Foreword

The Chemicals Policy Committee was established by directive from the Swedish Government May 9, 1996. It was commissioned to review Swedish chemicals policies for the last ten years and to propose a chemicals policy for the future. The Committee consisted of the following members: Ms Kerstin Svensson, former Second Deputy Mayor of the City of Göteborg (Chairperson); Ms Lena Ag, Political Adviser to the Minister for International Development Cooperation, Migration and Asylum Policy; Mr Lennart Daléus, Member of Parliament; Mr Roger Rådström, Development Manager and Mr Urban Wästljung, Ph.D. Professor Arne Jernelöv was assigned to the Committe as special adviser.

The Committee was assisted in its work by some specific expert groups, most notably the International Reference Group, in which Dr. Lynn Goldman, Assistant Administrator, USEPA; Mr Nigel Haigh, Director, Institute for European Environmental Policy; Mr Peter Hurst, Programme Manager, WWF; Mr Wim Quik, Technical Director, the Dutch Chemical Manufacturers Association and Mr. Reinhard Überhorst, former Member of the German Bundestag participated. The Group was chaired by Ms Ag, Member of the Committee. The Chemicals Policy Committee expresses its deep gratitude to the members of the International Reference Group for generously sharing their time and ideas with the Committee and for their valuable input to the Committee´s work.

The Committee Report was delivered to the Swedish Minister for the Environment, Ms Anna Lindh on June 16, 1997. The present English Summary is intended to give foreign readers an overview of the 350 page report. The task of the Committee is hereby finished.

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NB! In matters of dispute relating to this text the Swedish text shall apply.

CHAPTER 1. POINTS OF DEPARTURE

Sweden has a long tradition of an active and ambitious chemicals policy. The Chemical Products Act was introduced in 1985 as a result of proposals made by an earlier Chemicals Commission. The Chemicals Commission also proposed a new agency, The National Chemicals Inspectorate (KemI). The work of KemI over the past decade has been very successful. We know more about chemicals, and we have taken action against some of the most dangerous ones.

The 1990s is characterised at the national level by the accession of Sweden to the EU, and internationally by the globalisation of production, trade and use of chemicals. New threats have unfolded, new dangerous substances have been identified, new ways of exposure have been discovered. There is an increased consciousness among consumers and users of chemicals about the environmental impact of everyday product use. Against this background the Swedish Government commissioned the Chemicals Policy Committee to review the past ten years of chemicals control in Sweden and propose a new chemicals policy, nationally, within the EU and internationally.

The basis for the Committee´s discussions has been the Esbjerg Declaration and the environmental goals formulated by the Swedish Parliament.

Some principally important issues that we have considered are e.g. regulatory versus nonregulatory measures, an increased application of a precautionary approach, the national versus the international perspective, market driven environmental work and new ways of working for regulatory agencies.

In the following we describe the targets for the future chemicals policy (Chapter 2), the reasons why a new

chemicals policy is needed (Chapter 3) and the cornerstones for such a policy (Chapter 4). Based on the targets and the cornerstones we propose measures to be taken at the national level (Chapter 5), within the EU (Chapter 6) and at the international level (Chapter 7). We were also asked to present proposals on two specific issues, PVC materials, and endocrine disrupters (Chapter 8). Chapters 2, 3 and 4 are more extensively translated, while only the proposals are presented for the last four chapters.

CHAPTER 2. TARGETS FOR THE FUTURE CHEMICALS POLICY

The Chemicals Policy Committee proposes the following targets for the chemicals policy:

- By the year 2002 all companies attach appropriate product information to their products allowing for informed consumer choice.

- By the year 2007 all products on the market are to be free from
  - substances that are persistent and liable to bioaccumulate
  - lead, mercury and cadmium
  - substances that give rise to serious or irreversible effects on health or the environment.

- By the year 2012 the production processes should have developed to the extent that
  - they are free from the deliberate use of persistent and bioaccumulating substances, or lead, cadmium or mercury
  - the releases are free from substances that cause serious or chronic health effects.

- By the year 2012 metals other than lead, cadmium and mercury are to be used in applications where
  - the metals are mainly kept intact during use
  - they are collected after use for reuse, recycling or deposition.

The targets are intended to create driving forces for change

The proposed targets should be seen as steps towards the full implementation of the Esbjerg Declaration. It is important that the political leadership can establish visions

of the future society. The targets must be directed towards all stakeholders in society. To make them act in the desired direction the targets must be clear and action directed. At the same time they must be positive and challenging. They must also be interpreted with common sense.

Targets are directed towards companies, agencies, consumers and organisations

The targets of the Chemicals Policy Committee are primarily directed towards Swedish companies. They are also intended as a proposal for how the EU shall reach the overriding targets of the Esbjerg Declaration.

The targets are forward-looking and intended to generate driving forces for changes in the choice of chemicals and products and in requirements for products. Purchasers should use them as requirements when they purchase products from their suppliers. Consumers should use them to formulate environmentally sound requirements and to choose between products. The targets should guide the regulatory agencies in their national and international work.

Long term targets

Our targets are ambitious. We have therefore chosen a long time frame for change. We judge that ten to fifteen years is a reasonable lead time for targets related to restrictions or phase outs. Targets with a longer time frame will not create the necessary driving force, while targets with the same content but a shorter time frame might be viewed as unrealistic, even for companies with a high environmental ambition.

How to reach the targets

The targets shall be reached through
- co-operation between government, industry and consumers

- increased information as a basis for market driven environmental work
- new directions for industry's product development
- regulations within the European Union, complemented with, if necessary, national laws.

A wide range of market-driven environmental work is already taking place today with consumer and purchaser demands as the major driving force. They place demands on their suppliers, who in their turn put requirements on the producers. The process is further driven by the active involvement of environmental public interest organisations and media. It is also facilitated through declarations of the content of all products, and increased information from the companies about releases from production sites.

Companies take important decisions when they plan their development work. As a basis for such decisions they should have the long range targets for chemicals policies and knowledge about the increased opportunities for customers to make environmentally sound demands.

The relation between the Committee's targets and those of the Esbjerg Declaration

The targets of the Committee are related to the targets in the Esbjerg Declaration. They are both more and less far reaching than the Esbjerg Declaration. More far reaching because we consider that only two of the three criteria in the Esbjerg Declaration need to be fulfilled to start the process of phasing out a substance, and because we do not limit ourselves to releases but also take into account the use of the chemical. Less far reaching because we see our targets as focusing on the use of chemicals and not on what has already been released or lost to the environment. It is therefore one of the steps towards the fulfilment of the final goal of the Esbjerg Declaration.

Substances that are persistent, i.e. do not easily degrade,

have a potential for widespread exposure through winds and streams and through trade in chemicals and products. When problems are identified exposure cannot be easily reduced by discontinuing production. Problems caused by persistent chemicals are therefore also longlasting.

