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12
09
ISSN
1862-4804

Progress report regarding implementation of the Strategic Approach to International Chemicals Management (SAICM)

Umwelt Bundes Amt
Für Mensch und Umwelt

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Federal Environment Agency Germany

This publication is only available as download under
http://www.umweltbundesamt.de

Publisher: Federal Environment Agency (Umweltbundesamt)
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06813 Dessau
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Internet: http://www.umweltbundesamt.de

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Dessau-Roßlau, April 2009

Progress report regarding implementation of the Strategic Approach to International Chemicals Management – SAICM

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A. SAICM – Strategic Approach to Chemicals Management

I Background and Challenge

1. Background

The United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, adopted a global plan of action – Agenda 21 – to solve mankind's most urgent problems. Safe management of chemicals is sketched out in chapter 19: assessment of chemical risks, harmonization of classification and labeling, exchange of information regarding risks, risk reduction programs, strengthening of national capabilities and capacities, prevention of illegal trade, as well as information and education. Ten years later, the Johannesburg Summit charged the global community with reducing the negative effects of chemicals on human health and the environment by the year 2020. In order to reach this goal, the **I**nternational **C**onference on **C**hemicals **M**anagement (**ICCM**), which was convened under the auspices of the United Nations in Dubai in 2006, passed a resolution regarding the basis for worldwide chemicals management: the **S**trategic **A**pproach to **I**nternational **C**hemicals **M**anagement – **SAICM**.

2. Goal

The goal of SAICM is to bring together existing activities concerning chemicals safety, some of which compete with each other, to form an overarching framework at the global level. Against the background of ever scarcer resources for international negotiations and projects, the synergy effects resulting from SAICM are to enable their more effective use. In addition, SAICM is to identify and close existing gaps in chemicals management. It is also intended to counter the trend of the individual international agreements developing in different directions, and to bridge the divide between industrialized and developing countries.

3. Contents

The content of SAICM is set out in concrete terms in the following documents:

- **Dubai Declaration on International Chemicals Management**

In this document, the environment ministers of more than 60 of the 170 countries that participated in ICCM in Dubai restate their commitment to the goal of the Johannesburg Summit: reducing the

negative effects of chemicals on human health and the environment by 2020. In addition, they declare they will ensure that SAICM is implemented.

- **Overarching Policy Strategy, OPS**

The ICCM Conference in Dubai decided on the following central overarching objectives for SAICM:

(A) risk reduction,
(B) knowledge and information,
(C) governance,
(D) capacity-building and technical cooperation,
(E) illegal international traffic.

- **Global Plan of Action**

In addition, the ICCM Conference in Dubai agreed on a **G**lobal **P**lan of **A**ction (**GPA**). It includes more than 270 activities concerning 36 work areas and serves as a manual for implementing the OPS in practice.

4. Status

SAICM is not a treaty according to international law. It is, however, supported by many organizations: World Health Organization (WHO), International Labour Organization (ILO), Food and Agricultural Organization of the United Nations (FAO), United Nations Industrial Development Organization (UNIDO), United Nations Institute for Training and Research (UNITAR), Organisation for Economic Co-operation and Development (OECD), World Bank, United Nations Development Programme (UNDP), Global Environment Facility (GEF), International Council of Chemical Associations (ICCA).

5. Implementation

SAICM is implemented under the auspices of the United Nations Environment Programme (UNEP), and a secretariat was established for SAICM in Geneva. The process of implementation is monitored by conferences at the UN level. These conferences are scheduled to take place in 2009, 2012, 2015 and 2020. In addition, the requirement to report on the status of national implementation will also play an important role in implementation.

II Documentation regarding national implementation of the Strategic Approach to International Chemicals Management

1. Goal of the expertise

This report aims to document the results of the conference “National implementation of the Strategic Approach to International Chemicals Management” and to obtain an initial overview of the current national situation regarding chemicals management, i.e. which activities are already in place and what is still lacking for the implementation of SAICM. Thus, this report is a preliminary appraisal, but is not yet a complete analysis of all instruments and processes contributing to SAICM. However, the report represents an important step in the national implementation of SAICM.

2. Contents/Approach

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety mandated the German Federal Environment Agency to act as focal point for national implementation for SAICM and organize the conference "National Implementation of the Strategic Approach on International Chemicals Management SAICM" at the Federal Press Office in Berlin on June 6, 2008. For the elaboration of that report in a first step, the results of the conference were assessed and allocated to the objectives of the Overarching Political Strategy (OPS) as well as the 36 work areas of the Global Plan of Action (GPA) (see A.I.3 above). As a second step, information obtained from a general query addressed to relevant stakeholders was added. The results of this analysis were also allocated to the objectives of the OPS and the work areas of the GPA. An initial sketch of the current state of SAICM implementation in Germany emerged in this way.

There are plans to carry out the stock-taking of national implementation in more depth in the course of this process. Existing gaps and the need for action are to be analyzed as well. This in-depth examination will take place in cooperation with the relevant ministries, and groups of actors at the national level will be involved as well. It is scheduled to be completed by the end of 2008.

B. SAICM implementation in Germany – current status[1]

I Risk reduction (OPS Objective A)

1. Assessment of national chemicals management (Work area 1 GPA)

Within the scope of the SAICM national implementation process Germany is currently examining its national chemicals management with the goal of identifying gaps and priority areas. Regulative measures in the field of environmental protection, and in particular in the field of chemicals management, are largely harmonized at EU level. Nevertheless, these regulative measures are sometimes complemented by national measures and regulations. The following chapters describe existing tools as well as instruments not yet in practice which have been identified as contributing to the implementation of work areas of the Global Plan of Action.

