements for toxicological and ecotoxicological properties

Chemicals whose use is permitted in biocidal products are subjected to a thorough evaluation, and their use is regulated at community level.

As a general rule, a product that is authorized for use in one country in the EEA shall also be authorized in the other countries. A ten-year programme of evaluation and authorization of products that are already on the market will be carried out.

3 Better information

3.1 Better provision of information on chemicals

There are two main reasons why provision of information on the chemicals in products needs to be improved:

1. Everyone should be able to obtain information about the risks to themselves or the environment involved in using hazardous products. This principle is set out in Article 110b of the Norwegian Constitution, which lays down the right to receive and the duty to provide information on the state of the environment.

2. Consumers must also have better access to information in order to choose the products and substances that are least hazardous to health and the environment for both occupational and non-

The GRIP Centre - a national resource centre for information on substances that are hazardous to health and the environment

The GRIP Centre for Sustainable Production and Consumption was established by and receives most of its financial support from the Ministry of the Environment. It was established to develop, field test and promote methods for increased eco-efficiency, which is used as a measure of the value added by an organisation per unit of environmental costs.

The Centre is also intended to be a national resource centre for information on substances that are hazardous to health and the environment. It is trying to improve access to information on hazardous substances both for business and industry and for private consumers. Its web pages provide information in Norwegian on chemicals ("GRIP-kjemikalier"), including lists of chemicals that the authorities wish to phase out, the products that may contain these substances, and the legislation that applies to them. GRIP has also drawn up guides to eco-efficient purchasing for various product groups.

occupational purposes. In other words, better access to information is an essential basis for reducing risk generally and for reducing the use and emissions of hazardous chemicals, so that the goals of our chemicals policy can be achieved. In addition, consumers need better information to enable them to handle chemicals in a way that avoids environmental damage and injury to health.

Manufacturers and importers of chemicals are responsible for obtaining and publicizing information on the toxicological and ecotoxicological properties of products. The authorities are responsible for providing a suitable framework for the provision of information and for information on concentrations of hazardous substances in the environment. In addition, the environmental authorities are responsible for providing consumers with general information on any hazards to health and the environment associated with products that they may come into contact with.

3.2 Local Agenda 21

Local initiatives and processes of the kinds that Local Agenda 21 work focuses on are important in efforts to move towards more sustainable consumption patterns. An important aspect of the work of the environmental authorities in this context is to ensure that relevant information is readily available to everyone who wishes to help in achieving sustainability at local level. Although the primary responsibility for providing more information on chemicals rests with manufacturers and importers, the authorities should promote processes involving local communities, provide constructive help, and be prepared to listen to the opinion of local groups on which measures are meaningful. Improving access to information on chemicals is therefore an important part of the authorities' contribution to Local Agenda 21 work.

3.3 Measures to improve information on chemicals

Development of a database system for information on chemicals

There is a great demand for a uniform system that manufacturers can use to provide information on chemicals to users of chemicals and products.

Proposals from a working group for measures to improve access to information

Environmental organizations have often expressed strong dissatisfaction at the lack of information on hazardous chemicals. However, their suggestions for improvements have been difficult to follow up, both because different organizations have made conflicting proposals, and because the requests of environmental and consumer organizations for transparency and information have conflicted with the requirements of business and industry for confidentiality. In autumn 1998, the Minister of the Environment therefore asked various organizations to come to an agreement on which measures are most important to improve access to information. The working group included representatives of the Bellona Foundation, the Consumer Council of Norway, the Federation of Norwegian Commercial and Service Enterprises, the Association of Chemical Suppliers in Norway, the Norwegian Confederation of Trade Unions, the Environmental Home Guard, the Norwegian Environmental Protection Association, the Confederation of Norwegian Business and Industry and the Federation of Norwegian Process Industries. The group was headed by Director Per Anders Stalheim of the Consumer Council of Norway, and the GRIP Centre for Sustainable Production and Consumption acted as the secretariat. The group did not include any representatives of the public authorities. It presented its proposals in a report to the Minister of the Environment on 5 May 1999.