Many fat-soluble organic substances show extreme accumulation in organisms and concentrate more than several orders of magnitude. They may also biomagnify, i.e. concentrations increase for each step in the food chain, from algae through small crustaceans and fish to seals, eagles or man. Sooner or later they reach concentrations where adverse effects occur. When such chemicals are released to the environment they will redistribute themselves to end up in organisms at the top of the food chain, e.g. man. Discontinuation of their production and use will not alleviate the situation for a long time for those already exposed.

Experience tells us that new unexpected forms of toxicity may be uncovered in the future. For substances that are persistent and liable to bioaccumulate that knowledge will come too late. To act only when the knowledge becomes available is not prevention. We therefore conclude that known or suspected toxicity is not a necessary criterion for measures against organic man-made substances that are persistent and liable to bioccumulate. Such substances should in the future not be used at all.

CHAPTER 3. REASONS FOR A NEW CHEMICALS POLICY

The Chemicals Policy Committee makes the assessment that:

- The total risk from the use of chemicals today has become more complicated and difficult to assess than before.
- The continued use of persistent, bioaccumulating organic chemicals presents a threat to a sustainable development.
- The environmental work needs to be developed and strengthened.
- The present way of assessing single substances is too limited and proceeds too slowly.
- The implementation of the Esbjerg Declaration requires a new chemicals policy

3.1 The total risk from the use of chemicals today is more complicated and difficult to assess than before

The Chemicals Committee has presented a risk panorama which describes the present situation compared to that ten years ago. The resulting overview presentation is a risk panorama as viewed by a number of experts, with "broad strokes of the brush, but with precise colours".

The panorama shows that the picture has changed. It is difficult to judge whether the risks are greater or smaller than ten years ago. It is evident, however, that the risks are more complex and difficult to assess than before.

The risk panorama describes our increased knowledge about dangerous substances. We also know more today about the areas where knowledge is still lacking. Many effects are identified only long after exposure has occurred. Other effects are suspected to be triggered by longterm low dose exposure. There may also be synergistic effects which we have yet to discover.

Earlier, work was focused more on individual substances with identified specific effects at high or moderate exposures. Today´s picture shows a broad spectrum of substances at low concentrations which collectively give rise to unspecific effects. The changing picture also shows that we have been successful in decreasing exposure in the working environment as well exposure from point sources to the natural environment.

Relatively speaking, products are becoming more important as a route of exposure. The composition of products is becoming increasingly complex. Products have to fulfill many functions and often contain a large number of added chemicals. Modern products with advanced material properties are used by all sectors of society, including sensitive groups, e.g. children.

The globalisation of trade in chemicals and products makes it possible for products to spread over the world much quicker than before. The possibility to discover health or environmental effects at an early stage is limited. Instead, there is a clear risk that large scale spread of the chemical has already occurred before adverse effects appear.

The global trade decreases the possibility to find out which chemicals are contained in such products as electronics, textiles or plastics. The products have usually passed several production steps in different countries before they reach their final destination of use. In general, chemicals produced outside the OECD are not controlled to the same degree as chemicals produced in OECD countries. If

production of chemicals outside the OECD continues to grow this will become a mounting problem unless measures are taken to introduce the same level of control in all countries.

3.2 A continued use of persistent, bioaccumulating organic chemicals presents a threat to a sustainable development

A common trait of many of today´s problem chemicals is their persistence. Many of them are also very fat-soluble and may concentrate in the body fats of animals. The big predators and birds of prey are particularly vulnerable since many of these lipohilic persistent compounds also increase in concentration through the food chain and may reach levels that adversely affect the animals .

We judge that a continued use of persistent bioaccumulating substances is not defendable. The precautionary principle should be applied and measures taken against such chemicals before they cause harm or injury.

3.3 The environmental work must be developed and strengthened

The earlier Chemicals Commission, which presented its report in 1984 focused on health issues. Carcinogenic and mutagenic effects were high on the agenda. The health area was much better developed than the environmental area. There were test methods available and principles and guidelines for hazard and risk assessment were being developed.

Our view of environmental work has changed. Test methods, criteria for classification of environmentally hazardous chemicals and hazard and risk asessment

methods have been developed. Studies of the environment may identify potential health effects of chemicals before they cause harm to humans.

Still, much remains to be done. We consider that the future policy should be directed towards strengthening further the protection of the environment against hazardous chemicals.

3.4 The present way of assessing single substances is too limited and proceeds too slowly

The National Chemicals Inspectorate and other agencies have carried out extensive and successful work to bring chemicals into focus, and thereby made Sweden a leading country in the chemicals field. Their work has to a large extent been concentrated on assessing and reducing the risks, through regulations, phase outs and bans and by other means, for a limited number of specific chemicals or narrowly defined chemical groups.

The present, chemical by chemical, assessment requires large resources. International programmes within the EU and OECD, as well as national programmes have contributed greatly to our increasing knowledge about chemicals. Progress is, however, too slow. We propose that generic approaches must be used much more widely in the assessment of chemicals.

3.5 The implementation of the Esbjerg Declaration requires a new chemicals policy

The targets in the Esbjerg Declaration that the releases and losses of hazardous substances to the environment shall be eliminated by the year 2020 put far reaching demands on changes in present chemicals policies. There must be a stronger focus on chemicals in products. Generic approaches

must be used more. All stakeholders must contribute if the work is to be successful.

Sweden has signed the Esbjerg Declaration without conditions. We judge that, to fulfil its obligations, Sweden needs a new chemicals policy.

CHAPTER 4. CORNERSTONES OF THE NEW CHEMICALS POLICY

The Chemicals Policy Committee proposes the following cornerstones in the chemicals policy:

The precautionary principle
- ★ The precautionary principle shall be used
- ★ The reversed burden of proof should be applied more frequently

Industry has the main responsibility
- ★ The companies must show that their products are safe to use

Regulations and enforcement
- ★ Legislation gives the framework
- ★ The role of enforcement should increase

Generic approaches
- ★ Generic approaches shall be used

Chemicals in products are more important than before
- ★ The balance of chemicals control shall be shifted towards products
- ★ Chemicals control and pollution prevention should be integrated
- ★ Development of clean products should be promoted

A new way of working for the regulatory agencies
- ★ Co-operation contributes to a high level of ambition
- ★ Consumers and purchasers are important in chemicals work
- ★ Employees may play a bigger role
- ★ Soft measures e.g. knowledge and information are important
- ★ Economic measures should be used more
- ★ Government support and guidance to small and medium

sized enterprises is important

International work

- ★ Common problems require common solutions
- ★ The European Union is a new arena for legislation for Sweden
- ★ Global environmental agreements will be more important
- ★ Trade and environmental policies must be mutually supportive

4.1 The precautionary principle

In Sweden, the precautionary principle is an approach to chemicals which implies that anyone handling chemicals must in advance take such precautions as are needed to prevent damage to man and the environment, instead of taking measures when damage has occurred. This principle is also expressed in the Chemical Products Act, and in the proposed Environmental Code.