2. Human health protection (Work area 2 GPA)

Many laws in Germany serve to protect human health from harmful effects of chemicals. The purpose of the **Chemicals Act** is to make hazards from substances identifiable, to avert hazards to humans and the environment or to prevent such hazards from occurring in the first place. Substances and preparations are categorized according to **laws regarding hazardous substances** and labeled in case of particular hazards. This categorization is uniform throughout the European Union.
Further information: www.bmu.de/chemikalien/downloads/doc/40103.php (in German)

Implementation of the European **REACH Regulation** will improve knowledge about characteristics of substances and will over time lead to hazardous substances being replaced by ones compatible with human health and the environment. The Globally Harmonized System of Classification and Labelling of Chemicals (**GHS**) also contributes to better protection of human health (see B. I. 5 below).

As chemicals can enter bodies of water during their production and use, they are also examined regarding the hazard they pose to water and categorized accordingly pursuant to the **Federal Water Act.** Depending on the categorization, more or less strict safety regulations apply.
Further information:

[1] The work areas are numbered following Table A. "Possible work areas and their associated activities" of the Global Action Plan, http://www.chem.unep.ch/saicm/saicm%20texts/SAICM_publication_ENG.pdf

http://www.bmu.de/english/water_management/acts_and_ordinances/acts_and_ordinances_in_germany/doc/3288.php (in English)

Licensing and use of **plant protection products and biocides** are subject to strict requirements in Germany as well (see B.I.6).

The goal of the **European Commission Recommendation of March 4, 2002, on the reduction of the presence of dioxins, furans and PCBs in feedingstuffs and foodstuffs** is to reduce the concentrations of the substances named in feedingstuffs and foodstuffs (2002/201/EG). The essence of the recommendation: Member States must carry out random monitoring for dioxins and dioxin-like polychlorinated biphenyls (PCBs). The authorities of the federal states responsible for food monitoring must evaluate the results of the previous year's analyses by June of every year and forward them to the central agency, the Federal Office of Consumer Protection and Food Safety (BVL). The BVL then reports the status to the European Commission. *Further information:* www.bvl.bund.de/cln_007/nn_520288/DE/01__Lebensmittel/01__Sicherheit__Kontrollen/071__DioxinMonitoring/Dioxin__Monitoring__node.html__nnn=true (in German)

In order to continue improving air quality, the European Union laid down new standards with a package of **Air Quality Directives** as well as **Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants**. The federal government implemented these directives within the framework of the Federal Immission Control Act and its ordinances. The new regulations serve especially to protect human health. They define ambient standards for the following substances: sulphur dioxide, nitrous oxides, particulate matter, lead, benzene, carbon monoxide, ozone, arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons. National emission ceilings which must not be exceeded after the year 2010 were defined for the air pollutants sulphur dioxide, nitrous oxides, volatile organic compounds and ammonia. *Further information:* http://www.bmu.de/english/air_mobility/doc/41333.php (in English)*;* www.europa.eu.int*.*

The new **Washing and Cleaning Agents Act**, which entered into force in May, 2007 and which complements the EC Regulation on detergents No. 648/2004, aims to improve the protection of consumers' health in their daily handling of washing and cleaning agents. To this end, the law requires producers of washing and cleaning agents to submit a data sheet with information on all of a product's ingredients to the Federal Institute for Risk Assessment.
Further information: www.bmu.de/pressemitteilungen/aktuelle_pressemitteilungen/pm/39273.php (in German)

The federal government relies on **product-related regulations** in order to improve indoor air quality. For example, they are supposed to limit emissions of volatile organic compounds (VOC) which occur in furniture and construction materials, among other things.
Further information: www.apug.de (in German)*;* www.bmu.de/gesundheit (in German); http://www.bmu.de/english/health_chemical_safety/doc/41329.php (in English)*;* www.umweltbundesamt.de (in German); http://www.umweltbundesamt.de/index-e.htm (in English)

The revision of the legislation for pharmaceuticals includes the environmental evaluation of pharmaceuticals. Since 2006 concepts for evaluation of effects, fate and behavior of veterinary and human pharmaceuticals in the environment have been developed and a gap has closed. Investigating the behaviour and effects of medicines in the environment is a new field of work for medicine authorities. The Federal Environment Agency is developing the training programme in cooperation with the European Medicines Agency. One of the aims is to create a network of environmental experts for ecotoxicological investigations in Europe.

Germany has a comprehensive **national system of waste management** which also serves to protect human health from dangerous substances (see B. I. 13).

The German Bundestag passed the **Federal Soil Protection Act** in 1998, and the accompanying **Federal Soil Protection and Contaminated Sites Ordinance** a year later. The ordinance spells out the requirements of the Federal Soil Protection Act regarding examination and assessment of sites suspected of being contaminated. Another objective of that act is to protectf human health directly.

In addition, there are numerous regulations concerning **occupational health and safety** (see B.I. 4).