The main elements of the proposals from the working group were as follows:

The establishment of a database system open to the public (see figure on p. 23)

- a database containing information on chemicals, which should include
- safety data sheets supplied by manufacturers and importers
- other information supplied by manufacturers and importers
- any non-restricted information from the Product Register

a database containing information on solid processed articles, which should include:

- data from environmental product declarations (supplied by manufacturers)
- information that is available to the public from a new, voluntary "product register" for solid processed articles. The working group suggests that the new product register should include:
 - background data for eco-labels (Nordic swan label) and environmental product declarations
 - information supplied by the authorities

The working group proposes that companies should provide information for the databases on a voluntary basis.

Expansion of the legislation on declaration, classification and labelling both through amendments to the national legislation (proposed by some members of the group) and through efforts on Norway's part to bring about changes in EU legislation (proposed by the group as a whole):

- expansion of the scope of labelling requirements to include information on correct waste management
- introduction of a requirement to draw up safety data sheets for non-classified chemicals
- introduction of classification and labelling for certain solid processed articles containing substances that are hazardous to health and the environment, corresponding to the existing system for substances and groups of substances

Other proposals:

- more informative translations of certain risk phrases
- stricter inspection and control of compliance with labelling requirements and standards for safety data sheets
- development of a system of information exchange in which suppliers are to provide customers with the necessary information on the chemical composition of products

A database system that the public can use, as suggested by the working group (see separate box and figure) can provide the basis for this. However, a thorough review of the contents, usefulness and costs of such a system and where it should be located is needed before it can be established.

The working group emphasised that the database system should be based on existing information. At present, the necessary information for a database on solid processed articles is not available. Voluntary, standardized environmental product declarations and documentation drawn up by manufacturers in connection with eco-labelling can provide the basic infor-

mation for this database. A considerable amount of work remains to be done before standardized environmental product declarations can be drawn up for all relevant product groups. A database for products must therefore be developed gradually, as eco-labels and environmental product declarations become available. The development of environmental product declarations is primarily the responsibility of business and industry, but the environmental authorities are also taking part, and will continue to take part in this work, as suggested by the working group. The task of the environmental authorities is to provide a suitable framework for the development of the declarations.

Since manufacturers and importers are responsible for providing information on hazardous substances in products, they are also responsible for supplying information to databases. However, the environmental authorities will take part in the development and establishment of a database system.

Measures to improve the provision of information on hazardous substances:

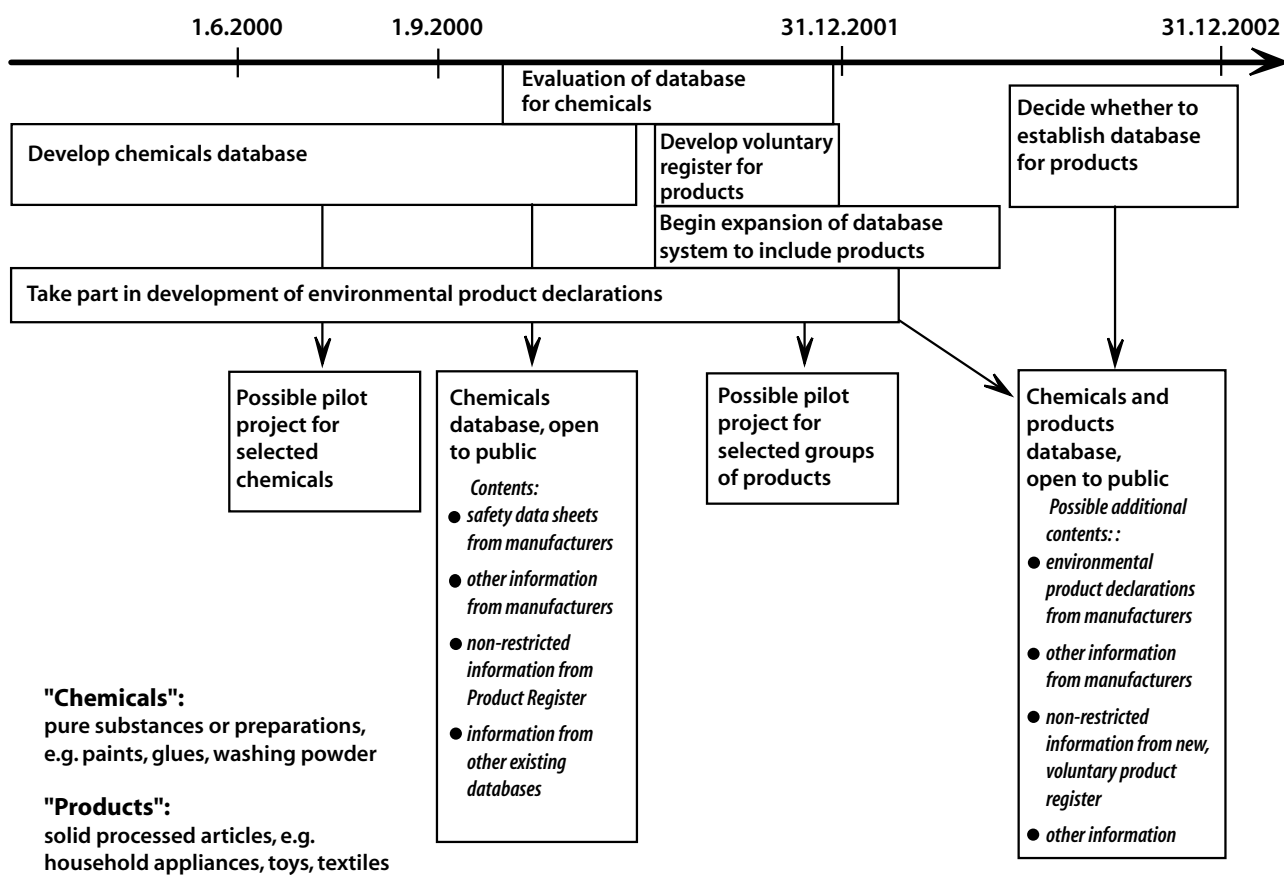
Following up the proposals from the working group:

The authorities will:

- take the following steps regarding the establishment of a database system open to the public:
 - review various solutions for integrated information systems for chemicals and solid processed articles. This work should be completed by spring 2000, and the report should include an analysis of the costs and usefulness of a database system, technical implementation of the system and its content
 - decide whether to establish a database for chemicals. This decision should also be made by spring 2000. A smaller pilot project may be started, in which the environmental authorities will encourage the paint and varnish industry to take part
 - if a positive decision is made, establish the chemicals database in the course of 2001
 - review the possibility of establishing a voluntary product register in the course of 2001
 - decide whether to expand the database system to include solid processed articles during 2002. If this is done, it will probably initially be limited to selected product groups that are eco-labelled or for which environmental product declarations have been developed

- consider what types of information the authorities can provide for databases that are open to the public. An evaluation of the Product Register by the Ministry of Local Government and Regional Development is to be started in the course of 1999, and in this connection the possibility that non-restricted information can be supplied for a chemicals database will also be considered
- take part in the development of environmental product declarations. As a first step, fairly detailed declarations will be developed for products used for occupational purposes, but after this the environmental authorities will consider support for the development of simplified declarations intended for ordinary consumers
- consider the development of information systems dealing with correct waste management. This will be done in cooperation with the relevant branches of industry. For chemicals for which labelling is mandatory, the need for information on correct waste management will largely be met once the revised EU directive on preparations has been adopted in the course of 1999 and has been implemented in Norwegian legislation
- ask the Norwegian Pollution Control Authority and the Directorate of Labour Inspection to consider whether more informative Norwegian translations of risk phrases (required on the warning labelling for products for which labelling is mandatory) should be introduced. This should be done by the end of 1999
- strengthen controls to ensure that the Product Register receives notification of products for which labelling is mandatory, and that the information is correct. The environmental authorities have strengthened controls of compliance with the legislation governing chemicals in recent years, and the Norwegian Pollution Control Authority's control and inspection activities regarding chemicals will be further strengthened
- take part in trials of a system for information exchange. The development of the system should be financed by business and industry.

The environmental authorities' time frame for the development of a database system for substances that may be hazardous to health and the environment



In order to start this process as quickly as possible, the database system is to be developed in several steps, starting with the chemicals (substances and preparations) about which most relevant information is already

available. Later, when environmental product declarations have been developed, it will be decided whether to expand the database system to include some groups of solid processed articles.