The diffuse use of chemicals in products and materials means that whole populations and the entire environment is exposed to many substances at low levels. Many research methods are presently not suited to this situation. We are of the opinion that measures against chemicals must in the future to a higher degree be based on suspected rather than proven effects.

It is not generally accepted that the use of e.g. a functional chemical should be stopped because of a suspected but not proven adverse effect. We mean that the precautionary principle should be invoked by political bodies, by companies and by the general public as a basis for decisions. The degree of scientific proof should determine the time period for a reduction or phase out but not the direction of change. We draw the conclusion that the precautionary principle must be more widely applied, nationally, within the EU and internationally.

4.2 Industry has the main responsibility for chemicals control

According to the Chemical Products Act industry has the main responsibility for chemicals control. Article 6 states that those who produce and import a chemical should make sure that satisfactory investigation has been carried out to assess the possible health and environmental effects of the chemical.

It is necessary to arrange the handling of chemicals in such a way that damage to health or environment is prevented. Those who handle chemicals must know precisely in which way they are dangerous. They must also judge whether the chemical is so dangerous that it should not be used at all or only under very controlled conditions.

The responsibility of the producers or importers to investigate their chemicals is independent of any indication of harm. It is also a continuing responsibility for all their products on the market. Companies shall choose the least harmful chemical for a specific purpose and strive systematically to substitute hazardous chemicals by less hazardous ones. Ideally the self-control by industry should lead to an environmentally adapted society with a sustainable use of chemicals. However, many chemicals are still marketed in spite of insufficient data and inadequate assessment.

The role of government in chemicals control is to make sure that industry takes its responsibility.

The issue of self-control is brought to the fore when new dangerous chemicals are discovered, or when new effects of known chemicals appear. For new substances within the European Union, companies submit a dossier with prescribed health and environmental data to the competent authority, who assesses the hazard and risk of the chemical. It is generally assumed that the system acts as a filter to

screen out hazardous chemicals before they reach the market.

For existing chemicals the situation is less clear. When alkyl phenol ethoxylates in laboratory tests are shown to negatively affect hormone systems there is reason for manufacturers and users to apply the precautionary principle and the substitution principle. When wetland birds, e.g. geese, ducks and others, are found dead from lead poisoning with their craws full of lead shots, which they have picked up from the bottom of the lake believing it to be gravel, the substitution principle should be applied by the ammunition factories.

In reality, what happens is that governments take upon themselves the task of collecting and assessing all data. Industry can sit back and wait for the outcome of the assessments before any action is taken by the government. The programme on existing chemicals within the European Union is in this respect no different.

With drugs and pesticides the situation is different. Every new product has to be approved individually. The producer shall bring forth the necessary documentation to prove that the product is safe for its intended use and prepare an assessment. The role of the authorities is to check the assessment. The resource intensive compilation and assessment are made by the producer.

We consider that the intended responsibility of industry should be more diligently adhered to.

4.3 Legislation

Increased co-operation between government and industry and a greater reliance on market driven environmental work are new tools that will be relied upon in the future. The

present tools for chemicals control should, however, not be abandoned because new tools are being increasingly used.

The Swedish legislation has proven an effective means of reducing risks from the use of chemicals. It will continue to be used in the future, mainly within the framework of the EU. The possibilities for national legislation on specific issues that are considered of national importance, should be further explored.

4.4 Enforcement

Legislation is a necessary but not sufficient tool for chemicals control. Efficient enforcement is important in order to make legislation work at all levels. Enforcement promotes development towards the basic objectives of the legislation and competition between companies on equal conditions.

Enforcement takes place at central, regional and local levels in Sweden. We are of the view that enforcement needs to be further developed. Particularly enforcement which aims at examining how companies manage their internal systems for chemicals control needs to be strengthened.

Within the European Union legislation on chemicals is harmonised in many respects. Supervision and enforcement, however, varies greatly between member states with regard to its organisation and the extent to which EU directives are followed up. We consider that the role of enforcement should be increased within all EU member states to ensure an efficient and equal level between countries.

4.5 Increased use of generic approaches directed towards unwanted properties of chemicals

The great number of chemicals in modern society makes it unlikely that all chemicals will ever be tested and assessed with a sufficient degree of comprehensiveness. The present paradigm of chemicals management focuses on assessing individually the small number of new chemicals based on a limited data set, which gradually expands as the use expands. The vast majority of chemicals, i.e. existing chemicals, are only assessed in so far as they come under scrutiny in national, regional or international programmes, e.g OECD and EU. The present system for assessing hazards and risks of existing chemicals is extremely time and resource consuming and will need several centuries before the majority of manufactured chemicals have been individually assessed.

From the environmental perspective the persistent organic man-made chemicals present a particular problem. Since they do not degrade easily they will eventually spread in the environment. If they are also fat-soluble they will accumulate in the biosphere. Exposure will be large in time and space. For certain species concentrations may reach effect levels.

The practical possibilities to eliminate releases to the environment during all stages of the life cycle of a persistent chemical are small, unless controls such as those for radioactive materials are used. The cost of applying such a level of protection is very large and unrealistic for all but a few very expensive chemicals.

In view of this, we consider it important to carefully study the possibility to attack chemical problems by more generic approaches.

The advantages on the regulators' side of using generic

approaches are large savings on resources, particularly on detailed assessments for every single substance. Generic approaches for chemicals that are closely related structurally and functionally are also in line with the precautionary principle. The drawback is that measures may sometimes also hit chemicals that at closer scrutiny appear to be relatively harmless. The difficult problem is to find the balance point where the saving in resources is greater than the cost of possible false positives being caught in the net.

Industry sometimes voices concern about generic measures for hazardous chemicals and prefers a case by case approach. There is also an argument from industry for allowing controlled use even of some persistent, bioaccumulating and toxic chemicals, e.g. DDT. The crucial question is usually the amount of scientific evidence that should be present in order to invoke the precautionary principle.

Experience over the past ten years has shown that a use cluster or product group oriented way of working presents advantages in risk reduction. The approach is based on an insight of the need for measures within different branches or for certain product groups and a thorough knowledge of the chemicals, their uses and effects on health and environment. It could take the form of campaigns where agencies co-operate with individual companies and branch associations.

The shared activities usually contain a large amount of information transfer. Common discussions on practical problems lead to a shared view of what is necessary to reduce risks. Projects may also lead to new business opportunities for individual companies, such as a sharper environmental profile.