A **Manual for Livestock Keepers** informs keepers of chickens, cattle and pigs how they can prevent polychlorinated dibenzodioxins/furans (PCDD/F) and polychlorinated biphenyls (PCBs) from entering into milk, meat and eggs during production. *Further information:* www.bmu.de/pressemitteilungen/aktuelle_pressemitteilungen/pm/40755.php (in German)

Further important instruments for the protection from hazardous chemicals are the Rotterdam Convention on Prior Informed Consent (PIC), the Stockholm Convention on Persistent Organic Pollutants (POPs) and the POPs Protocol to the Geneva Convention on Long-range Transboundary Air Pollution (see B.I.11). Germany has ratified both conventions and the protocol. Germany has also ratified two more protocols within the framework of the Geneva Convention: the Protocol on Heavy Metals, which includes regulations to reduce emissions of cadmium, lead and mercury, and the Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, which defines country-specific emission ceilings for sulphur dioxide, nitrous oxides, volatile organic compounds and ammonia.

3. Children and chemical safety (Work area 3 GPA)

It has long been known that children often react differently - in many cases more sensitively - to environmental impacts, which children can be exposed to over longer periods of time than adults. In order to recognize the chemical risks to children better, the Federal Environment Agency is car-

rying out the **German Environmental Survey for Children** (KUS, GerES IV). Its purpose is to identify pollutant levels especially in children as well as possible pollution sources. For the current KUS, the Robert Koch Institute examined 1,790 children aged three to fourteen from 150 cities and towns for three years. This was preceded by a pilot study whose purpose was to test the survey instruments for their suitability.
Further information: http://www.umweltbundesamt.de/gesundheit-e/survey/us03/uprog.htm (in English)

Further data was collected during the KiGGS-Studie (The German Health Interview and Examination Survey for Children and Adolescents). This study aims to gather and assess information on the spreading of diseases, behavior affecting the health and environmental burden of children and youth under the age of 18. The results of the study can help to explain temporal and regional developments in the frequency of disease as well as pollution patterns. The results are intended to assist decision-making on specific preventative measures and health and environmental policy that all can benefit from. *Further information*: http://www.kiggs.de/service/english/index.html

Many procedures already give special consideration to children when they evaluate risks and set standards. *Further information:*
www.bmu.de/files/pdfs/allgemein/application/pdf/who_bericht_de.pdf (in German)

A study by the Federal Environment Agency and the Federal Institute for Risk Assessment analyzed **levels of flame retardants in mother's milk with special consideration of polybrominated diphenyl ethers (PBDEs)** from July, 2002 through the end of October, 2004. It examined the PDBE concentrations to be found in mother's milk, how much PBDEs infants who are nursed ingest and which factors are of special importance regarding PBDE levels in humans. A total of 128 samples of milk from 89 mothers from across Germany were analyzed. This sample size makes the study one of the most comprehensive examinations of mother's milk regarding PBDEs in the world. The result: according to current knowledge, PBDEs in mother's milk do not present a risk to infants. At an average of 2.4 nanograms (= 2.4 millionths of a gram) per gram of fat (for non-vegetarians), the PBDE content in mother's milk in Germany is in the lower range in comparison with other European countries. In contrast, current measurements from Canada and the US are many times higher.
Further information: www.apug.de/kinder/projekte/flammschutzmittel.htm (in German); http://www.apug.de/archiv/pdf/Abschlussbericht_2005_Flammschutzmittel_englisch.pdf (in English)

German federal states, too, conduct studies on pollutants in mother's milk, for example the **duplicate study on young women's total PCB intake** and the statewide **Mother's Milk Program** in Schleswig-Holstein. The duplicate study examined the amounts of PCBs and other POPs ingested by young women via their daily food. The result: compared with 1997, the food samples from 2003 displayed lower levels of PCBs, DDT and HCB (hexachlorobenzene). The levels found in the food samples also corresponded to the accumulated levels in mother's milk. *Further information:*

www.bmu.de/files/pdfs/allgemein/application/pdf/who_bericht_de.pdf (in German)

Taken together, research results from the project "Beobachtungsgesundheitsämter" ("Monitoring Health Authorities") in the federal state of Baden-Württemberg provide evidence for the fact that internal levels of harmful substances have dropped in most cases in recent years and that for most children, they are uncritical to their health. *Further information:*
www.bmu.de/files/pdfs/allgemein/application/pdf/who_bericht_de.pdf (in German)

4. Occupational health and safety (Work area 4 GPA)

The **I**nternational **L**abour **O**rganisation (**ILO**), a United Nations agency, prepares treaties relating to occupational health and safety. At present, there are the following ILO treaties on substance-related occupational health and safety:

- **Benzene Convention (No. 136, 1971)**: Germany ratified this convention as early as 1973. To date, it has been ratified by 38 countries.
- **Occupational Cancer Convention (No. 139, 1974):** Germany ratified this convention in 1976. To date, it has been ratified by 37 countries.
- **Asbestos Convention (No. 162, 1986):** Ratified by Germany in 1993, this convention has been ratified by 32 countries, including Russia and Canada.
- **Chemicals Convention (No. 170, 1990):** Germany ratified this convention in 2007. It has been ratified by a total of 17 countries, including Zimbabwe.
- **Prevention of Major Industrial Accidents Convention (No. 174, 1993):** Germany is currently preparing ratification of this convention.

Germany has implemented most provisions of ILO conventions in the **Hazardous Substances Ordinance**. It is the core of national provisions regarding substance-related occupational health and safety. At the same time, it translates European regulations into national law: the Chemical Agents Directive 98/24/EC, the Carcinogens and Mutagens Directive 2004/37/EC as well as the Asbestos Directive 83/477/EEC. These EU occupational health and safety regulations include minimum standards regarding substance-related occupational health and safety. They are substantiated further in the Hazardous Substances Ordinance. In individual cases, the German provisions are stricter than EU law. *Further information:*
www.ilo.org/public/german/region/eurpro/bonn/index.htm (in German);
www.ilo.org (in English);
http://www.baua.de/nn_39406/en/Topics-from-A-to-Z/Hazardous-Substances/TRGS/pdf/Hazardous-Substances-Ordinance.pdf (in English)

For occupational health and safety, provisions concerning marketing of chemicals are also important, the major ones being the **Globally Harmonized System of Classification and Labelling of Chemicals (GHS)** and the new **REACH** Regulation (see B.I.5 below). Information and data generated through REACH also serve to determine occupational health and safety measures for use of the chemicals in the workplace.