"Observation" list

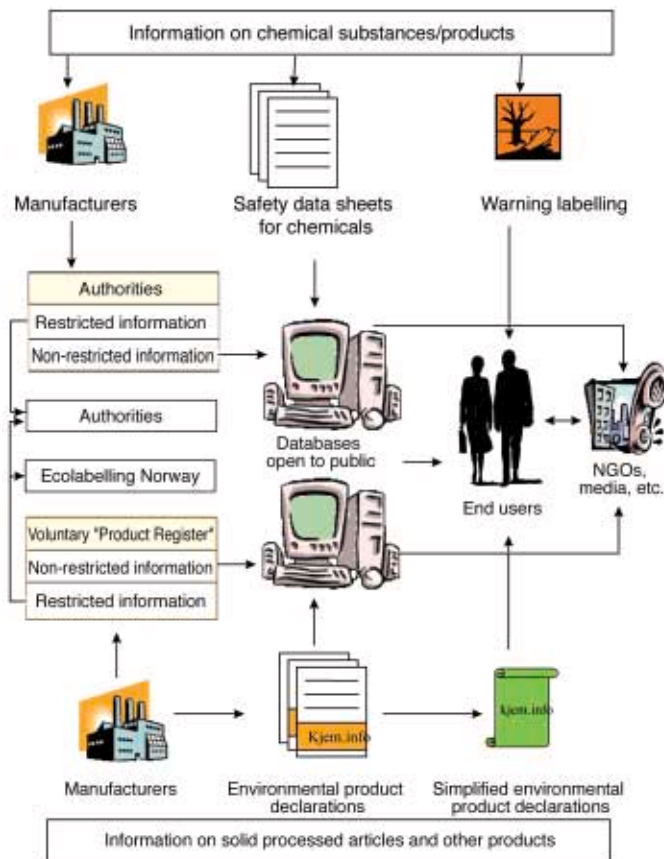
The authorities plan to draw up a list of substances that are in use in Norway and have one or more of the properties the authorities consider to be undesirable. This will be a relatively long list of chemicals that users should treat with special caution. For most users, a list of chemicals will be more useful than a list of properties or criteria. The list will not include all chemicals that have undesirable properties, but will reflect the authorities' views on which substances give most cause for concern, taking into consideration both their properties and information on exposure, areas of use and other factors. The list will provide guidance, but will not be legally binding and will

not lay down any prohibitions on use. It will give examples of substances that satisfy the criteria for undesirable substances in Norway. The plans for the list have been sent to business and industry, conservation organizations, consumer bodies, etc., for comment. After receiving comments, the Norwegian Pollution Control Authority will finalize an initial list in autumn 1999.

Other measures:

- A committee has been appointed to consider whether current legislation adequately ensures the right to receive and the duty to provide information on the state of the environment, and if necessary to propose amendments to ensure that the general public receive such information. It is expected to report by the end of 2000
- In the course of spring 2000, information on emissions from industry is to be made available to the general public by publishing the Norwegian Pollution Control Authority's register of discharge permits for industrial enterprises in Norway on the Internet
- The amount of information available on chemicals on the website State of the Environment Norway (<http://www.mistin.dep.no/>) is to be considerably increased. By the end of 1999, more information on the substances on the priority list will be added. The information will be expanded to include a description of the effects of these substances on health and the environment, emission data and the quantities present in products
- A "observation" list is to be published in 1999
- Information campaigns will be run in priority areas. In 1999, these will be used to
 - give parents information on the situations in which children are exposed to chemicals and what they can do to protect children against hazardous substances
 - give suppliers and consumers information about the existing system of warning labelling
- Information campaigns will be run in various branches in connection with the introduction of the substitution principle and the "observation" list
- Stricter requirements for environmental accounting practices were included in the Accounting Act from 1 January 1999
- The authorities will encourage branches of industry to make greater use of voluntary labelling schemes, so that more product types can be ecolabelled
- The authorities and branches of industry will cooperate on training of suppliers to enable them to provide better information for their customers.

Proposal for a database system open to the public



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