We propose that a generic approach on product groups should be used to a larger extent than before. A regional agency structure, where regional offices co-operate with the

local industry in company or branch specific projects may facilitate this development.

Lists of chemicals or groups of chemicals of concern may stimulate risk reduction work in industry, e.g. the Sunset list, the Observation list etc. The selection of chemicals is based on inherent properties, e.g. toxic effects on health or the environment, and preset criteria. The chemi- cals on the lists are presented as chemicals of concern, which should be managed and controlled based on scientifically founded suspicion of possibly harmful effects.

Such lists are used by companies in discussions between supplier and customer. Many purchasers have developed questionnaires which the producer is requested to fill in. Substances from lists such as those mentioned would not be considered by the customer. Indirectly the producers are motivated to intensify their substitution work.

4.6 The balance has shifted from chemicals to products in general

Ten years ago a main task for the authorities was to regulate the classification and labelling of chemicals and to make sure that the companies made proper assessments of the health and environmental effects of their products. It was important to increase the knowledge of existing chemicals, particularly with respect to their environmental effects.

Over the years the perspective has changed. Our knowledge of existing chemicals has increased considerably, e.g by the OECD programme on existing chemicals. New rules require that chemicals are tested before they are placed on the market. National and international efforts have restricted the use of dangerous substances, e.g lead, mercury, DDT, HCH, PCB and others.

Many environmental problems are not primarily connected with production and use of chemicals but with the products which may contain those chemicals. The risk of exposure from each product may be small, but the number of products and their extensive use in society may entail a more subtle total risk during the lifecycles of the products. Product groups that contain problematic chemicals have expanded substantially during the last years, e.g. electronic equipment such as refrigerators, deep freezes, air conditioning equipment, cellular phones etc.

We consider that the changed picture has to be reflected in chemicals work. A larger share of public resources should be used for control of substances in products and for promoting the development of clean products. Chemicals management should be considered for all stages in a product's life cycle.

4.7 Chemicals control and pollution prevention should be integrated

Problems with chemicals may be identified in any part of their life cycle. Many times chemicals have been used for some time before it is discovered that they might present problems when they become waste. In other instances the manufacturing stage of a substance or product gives rise to the greatest environmental disturbances. In still other cases the problems arise during the use of the chemical or product.

We note that several countries within the European Union and OECD have integrated chemicals control and pollution prevention. There is a growing trend at the international level to incorporate chemicals control measures in regional and global agreements originally designed for pollution prevention.

We are of the opinion that a chemicals control agency must have an overview over a larger part of the lifecycles of chemicals in order to make better priorities and to select the most cost efficient measures.

4.8 Development towards clean products

Most products are composed of several materials and contain different chemicals to give properties such as durability, softness, fire protection etc. Some additives are bound in the matrix and stay in the product for its lifetime.

Other additives, e.g. stabilisers and plasticizers are dissolved in the product, particularly in plastic materials. These substances are free to move in the matrix and may diffuse to the surface and evaporate or be transferred to other materials by contact, e.g. food or cosmetics. Many substances are continuously released to the environment during the life cycle of the product, e.g phthalates.

For some widely used additives rough estimates of hazard and risk may be made, based on existing knowledge. For most there is not enough data on either effects or exposure. For some of the known ones new effects are discovered and the risk assessment must be revised.

The present situation is characterised by products being placed on the market without preceeding investigations of health and environmental risks during their life cycle. The experience gathered during use may show whether the product is associated with risks or not. Losses of additives e.g. phthalates or nonylphenol ethoxylates, to the environment as shown by concentrations in biota are the result of earlier use. For some chemicals concentrations in the environment will increase for many years even if production is stopped today.

New data on long term effects on health or environment

due to diffuse exposure from products may show risks that cannot be managed after the damage has occurred. This is not compatible with a sustainable development since such substances and products are not part of an eco-cycle.

We consider that the manufacture of sustainable products should build on certain basic principles in order to prevent future problems that may be difficult to manage.

Clean and simple products should be aimed for. This will facilitate the assessment of impact on the environment during the life cycle. The waste management is also simplified. The additives used should be thoroughly investigated with respect to their health and environmental risks. They should not contain substances that are persistent or liable to bioaccumulate. The investigation of the product should result in an assessment which establishes beyond reasonable doubt that the product is safe on a life cycle basis when used as intended. Additives should have low mobility in the product. This will prevent unnecessary and widespread exposure to chemicals. It will also limit the possibility for future surprises.

4.9 Co-operation is the way to maintain a high level of ambition in the national work

During the last decade new ways have developed for chemicals management. Private companies, public organisations and individual consumers alike ask for environmental information before buying products or services. Private companies develop and sell environmentally adjusted products to respond to the requirements of the market. Systems for eco-labelling are developed in many countries. Banks start environmental funds and develop environmental criteria for financing. Many companies require their suppliers to set up Environmental Management and Auditing Systems.

Different forms of Environmental Diploma are awarded by commercial and non-commercial organisations.

These are all examples of the market-driven environmental work, which has gained attendance, particularly in the chemicals field. The driving force has mainly been increased business opportunities and market shares. The personal responsibility and engagement in environmental matters may also be increased.

Sweden's accession to the European Union has decreased the possibilities for regulating the chemicals field by national rules. To maintain our high level of protection we need to develop ways besides regulations for an effective national chemicals management that may drive the development towards an environmentally safe use of chemicals. Green procurement is one example of such a way of working. Another is stricter criteria on waste and sewage water by public water treatment and sewage treatment plants in order to increase sludge quality.

The new chemicals work is based on activities by individuals, private companies, municipalities, county authorities, government agencies, schools, universities, branch associations, trade unions, public interest organisations etc. A condition for sufficient effectiveness and widespread following is that all these changes take place dispersedly and within all segments of society. Another condition for success is a flexible and strategic co-operation between interested parties.

Co-operation is therefore the new way of working. Co-operative projects between important stakeholders have been shown to be a useful method to develop less hazardous products or to produce tools for green procurement. Resources are used better and in projects between producers and end users co-operation has created new possibilities for development of products. Authorities at different levels can play an important role by initiating,

facilitating and promoting this work.

4.10 Consumers and purchasers are important in chemicals work

Many environmental problems as well as their solutions are related to the selling of chemicals and products on the market. Consumers on the market, including private and government purchasers, request, influence and put requirements on environmentally adapted products.

Government purchasing, at central, regional and local levels, has a great influence on the development of environmentally adapted products and services. The same goes for large producers of products who make demands on their suppliers. For all companies this means that they protect their competitive edge by being on the forefront with their own environmental adaptation.

We consider this an important area for self-regulation, where the role of authorities may be one of giving guidance and support.