According to Directive **76/769/EEC**, use of certain substances and preparations can be limited or banned by their inclusion in Annex I of the Directive. This applies to PCB, PCTs, vinyl chloride, asbestos and benzene, for example, and it creates benefits for occupational health and safety as well. This directive is currently implemented in Germany by means of the Hazardous Substances Ordinance. Beginning June 1, 2009, these restrictions will also be regulated by the REACH Regulation. They will then apply directly in Germany as well as in all other EU Member States.
Further information:
www.baua.de/de/Themen-von-A-Z/Gefahrstoffe/Rechtstexte/EG-Richtlinien.html__nnn=true

5. Implementation of GHS and REACH (Work area 5 GPA)

The **Globally Harmonized System of Classification and Labelling of Chemicals** (**GHS**) was developed at the level of the United Nations. The basic document was passed in December, 2002. It is to be developed further in a continual processes. The UN countries are obliged to implement the new system by the end of 2008. The gist of GHS is a uniform global system for labeling chemicals for marketing and transport as well as for preparation of material safety data sheets. It serves as the basis for internationally harmonized standards for occupational health and safety, consumer safety and the environment. At the same time, it is intended to facilitate global trade in chemicals. In the European Union, the UN GHS is implemented in the legal form of an EU regulation which applies directly in all EU Member States, including Germany. Directives 67/548/EWG and 1999/45/EG as basic European directives concerning classification and labeling will cease to be in force by June 1, 2015.
Further information: www.umweltdaten.de/publikationen/fpdf-l/3332.pdf (in German)

REACH stands for "**R**egistration, **E**valuation, **A**uthorisation and Restriction of **Ch**emicals." The new **REACH Regulation** is the largest law-making project in the history of the EU. Its core regulations entered into force on June 1, 2008. They apply directly in all EU Member States, including Germany. The goal of REACH is to gain information about dangerous characteristics of chemicals in a systematic way. Therefore, manufacturers and importers must register chemicals of which they produce or import at least one metric ton per year with the European Chemicals Agency (ECHA) and provide certain data about the substances. The basic principle is: no data – no market. REACH also establishes and improves the exchange of information – between government agencies and business as well as along the entire supply chain of manufacturers, importers and users. The public's right to access non-confidential information about chemicals is therefore one of the corner-

stones of information exchange. Everyone can access this data freely and at no cost from an electronic database. In addition, the REACH data also serves as a basis for classification of substances according to the GHS.
Further information: www.reach-info.de (in German)

6. Highly toxic pesticides – risk management and reduction of health and environmental risks (Work areas 6, 7 + 8 GPA)

In the European Union the official definition of the term “pesticides” includes both **plant protection products** and **biocides**. Human and veterinary medicines with similar effects are excluded.

a. Plant protection products

Licensing and use of plant protection products are subject to strict laws in Germany. In principle, only licensed plant protection products may be used, and only on land used for agriculture, forestry or horticulture. Within the European Union, the responsibility for licensing plant protection products lies with the individual Member States. That procedure is executed on the basis of harmonized standards. But not all of the products licensed in the European Union are also licensed in Germany.
One goal of German plant protection law is to protect agricultural plants and prevent possible dangers to the health of humans, animals and the natural environment and ecosystems from application of pesticides. In Germany, the Federal Office of Consumer Protection and Food Safety (BVL) is responsible for licensing.

The legal framework includes several elements:

- **Licensing of plant protection products:** In Germany, the Federal Office of Consumer Protection and Food Safety (BVL) is responsible for licensing on the basis of harmonized requirements of the European Union. When applying for a license, manufacturers must provide data about the chemical and physical characteristics of the product, among other things. The responsible authorities - Federal Research Centre for Cultivated Plants – Julius Kuehn Institute (applicability of the pesticide), the Federal Institute for Risk Assessment (consumer protection and human health) and Federal Environment Agency (environmental protection) - review the provided information and data from companies, assess the special questions regarding the product’s desired effect, its residues and its degradability and decide on the management option to be applied in the use of the pesticide. The Federal Institute for Risk Assessment examines the product’s effects on human health and makes recommendations regarding maximum amounts. The Federal Environment Agency comments on effects on the environment.

- **Use:** Regulations regarding the use phase are in general to be found in the Plant Protection Act, in the various regulations concerning use as well as in the Plant Protection Use Ordinance. Licensing also defines additional use requirements for each pesticide . The latter also includes restrictions and bans on certain active ingredients. Additional regulations for the use phase of specific pesticides are to be found in the Bee Protection Ordinance, for example.

- **Regulations pertaining to soil** are in the Plant Protection Act, in the various regulations concerning use as well as in the Plant Protection Use Ordinance.

- **Regulations pertaining to the users** are included in the Plant Protection Act, the Ordinance on Professional Competence and the Hazardous Substances Ordinance. The Ordinance on Professional Competence requires users and dealers to have the necessary expertise. The Hazardous Substances Ordinance, on the other hand, requires in addition expertise regarding certain substances.