4.11 Knowledge and information are important soft measures

Knowledge and information both at producer and consumer levels are key factors in the chemicals work. Increased knowledge and information about chemicals and their risks lead to understanding of the need for risk reduction and development of environmentally adapted products. Faulty requirements at purchasing or incorrect product information can also be avoided.

We consider that there is an increased need for a better understanding at agency level of the demands of consumers

and suppliers of chemicals with regard to knowledge and information.

4.12 Increased use of economic instruments

Economic instruments have been used in Swedish environmental policy since the mid 70s. The use of such instruments does not conflict with the free movement of goods within the European Union.

Economic instruments are presently used in Sweden on e.g. fertilizers, nitrogen, carbon dioxide, environmentally hazardous batteries and gasoline. They have been effective in checking and diminishing threats to the environment.

An example of a successful economic instrument is the introduction of a differentiated tax on leaded petrol with a stepwise increased tax on the lead. This caused a rapid phase out of lead additives in petrol and a switch-over to other less environmentally hazardous additives.

Future measures should be directed towards attaining an ecocycle adaptation of manufactured products. An analysis should be performed on how economic instruments may be used to strengthen an ecocycle adaptation.

On a market that takes into account environmental considerations a development towards better products should in principle occur spontaneously without interventions from the government. Poorly adapted products shall not have competitive advantages of being cheaper than environmentally adapted products for the same purpose. There is a vulnerable period when newly developed environmentally adapted products are introduced on the market and the price is higher because of the use of more expensive materials or components. In such cases it may be justified to resort to economic instruments

in order to facilitate market access for such products and accelerate the switch-over to environmentally adapted products.

We consider that the following principles should be applied when introducing economic instruments:

- instruments should be used to facilitate the marketing of environmentally adapted products when they compete with substantially cheaper poorly adapted products

- the income from an economic instrument should be used for specific purposes e.g environ- mental information and other environmental measures directly related to the product area. The economic instrument may also be used to compensate for damages caused by earlier use of poorly adapted products.

- the manufacturers and importers of poorly adapted products containing dangerous chemicals should be subject to the economic measures in relation to their marketed amount of those sub- stances.

4.13 Support and guidance to small and medium size enterprises is important

The main responsibility for preventing damage to health or environment from the use of chemical products lies with the producer. In order for industry to take this responsibility all companies must accept the principle and have sufficient knowledge about the properties of their chemicals.

Various reports from different Swedish agencies have clearly indicated that the general level of knowledge about the environmental effects of chemicals is low in small and medium size enterprises (SMEs).

Most companies in Sweden are small. Only 0.2 per cent of all companies have more than 200 employees. More than 90 per cent of the companies have less than 10 employees.

There are deficiences in chemicals control in many SMEs because of lack of knowledge about chemicals and their environmental impact. There is also a genuine lack of knowledge about the responsibility of the company with regard to chemicals control, product choice and risk reduction. Most SMEs are dependent on their suppliers for information on chemical hazards. In many cases it may be difficult to obtain such information from the supplier. The SME entrepreneur seldom knows where to get information and has not often the opportunity to participate in education courses.

Increased knowledge about the environmental effects of chemicals is a precondition to improve the situation for SMEs. An individual company is surrounded by many operators, e.g. customers, employees, employers' organisations, trade unions, central and local authorities, financing institutions, mass media, public interest NGOs and others which influence the company in various ways. As environmental issues appear on society's agenda the company will be more and more influenced by outside operators in addition to the market forces of competition, pricing, supply and demand. In a longer perspective every company must develop an environmental profile in order to survive.

There is a great demand from SMEs for support in the chemicals field. Such support may be channelled by various routes. There are cases of successful chemicals projects where SMEs have participated and profited from their participation. One should learn from such projects in developing capacity and capability support to SMEs. Communication and dialogue are important in order to increase mutual trust and to promote success.

Many SMEs need to know where to find information or expertise to help them solve their problems. The capability support should primarily be the responsibility of the appropriate industry associations. The Association of Swedish Chemical Industries (Kemikontoret) has set up an advisory service to SMEs. Another possibility is via the new regional organisation of the chemicals agency proposed by us. A third possibility is a reference service or switchboard

Many SMEs need basic knowledge about chemical risks and how they can be avoided. This could also be managed by the appropriate industry associations. It is not, however, a task for central and local authorities.

Increased switchboard and educational activities will eventually create a need for increased availability of services that may offer advice on specific chemical issues. There is a growing demand for the type of competence that does exist today within e.g. certain branch research institutes and a limited number of consultancy firms. The SMEs are themselves mainly responsible for bringing this type of competence into existence. When there is an increasing demand several operators will venture into the field. There is a big future potential for developing this kind of advisory services.

4.14 Common problems require common solutions

The globalisation of trade is continuing at an increasing pace. More and more of the inhabitants of the earth are reached by innovations and new products with shorter and shorter intervals. Chemicals pass borders through transport by air and water and through trade in products. No single country can refrain from trading with the outer world. Sweden is dependent on trade for the wellbeing of its citizens. Within the chemicals area Sweden strives to attain

such conditions in our neighbourhood that the Swedish environmental targets can be met.

Many problems with chemicals cannot be solved at the national level. Regional and global agreements are important tools to reduce the releases of pollutants that may cross borders. A small country will experience difficulties in making demands on products that are different from those of other, bigger markets. Such demands may also be regarded as technical barriers to trade.

Common rules internationally, both with regard to releases during manufacture and the contents of products will help to solve common environmental problems and facilitate trade between countries. They will also create equal competitive opportunities for all producers. We consider such global agreements important for our proposed chemicals policy.

4.15 The European Union is the common arena for legislation

Laws and regulations on chemicals and products have a great impact on trade. The European Union decided at an early stage to harmonise essential elements of national legislation in this area. There are advantages and disadvantages when chemicals legislation is harmonised with other states. The decision process becomes slower and heavier. The final outcome might be less progressive than what many member states would prefer. On the other hand, a national initiative that results in an EC directive or regulation affects all fifteen countries. The impact on health and environment may be much greater.

The common legislation gives us better tools to attack problems related to chemicals in products from other parts of the world. Changed requirements within the European

market in practice means that most multinational manufacturers will comply. The common legislation also gives us possibilities to influence which chemicals are used and released in our neighbouring countries. We must try to move the whole union in a progressive direction, in consort with likeminded nations, and at the same time try to be forerunners.

The Swedish strategy for work within the European Union will be further discussed in chapter 6.

4.16 International agreements on chemicals are becoming more important

The degree of chemicals control varies between countries. In general it is lower outside the OECD countries. New chemicals may therefore be manufactured in countries without proper facilities for control or management. Through trade they may spread quickly around the world. The acute effects of new chemicals may be known since they will occur during manufacture, while the long term effects will be known only when substantial amounts of the dangerous chemicals are already in circulation.