- **Equipment:** Both the Plant Protection Act and the Plant Protection Use Ordinance contain regulations regarding plant protection equipment, such as type tests for new equipment as well as biennial inspection of the existing equipment – similar to periodic inspections of automobiles.

- The Plant Protection Act also provides for **inspections**. The responsibility for control rests with the federal states (Bundesländer). The Federal Office of Consumer Protection and Food Safety (BVL) has to assist. The Plant Protection Monitoring Program of the Federal Government and the Federal States has been in effect since 2004. The inspections are coordinated by that program throughout Germany and for specific focal areas. It includes an annual report which is published on the internet on the BVL Website. In addition, banned plant protection products may no longer be stored on farms, but be disposed of. This aspect is also covered by inspections .

- These activities are complemented by **voluntary measures** such as good agricultural practice. Its principles are summarized in a manual which provides information on good practice, on avoiding uses, proper use and cleaning of equipment, etc.

- Additional areas of law also affect plant protection, for example, **food law, nature protection law, water law, chemicals law, hazardous substance law, federal immission control law** and **waste law.**

The National Action Plan for the Sustainable Use of Plant Protection Products includes additional activities which are not laws. It was approved by the Conference of Agriculture Ministers of the Federal Government and the Federal States on April 11, 2008. If the national plan is accomplished by 2020 the risks posed by plant protection products will be reduced by a further 25 percent. The following measures are among those planned in order to reach this goal:

- supporting integrated plant protection as well as innovation;
- reducing the number of uses to the minimum necessary (thereby perhaps also to fewer than permitted);
- hot spot management: if, for example, a fruit-growing area is traversed by ditches, special measures must be taken to ensure that plant protection products do not contaminate the water.
- risk indicators.

Further information:
www.bmelv.de (in German and English)

b. Biocides

Biocides are subject to a licensing procedure that is harmonized across the EU. This means that they may be licensed in Germany only if

- the active ingredients they contain have been tested at the EU level
- and – similar to the requirements for plant protection products – have been listed in a "white list of permissible active ingredients."

Active substances and products which were on the market before May, 2000, will be tested in a systematic process until 2010. In the long term, this will result in dangerous active ingredients being replaced – by substances without unacceptable effects on the environment and human health if they are used properly. Special labeling requirements, a ban on advertising that makes biocides appear harmless and information requirements for toxins will also improve consumer information. In this way, they support these products being selected and used deliberately.
Further information: http://www.bmu.de/chemikalien/biozide/doc/37632.php (in German)

7. Cleaner production (Adoption of best available technologies etc.) (Work area 9 GPA)

The following European directives are significant for cleaner production at the European level:

- The **Seveso II Directive (96/82/EC)** is intended to prevent serious accidents with hazardous substances and limit their harmful consequences for humans and the environment.
- The **IPPC Directive (96/61/EC)** supports the implementation of "clean" production and processing procedures. It is also intended to prevent pollution being shifted from one environmental medium to another. The IPPC Directive forms the basis for permitting industrial facilities throughout the EU. Its goal is to achieve a high level of protection for the environment as

a whole. The directive serves to minimize emissions of pollutants into the various media, resource and energy consumption as well as other environmental burdens during operation and after closure of a facility. To this end, the IPPC Directive focuses on the concept of best available technologies. They are described in special fact sheets for individual industries across the EU.
Further information: www.bvt.umweltbundesamt.de (in German. An English version of this website is planned. Until then please refer to the website of the EIPPC Bureau.)

Germany has implemented both directives in national law.

Ecodesign also plays an important role in cleaner production. The design of a product determines up to 70 percent of its economic production costs. The situation is similar for the ecological costs. Therefore, product development and design are key factors for minimizing the effects of a product on the environment as far as possible – throughout the entire life cycle, from manufacture to disposal. Quantitative and qualitative standards for evaluation as well as auxiliary materials are necessary for this purpose. Numerous checklists, manuals and software are available today which are founded on the approach of life cycle assessment. Furthermore, eco-design principles are increasingly being integrated in product norms. In establishing a framework for setting ecodesign requirements for energy-using products (EuP or Ecodesign Directive) in Directive 2005/32/EC, the European Commission integrated ecodesign requirements explicitly in a directive for the first time.
Further information: www.bmu.de/produkte_und_umwelt/oekodesign/doc/39063.php (in German)*;*
www.umweltbundesamt.de/produkte/oekodesign/index.htm (in German)

In order to promote clean production above and beyond the directive, the federal government established the **internet portal** www.cleaner-production.de (in German and English). It features more than 1,500 real-life examples with state-of-the-art technology. The platform is managed by the Federal Environment Agency and is updated on a continual basis. Up to 10,000 visitors access the platform per month. An evaluation of the project revealed that up to 40 percent of users are from the business community. Every quarter, the portal also publishes an electronic newsletter on environmental technology in Germany.
Further information: www.cleaner-production.de (in German and English)

Furthermore, the Federal Environment Agency initiated and commissioned a **pilot project on chemicals leasing**. The idea: the customer pays for the use of the chemical, not for a particular amount of it. An example in concrete terms: the customer pays for the amount of cleaned pipes, that is, for the service “cleaning” – rather than for the tonnes of solvent used. This paradigm shift results in the amount of chemicals used being reduced, because it is no longer a factor for the seller’s turnover, but has become an expense factor for both partners. Germany intends to initiate pilot projects with businesses to further develop the business model and to make good-practice examples known. *Further information:* http://www.chemikalienleasing.de/sub/chlde/ubaprojekt.htm (in German)