The margins for mistakes are decreasing. A bad choice of chemicals, coupled with the rapid spread and increased consumption of consumer goods may produce damages to an extent which can only be overviewed when enough of the chemical is already around to cause long term disruptions to the environment and limitations in our wellbeing.

Many chemicals that are banned or severely restricted in industrialised countries are still used in many parts of the world. They are often cheap and easy to manufacture. They may reappear in products exported to industrialised countries, e.g. food. They may also spread to industrialised

countries by winds, streams and migratory species. The result is a redistribution of persistent dangerous chemicals to the cooler part of the globe, e.g Sweden, where they accumulate in organisms at the top of the food chain.

We conclude that the possibilities to reach the Swedish environmental targets are dependent on conditions in other countries. The Swedish chemicals policy must therefore be pursued in regional and international fora. We must strive for an appropriate level of chemicals control and management in all countries. The objective should be that no country should suffer damages to its environment as a consequence of chemicals use in any other part of the world.

We also conclude that chemicals and development aid policies must be more closely linked. Initiatives for global restrictions on dangerous chemicals must be better coordinated with Swedish development projects in our recipient countries. An international sharing of the burden between donors should be aimed at in order to bring in more countries in the task of improving the global environment.

The priorities for international work will be further discussed in chapter 7.

4.17 Trade and chemicals policies must be mutually supportive

The free movement of products and services is fundamental to Swedish trade policy. Through membership in the WTO we are formally tied to an international system of rules for free trade. As a member of the European Union we participate in an internal market of fifteen countries and more than 300 million people. Both these memberships limit our possibilities to decide which substances and

products that are allowed to be used in Sweden.

International trade may be beneficial to the environment since it creates opportunities for a more efficient use of resources. Trade may also facilitate the spread of environmentally adapted products. An increased trade with environmentally sound and sustainable products will promote the state of the environment on a global level. Similarly, an increased trade in environmentally hazardous products will accelerate the deterioration of the environment.

It must be accepted that multilateral environmental agreements (MEAs) contain measures against trade of certain unwanted chemicals.

CHAPTER 5. MEASURES AT THE NATIONAL LEVEL

At the national level the chemicals policy shall be implemented through the agencies strengthening and supporting the market driven environmental work. Measures to be used include active and clear traditional agency work, e.g enforcement, dissipation of knowledge and information to all stakeholders and economic instruments.

The Chemicals Policy Committee proposes that:

- The national agency work be renewed through networking at the regional level.
- The Swedish organisation for chemicals control be reviewed by a special committee.
- The research and assessment support to the national agencies be reviewed by a special committee. The review should come up with a proposal for the organisation and financing of future research on health and environmental issues and assessment support to the agencies.
- A proposal be prepared for how decided restrictions on chemicals and/or voluntary commitments may be followed up through the national monitoring system.
- A plan for the measurement of the targets of the Esbjerg Declaration with regard to chemicals be prepared.
- The environmental monitoring programme on chemicals within the EU be further developed.
- Sweden actively pursue the development of the newly started work within the OECD on environmental monitoring with regard to chemicals.

- The government to evaluate if a widened monitoring of chemicals may be financed by fees on chemicals.

- The National Chemicals Inspectorate be commissioned to further develop tools for the market driven environmental work. Examples of such tools are:

  - handbooks
  - lists of chemicals and products
  - data bases on substitution possibilities
  - switchboard services
  - education courses
  - capacity and capability support to SME's.

- Industry organisations give knowledge support to SME's on chemicals issues.

- The National Chemicals Inspectorate be commissioned to propose economic instruments, as appropriate, in the product group directed work.

- A model for sustainable chemicals use that may be used by industry is proposed (See Annex).

- The National Chemicals Inspectorate be commissioned to give information to the general public and to the purchasers and product developers within industry on chemicals that should be avoided in products.

- The National Chemicals Inspectorate and the National Consumer Board together develop information for the Green Data Base.

- Joint groups between agencies and industry be created, particularly at the regional level.

- Consultation groups be formed between government, agencies and industry.

- A system of permanent consultation routines be established between the government and the chemical industry on current EU questions.

- Special talks be held between the government and groups of companies or industry associations with the view to implement measures to reach the goals of the chemicals policy.

- The precautionary principle be interpreted in a broad sense of general precautionary measures corresponding to the general rules on considerations in the proposed Environmental Code.

- Generic approaches be used to a much larger extent by agencies and industry.

- Criteria are presented for those persistent, bioaccumulating substances that should be phased out as a first step (See Annex).

- The National Chemicals Inspectorate be commissioned to define more precisely the criteria for persistence and bioaccumulation that should then be used in the stepwise substitution work.

- When supervising companies, local and regional authorities control that there are enough data for the chemicals being used.

- Systems control be given higher priority in the enforcement work on chemicals carried out by local and regional authorities.

- Systems control be applied also to cosmetic and hygienic products.

- Companies report annually on releases and use of hazardous chemicals.

- The National Chemicals Inspectorate be commissioned to issue regulations on chemicals to be reported.

- Manufacturers and importers of cosmetic and hygienic products ascertain that the products can be assessed with regard to both environmental and health effects.

- The Swedish Medical Products Agency be commissioned to expediently develop a program to assess the environmental impact of cosmetic and hygienic products in consultation with the National Chemicals Inspectorate and other relevant agencies.

- The local and regional authorities supervise the marketing and use of cosmetic and hygienic products.

- The Swedish Medical Products Agency, in consultation with the National Chemicals Inspectorate and the Swedish Environmental Protection Agency, be commissioned to come with proposals for measures, as appropriate, to reduce the impact of drugs on the environment after use.

- A survey of the accumulation of hazardous chemicals in society including the Swedish National Defence be performed to assess the size and type of the problem.

- Companies, at the latest by the year 2002, declare the contents of their products with regard to chemicals content.

- Agencies, industry and commerce launch a cooperation project with the objective that all products marketed in Sweden in 2002 shall be declared with respect to their contents.

- Companies that manufacture, import, use or process hazardous chemicals plan and regularly report on their work towards the targets of the chemicals policy.

- By the year 2000 a plan be available on how the individual company plans to achieve the targets of the chemicals policy. The company should make an annual revision of the plan and its relation to the targets.

- The National Chemicals Inspectorate be commissioned, in cooperation with other relevant agencies and industry, to prepare guidelines for industry's reporting.

- The Swedish Industry Federation and its associations develop recommendations to the companies on environmental management systems that are based on the Swedish targets. The companies should report on their work to reach the targets.

- In 2003 a review and assessment of the targets and means of the chemicals policy be performed.

- Sweden actively utilise the possibilities for national chemicals legislation on non harmonised and harmonised areas.

- Sweden work to clarify the possibilities for national legislation by legal practice.

- The National Chemicals Inspectorate be commissioned to bring forward proposals for national restrictions on marketing and use of particularly hazardous substances. The proposals will be notified by the Swedish government to the EU.

- National separate legislation be well motivated from an environmental and health perspective.

- Sweden continue to be an active driving force in the global work on chemicals.

- The National Chemicals Inspectorate and the Swedish International Development Agency be commissioned to

prepare a plan for the integration of global chemicals issues and development aid.

CHAPTER 6. MEASURES WITHIN THE EUROPEAN UNION

Within the European Union Sweden will strive to develop the Community chemicals policy. The basis for this work shall first and foremost be the targets of the Esbjerg Declaration and in the longer term the targets of the Chemicals Policy Committee. Our targets should be seen as a proposal on how the member states of the EU may implement the Esbjerg Declaration.

The Chemicals Policy Committee proposes that:

- Sweden work long-term for the EU to prepare legislation for a controlled phase out of the marketing and use of persistent and bioaccumulating organic man-made substances.

- Work to raise support for this aim among the member states and the EU institutions be launched.

- A chemicals strategy be developed in the same way as the acidification strategy, containing the following elements:
  - The Community chemicals policy be evaluated.
  - A plan for the implementation of the Esbjerg

Declaration be established with the following measures:

* The requirements in the directives on integrated pollution, prevention, control and on pollution caused by certain dangerous substances discharged into the aquatic environment should be sharpened

* Routines to identify "Esbjerg substances" should be included in the programmes for New and Existing Chemicals
* Criteria for persistent, bioaccumulating and toxic substances are to be developed

* The Directive on restrictions on the marketing and use should be strengthened successively until all "Esbjerg substances" are included

* There should be increased environmental considerations and more generic criteria when introducing restrictions.

* The targets of the Esbjerg Declaration should guide the global chemicals work.
  - The environmental monitoring of chemicals be developed to follow up measures taken.

* The European Environment Agency should enlarge their statistic documentation to include descriptions of the current state of the environment, assess the threats and follow up measures taken.

* A special plan should be developed to follow up the targets of the Esbjerg Declaration.
  - The development assistance programme of the EU be linked to work on chemicals.
  - Pollution prevention and waste issues be more closely integrated with chemicals control to make possible an overview of the whole life cycle of products.
  - A chemicals policy, based on the precautionary principle, the substitution principle, the polluter pays principle and responsibility for industry be prepared. The policy might in the long-term be transferred into framework legislation on chemicals.
  - The commission prepare an annual report on the results and outcome of the Communities' chemicals policy.

★ Sweden actively utilise the possibilities for national chemicals legislation in non harmonised and harmonised areas.

★ Sweden work to clarify the room for national legislation by legal practice.

- The National Chemicals Inspectorate be commissioned to bring forward proposals for national restrictions on marketing and use of particularly hazardous substances. The proposals will be notified by the Swedish government to the EU.

- National unilateral legislation be well motivated from an environmental and health perspective. Our cold climate and the high degree of pollution in the Baltic could be arguments to consider.

- Sweden pursue the issue of an immediate ban within the EU of those persistent organic pollutants currently being negotiated under UNEP that have not yet been completely banned within the Union. There is no need for further assessment within the Existing Chemicals Programme.

- Also the remaining six persistent substances being negotiated within the convention on longrange transboundary air pollution be banned within the EU.

- Sweden pursue the issue of rules within the EU for the declaration of the contents of products.

- Sweden work for the EU to specify and apply the precautionary principle, including the principle of the reversed burden of proof, and to give it a clear content within the community law.

- In the framework chemicals policy it be defined when and where the actors shall apply the precautionary principle.

- Sweden explain how the substitution principle shall be applied and give good examples.

- The overall chemicals policy require that all who handle chemicals apply the substitution principle, as appropriate.

- ★ In the overall chemicals policy it be stated that:
  - Manufacturers and importers of chemicals are responsible for the proper testing and assessment of their chemicals.
  - All companies are responsible for the safe use of their products
  - All users of chemicals are responsible for the safe handling of chemicals.

- ★ The European Union increasingly use a generic approach for assessing and restricting chemicals and preparations.

- ★ Sweden work for that data on persistence and hormone disrupting properties of chemicals be added to the programmes for new and existing chemicals.

- ★ The programme for new substances include existing substances for which the use has drastically increased from a minimal level.

- ★ The Existing Chemicals Programme be evaluated and streamlined. This could be achieved by
  - an annual fee on all registered substances in EINECS
  - a greater responsibility on industry for testing and assessment
  - simplifying the process for already evaluated substances.

- ★ The procedures for environmental management and auditing systems (EMAS) be further specified and harmonised with ISO 14001.

- ★ Sweden strive for EMAS to contain requirements for reporting on the application of the precautionary and substitution principles.

- ★ The EMAS regulation also contain requirements for reporting on the "Esbjerg substances" used by the company.

- Sweden work for the directive on cosmetic ingredients (76/768/EG) also to include an assessment of environmental risk.

- Sweden work for the crystal directive, and other product standardisation directives, to be based on function instead of chemical content to facilitate substitution.

CHAPTER 7. MEASURES AT THE INTERNATIONAL LEVEL

At the international level Sweden will be working primarily through the Intergovernmental Forum on Chemical Safety. Sweden can also pursue issues by offering to host meetings at high level. Sweden shall actively advocate the targets of the Chemicals Policy Committee internationally, in order to achieve a broader consensus on them.

The Chemicals Committee proposes that:

- Sweden work for the targets of the Esbjerg Declaration of the 4th International Conference on the Protection of the North Sea to guide the global chemicals work.

- Sweden, in different international organisations, work for the global use of chemicals to be compatible with sustainable devlopment.

- Sweden prioritise international work which aims at restrictions on releases and use of persistent, bioaccumulating substances.

- Sweden work for the Esbjerg Declaration in the longterm to include all substances that are persistent and liable to bioaccumulate.

- Sweden, within the Intergovermental Forum on Chemical Safety and other international organisations, work for the substitution principle to be accepted as a global principle for risk reduction, and the precautionary principle, including the principle of the reversed burden of proof, to be more widely applied.

- Sweden work for cost efficieny in the 15th principle of the Rio Declaration to be interpreted in a wide sense.

- Sweden strive for the responsibility of industry to test and assess their chemicals, as well the polluter pays principle, to be accepted within the Forum and other international organisations.

- Sweden actively pursue the work on a global convention for persistent organic pollutants, and support the work with national expertise.

- The proposed convention include criteria for identifying further substances.

- A global framework convention on chemicals, based on Chapter 19 in Agenda 21, with binding as well as voluntary measures, be developed in the long term.