The **Deutsche Bundesstiftung Umwelt DBU** is one of Europe's largest foundations and promotes innovative and exemplary environmental projects. Since 1991, almost 6800 projects have received financial backing totalling about € 1,2 billion. The promotional activities concentrate on environmental technology and research, nature conservation, environmental communication and cultural assets. *Further information:* http://www.dbu.de/359.html

8. Remediation of contaminated sites (Work area 10 GPA)

The German Bundestag passed the **Federal Soil Protection Act** in 1998, and the accompanying **Federal Soil Protection and Contaminated Sites Ordinance** a year later. The ordinance spells out the requirements of the Federal Soil Protection Act regarding examination and assessment of sites suspected of being contaminated. In addition, it determines measures to secure or decontaminate sites as well as limiting their permissible uses, including planning of remediation measures as well as requirements for precautionary measures to prevent harmful contamination of the soil. The ordinance uses trigger values and action values to create a framework that helps assess whether a site is contaminated and remediation is necessary. Investigation and treatment of contaminated sites has not been completed in Germany, and the federal government continues to give this problem high priority. At the same time, remediation of contaminated sites is to be framed more broadly to include land use management with the goal of reusing the land in addition to preventing hazards. In 2002, the federal government presented the first **Report on Soil Protection** which describes soil protection policy as well as the current status of remediation of contaminated sites.
Further information:
http://www.bmu.de/english/soil_conservation_contamined_sites/downloads/doc/3286.php (in English)
www.bmu.de/files/pdfs/allgemein/application/pdf/bodenschutzbericht2002.pdf (in German)

9. Lead in gasoline (Work area 11 GPA)

Lead in gasoline has been banned in the European Union since the year 2000. Lead is currently permitted only in aviation fuel.

10. Sound agricultural practices (Work area 12 GPA)

In addition to plant protection that takes environmental and health considerations into account (see B.I.6 above), environmentally sound fertilization according to professional agricultural standards plays an important role. To this end, the **Fertilizer Ordinance** regulates licensing and labeling of fertilizers in Germany. The **Fertilization Ordinance**, on the other hand, aims to minimize nutrients

entering water bodies and other ecosystems by means of prudent use of fertilizers and reduction of nutrient losses in the long term. Its main provisions include the following:

- Application of fertilizer according to good agricultural practice: the timing and amount of fertilizer application are to be determined such that plants can assimilate the nutrients to a large extent.
- Equipment used for applying fertilizer must be in accordance with the generally recognized codes of practice.
- Fertilizer directly entering surface water is to be avoided.
- Fertilizer that contains nitrogen and phosphates may be applied only when the soil can assimilate it.

Further information: www.gesetze-im-internet.de/d_mv/BJNR237300003.html (in German); www.bmelv.de/SharedDocs/downloads/GesetzeVerordnungen/Duengeverordnung.html (in German)

In order to avoid pollutants – such as heavy metals or organic pollutants – accumulating in the soil, robust knowledge about current pollutant concentrations in the various fertilizers and their accumulation in soil is required. For this reason, the Federal Ministry of Environment/Federal Environment Agency commissioned a study on this issue. Its results are to be taken into account when the maximum permissible values in existing regulations are updated.
Further information: http://www.bmu.de/abfallwirtschaft/doc/39768.php (in German)

Sewage sludge is used as a fertilizer. Maximum permissible values for heavy metals and other pollutants in the sludge are given in the **Sewage Sludge Ordinance** to prevent damage to human health and the environment. These regulations as well as strict standards based on water law and chemicals law have resulted in pollutant levels in municipal sewage sludge decreasing by more than 90 percent in recent years in some cases.
Further information: http://www.bmu.de/abfallwirtschaft/fb/klaerschlamm/doc/3192.php (in German)

Furthermore, there is a federal program for organic farming in Germany. Its purpose is to support and expand organic farming.
Further information: http://www.bundesprogramm-oekolandbau.de/ (in German)

11. PBTs and other high concern chemicals (Work areas 13 + 14 GPA)

According to REACH, particularly worrisome chemicals (CMRs[2], PBTs[3], vPvBs[4] and others) are banned as a matter of principle. They may be used only for absolutely essential applications, and only with a special permit and very extensive controls (see B.I.5 above). The licensing process includes a comprehensive assessment of the risks and the socioeconomic framework conditions for each use of the chemical.

In Germany – as in most industrialized countries – the production and use of POPs are banned or regulated extensively. For this reason, control of the 15 most highly toxic chemicals, including DDT, PCBs and HCH has been dealt with largely successfully in this country. That is the conclusion drawn in a report by the federal government on measures and strategies on the ban on production and distribution of POPs which the federal government presented to the United Nations Economic Commission for Europe (UN-ECE) within the framework of the POPs Protocol to the Geneva Convention in July, 2004.
Further information: www.bmu.de/luftreinhaltung/doc/6483.php (in German)

In addition, Germany has placed stringent limit values on the major sources of emissions for high concern substances, for example waste incinerators. As a consequence, emissions of toxic pollutants have decreased drastically since 1990. For instance, legally mandated best available abatement technologies reduced total dioxin emissions from all 66 waste incinerators to approximately one-thousandth of their previous amount: from 400 grams to less than 0.5 grams. The same holds for emissions of arsenic, cadmium, nickel and other carcinogenic heavy metals as well as for lead and mercury. *Further information:*
www.bmu.de/files/pdfs/allgemein/application/pdf/muellverbrennung_dioxin.pdf (in German)

Germany is party to the **Stockholm Convention on Persistent Organic Pollutants (POPs)**. The goal of the convention: a worldwide ban on these particularly dangerous chemicals, including plant protection products, industrial chemicals and byproducts such as the highly toxic polychlorinated dibenzodioxins/furans. The convention names the twelve most harmful POPs and largely forbids their production and use as well as trading of these substances. It also provides for including further similar substances. On May 1, 2006, Germany presented the United Nations Environment Programme (UNEP) the National Implementation Plan (NIP) on the implementation of the Stockholm Convention. It includes a catalog of measures by the federal government and the federal states, legal norms and environmental monitoring programs as well as a dioxin database managed by the federal government and the federal states. *Further information:*
www.bmu.de/files/pdfs/allgemein/application/pdf/berichtdesbundes_2005_2006.pdf (in German)

[2] Carcinogenic, mutagenic and reprotoxic substances (substances which cause cancer, cause gene mutation or endanger reproduction)
[3] Substances which are persistent, bioaccumulative and toxic
[4] Substances which are very persistent and very bioaccumulative

On June 24, 1998, a protocol on POPs was passed in Aarhus, Denmark, within the framework of the Geneva Convention on Long-range Transboundary Air Pollution. On April 25, 2002, Germany was one of the first signatories to ratify the POPs Protocol and to transpose it into German law, together with the Stockholm Convention, by an act passed on April 9, 2002. *Further information:* www.bmu.de/luftreinhaltung/doc/6483.php (in German)

Germany is also party to the **Basel Convention**. The Conferences of the Parties (COPs) passed several guidelines on wastes containing POPs (see B.I.17 below). The **EC Regulation on POPs**, which applies directly in Germany, regulates, among other things, disposal of wastes that contain persistent organic pollutants (see B.I.13 below).

12. Risk assessment, management and communication (Work area 15 GPA)

Within the OECD, Germany is participating in various different, interlinked activities which describe, assess and set standards for hazards and risks posed by chemicals to human health and the environment. These activities also serve to provide support for effective risk management. They include, for example, guidelines to harmonize risk reports, establishment of databases on hazards and risks, harmonization of classification and labeling of chemicals (see also B.I.5), support of risk communication and sustainable chemistry as well as screening aids in order to identify hazardous chemicals while they are still in the phase of research and development. The implementation of REACH is also making a considerable contribution towards further improvement of risk management and communication (see B.I.5 above). In addition, the German federal government strengthened the rights of employees and the public to information and participation in implementing the Seveso II Directive in the Major Accidents Ordinance. All individuals as well as institutions frequented by the public which could be affected by accidents must be informed about safety measures and proper behavior in case of danger.
Further information: www.bmu.de/chemikalien/doc/4056.php (in German);
http://www.bmu.de/english/service_downloads/doc/3395.php (in English)

13. Waste management and minimization (Work area 16 GPA)

The Closed Substance Cycle and Waste Management Act establishes a clear hierarchy for dealing with wastes: first and foremost, wastes are to be avoided; if that is not possible, they are to be minimized regarding their amount and their harmfulness. Material and energy recovery are the second order of measures to be taken. If they cannot be carried out, the wastes are to be excluded permanently from the closed loop economy and disposed of in order to safeguard the public good. The Closed Substance Cycle and Waste Management Act also states manufacturers' and importers' product responsibility. Product responsibility means that manufacturers and importers are responsible for their products during the entire life cycle, that is, including their reuse and recovery as well as for environmentally compatible disposal of the components which cannot be recycled. One effect is that reusable materials are retained in the economic cycle and harmful substances are removed from it. Another is that it influences product design. The impending **revision of the European Council Directive on waste 2006/12/EEC** will oblige the Member States of the European Union to prepare waste avoidance programmes. *Further information:*
http://www.bmu.de/abfallwirtschaft/downloads/doc/37967.php

Since March, 2006, citizens have been obliged to separate old radios, television sets, computers, etc. from other waste according to the **Electrical and Electronic Equipment Act**. They are accepted free of charge by municipal collection points. The manufacturers must take back the collected equipment and reuse and recycle it, applying state-of-the-art technology, and dispose safely of the components which cannot be recycled. In this way, the harmful substances are removed from municipal wastes. In addition, since July 1, 2006, manufacturers are no longer permitted to use harmful substances, such as lead and cadmium, in these pieces of equipment. *Further information:*
http://www.bmu.de/english/waste_management/acts_and_ordinances/acts_and_ordinances_in_germany/doc/6554.php (in English)

In force since 2002, the **End-of-life Vehicle Ordinance** regulates environmentally compatible waste disposal of end-of-life vehicles: manufacturers, collection points and disassembly plants that are commissioned by manufacturers must accept end-of-life vehicles for recovery free of charge. At first, this obligation applied only to vehicles first registered since June, 2002. As of 2007, the obligation to take back end-of-life vehicles free of charge applies also to vehicles which were first registered before that date. In addition, materials and vehicle components which were brought to market after July 1, 2003, must no longer contain lead, mercury, cadmium or chromium (VI), with few exceptions. *Further information:*
http://www.bmu.de/english/waste_management/downloads/doc/3240.php (in English)

The **Fifth Amending Ordinance on the Avoidance and Recovery of Packaging Wastes**, which is to enter into force on April 1, 2009, limits the concentrations of lead, cadmium, mercury and chromium (VI) in packaging or packaging components to a cumulative amount of 100 milligrams

per kilogram. In addition, it requires that in the future, packaging is to be produced so that harmful and hazardous substances and materials are limited to a minimum amount in emissions, ash or leachate from disposal of packaging and packaging components. *Further information:* www.bmu.de/abfallwirtschaft/fb/verpackungen/doc/41160.php (in German)