- Such a convention could contain the principles that should guide that global work on chemicals, e.g. the precautionary and substitution principles.

- A framework convention on chemicals could possibly contain rules for the trade in the unwanted chemicals included in the convention.

- Sweden support the exchange of information on such trade wherever it occurs.

- Sweden prioritise work within the Forum and strive to maintain a leading role in the Forum.

- Sufficient resources to fill this role be set aside by the National Chemicals Inspectorate.

- Sweden support a stable economy of the Forum based on a wider number of contributors.

- Sweden support the development of an integrated chemicals control globally.

- Sweden put priority on the development of Concise International Chemicals Assessment Documents (CICAD's). Full environmental health criteria documents (EHC's) should only be produced for chemicals for which concerted international action might be expected.

- Sweden support the updating of the Inventory of Critical Reviews on Chemicals (ICRC).

- Sweden support the development of an international instrument on the harmonisation of classification and labelling of chemicals.

- Sweden work, within the appropriate international organisations, for increased information about chemicals and products in international trade, including labelling and declarations of content.

- The Swedish global chemicals policy be better coordinated with Swedish international development assistance policy.

- The Swedish International Development Assistance Agency be commissioned to present a report, together with the National Chemicals Inspectorate and the Swedish Envirnmental Protection Agency, on how the environmental development assistance may be adjusted to a global plan of action to implement the Esbjerg Declaration. The report should take into consideration how the development assistance may support the implementation of a future global convention on persistent organic pollutants. The report should also consider different solutions to increase the efficiency and resource utilisation of the Swedish competence base.

- Sweden support the increased participation of developing countries in the global negotiations in the chemicals area.

- Sweden consider financial assistance to facilitate the

transfer to environmentally sound techniques and methods in some of Sweden's programme countries for development assistance.

- Sweden identify developing countries that may act as initiators and driving forces in an increased regional cooperation in the chemicals field.

- Sweden prioritise capacity building directed towards the creation of an integrated chemicals control and encourage our cooperating countries to produce national profiles.

- Sweden work with the UN financing institutions to strengthen the linkage between industrial investments and sustainable development, including considerations for multilateral environmental agreements on chemicals. In this work it is imperative to take into consideration questions of equity between countries as well as within countries.

- Sweden support public interest NGO's in their work in developing countries.

- Sweden work for the Forum to coordinate global chemicals work.

- Product related and release related measures be integrated at national, regional and international levels.

- The cooperation within the Nordic Council be used to prepare questions to be discussed in the UN, OECD and EU.

- Sweden work for making the targets of the Forum clear, easy to communicate and measurable.

- International activities in the chemicals field be regularly evaluated.

- All stakeholders participate in the evaluations.
- Sweden work for an increased coordination and sharing of responsibilities between the relevant international and regional organisations.
- Sweden initiate a harmonisation of the regional structure within the different UN organisations in the health and environmental area.
- Sweden work for a development of the regional chemicals work in line with that within the Forum.
- Sweden support the regional work within the Forum and in the Western European group, including the EU, and work for a better coordination, particularly with relation to assistance in developing countries and economies in transition.
- Sweden work for increased national and international cooperation between governments, industry, academia and public interest organisations.
- Sweden work, within different regional organisations, for increased coordination and cooperation between conventions and organisations with a similar objective and scope.
- Within the OECD Chemicals Programme Sweden prioritise development of methods for testing and assessment of chemicals, including harmonised criteria for classification and labelling.
- Sweden work for the OECD to develop methods for the testing and assessment of complex mixtures.
- Sweden prioritise risk reduction within the OECD Pesticide Forum.

CHAPTER 8. SPECIAL QUESTIONS

According to the directives given to the Chemicals Policy Committee we were also to treat the issue of PVC plastics and the issue of endocrine disrupters.

8.1 Clean plastics

The Chemicals Policy Committee proposes that:

- The use, as additives in plastic materials, of persistent, bioaccumulating substances, lead, mercury or cadmium, or substances that may cause serious or irreversible effects on health or the environment be phased out at the latest by 2007.

- A plastic material be substituted by other materials if it contains any of the substances mentioned above.

- For substances being used, industry report on their properties, and show that they can be safely used.

- The National Chemicals Inspectorate initiate and promote development of new environmentally adapted plastic materials.

The Chemicals Policy Committee concludes that:

- Taking into consideration the precautionary principle and the present limited knowledge of its long term health and environmental effects, PVC plastic materials do not belong in the future ecocycle society.

- Present PVC plastic materials as soon as possible, and no later than by 2007, be substituted by materials that are environmentally adapted in the longterm.

- The Government start discussions as soon as possible

with all stakeholders and take any further measures as needed to achieve a phase out of all new use of PVC plastics.

8.2 Endocrine disrupters

The Chemicals Policy Committee proposes that:

- The National Chemicals Inspectorate establish a list of suspected endocrine disrupters.
- The National Chemicals Inspectorate expediently initiate work on criteria for endocrine disrupters within the European Union and start the work on a proposal for criteria.
- New substances within the EU be tested with regard to endocrine disrupting effects.
- Substances that fulfill the criteria will be phased out.
- A national research programme be established.
- The Swedish chemical industry report continously to the National Chemicals Inspectorate on their national and international activities regarding endocrine disrupters.
- The Swedish pharmaceutical industry produce environmental impact assessments (EIAs) for the use of drugs that influence hormone systems.

ANNEX.

Proposal for a model for sustainable chemicals use

The Chemicals Policy Committee has developed a model that could be used as guidance for the day to day work on chemicals in companies.

1. Use as simple and clean products as possible.

2. Use additives with low mobility.

3. Do not use substances that are persistent and liable to bioaccumulate in your products, nor substances with carcinogenic, mutagenic or reproductive (including endocrine disruption) effects.

4. Do not deliberately use such substances as mentioned under 3. in your manufacturing or production processes.

5. Do not release any of the substances mentioned under 3. from your manufacturing or production processes.

6. For all substances used or occurring during the life cycle of your product, assess their properties and show that they are safe to use in the short and long term.

7. Substitute hazardous substances by less hazardous ones as far as possible, based on available knowledge.

Proposed criteria for persistence and bioaccumulation

There are no readily available test methods to determine persistence. Based on existing methods the Chemicals Policy Committee considers as persistent, substances that are not degraded (more than 20%) in internationally standardised and accepted tests for Ready Biodegradability, or in internationally standardised and accepted tests for Inherent

Biodegradability.

The term liable to bioaccumulate has been used scientifically to describe substances with a bioconcentration factor (BCF) of 100 or more, or a partition coefficent between n-octanol and water (Kow) of 1000 or more (logKow>3). The Chemicals Policy Committee considers that, as a first step, substances with a BCF>10.000 or a Kow>100.000 (logKow>5) shall be phased out.