The **Battery Ordinance**, too, serves to reduce burdens due to pollutants. Manufacturers and distributors must take back batteries free of charge for recovery or – if recovery is not possible – disposal. Batteries containing harmful substances must be labeled. In addition, marketing batteries or batteries incorporated in pieces of equipment that have a mercury content higher than 0.0005 percent by weight is prohibited.
Further information: www.bmu.de/abfallwirtschaft/fb/altbatterien/doc/3006.php (in German)

The **Waste Wood Ordinance** ensures that waste wood is recycled in an environmentally compatible way and that harmful substances are removed from the economic cycle. The core of the ordinance: waste wood is divided into categories, depending on its amounts of harmful substances, and certain paths of material recovery or energy recovery are assigned to the different categories. Waste wood contaminated by PCBs is in a "special category." It must be disposed of according to the PCB Waste Ordinance. Germany broke new ground with the Waste Wood Ordinance. There is no comparable regulation at the EU level to date.
Further information: www.bmu.de/abfallwirtschaft/doc/2841.php

The **Waste Oil Ordinance** requires that oils for machinery, motors, turbines, etc. are returned to a collection point after use. As a matter of principle, treatment of waste oil has priority over other disposal options. The Waste Oil Ordinance defines four categories of waste oil, depending on their suitability for treatment, which is forbidden if the waste oil is contaminated with more than 20 milligrams of PCBs per kilogram of waste oil. The same applies for waste oil contaminated with more than two grams of total halogens per kilogram. Oils based on PCBs must be kept separately from other oils. In addition, the different categories of oil must not be mixed with each other or with wastes.
Further information: http://www.bmu.de/english/waste_management/doc/5599.php (in English)

The **PCB Waste Ordinance** serves to remove PCBs, whose production and sale has been banned for a long time, from the economic cycle. To this end, the ordinance essentially provides for the following: liquids containing PCBs are to be removed from transformers before disposal and are to be disposed of separately. Components containing PCBs are to be removed from other products and disposed of separately as well, provided this is technically feasible and economically reasonable. This applies in particular for information technology and office communications equipment as well as for electrical appliances and fluorescent lamps, but also for construction wastes.
Further information: www.bmu.de/abfallwirtschaft/doc/1964.php (in German)

According to the **EC Regulation on POPs**, wastes in Germany that contain persistent organic pollutants are to be recycled or disposed of in such a way that the pollutants are destroyed or trans-

formed irreversibly. However, the regulation mentions two exceptions from this general obligation to destroy POPs: if the concentration of POPs is below certain minimum levels, the wastes can be disposed of according to other laws. In addition, certain wastes which are listed in the Annex to the regulation can be disposed of in saliniferous formations, in rock or on above-ground landfills for hazardous wastes if they exceed the minimum levels and fulfill certain conditions. Germany restricted that option: the Landfill Ordinance prohibits the disposal of POPs-containing wastes in above-ground landfills.
Further information: www.bmu.de/chemikalien/doc/37853.php (in German)

The **Stowage Ordinance** determines the requirements for safe, high-quality recovery of wastes underground . At the same time, the ordinance prohibits stowage of wastes with high pollutant levels - for example, for cadmium and mercury - in locations that do not guarantee permanent isolation from the biosphere in saline rock. In addition, it forbids stowage of wastes containing metals – up to specific metal concentrations - if these can be recycled.
Further information: www.bmu.de/abfallwirtschaft/doc/6686.php (in German)

In effect since June 1, 2005, the **Ordinance on Environmentally Compatible Storage of Waste from Human Settlements and on Biological Waste-Treatment Facilities** mandates that all occuring biodegradable wastes and wastes rich in organic material must be subject to either thermal or mechanical-biological pretreatment before being landfilled. The ordinance mentioned above and the **Landfill Ordinance** includes technical standards for landfills as well as specifications for their location, monitoring, closure and post-closure care. In addition to requiring pretreatment as a matter of principle, the Landfill Ordinance mandates strict values for assigning wastes to the respective classes of landfills. It also prohibits landfilling wastes if they exceed certain limit values for POPs. The **Ordinance Pertaining to the Recovery of Waste at Surface Landfills** expands the requirement for pretreatment to include such wastes that are reused in landfills. It, too, has limit values, for example for cadmium. *Further information:*
www.bmu.de/abfallwirtschaft/fb/siedlungs_produktionsabfaelle_/doc/3212.php (in German);
http://www.bmu.de/english/waste_management/downloads/doc/3371.php (in English)

Germany has a mature system of waste law and waste management which is successful in reducing the amount and harmfulness of wastes, and the total amount of wastes in Germany is declining. The percentage which is recovered has been practically constant since 2000; in 2005, it was approximately 66 percent. Of the 332 million tonnes of waste in total, material recovery was carried out for 210 million tonnes. By now, a recovery rate of practically 100 percent has been achieved for waste oil taken back, and a rate of 88 percent for batteries. Disposal of hazardous waste is of such a high quality that other countries ship hazardous and non-hazardous wastes to Germany for environmentally compatible disposal.
Further information: www.bmu.de/abfallwirtschaft/doc/6497.php (in German)

14. Emergencies involving chemicals (Work area 17 GPA)

At the EU level, the Seveso II Directive regulates the prevention of major accidents. In Germany, this directive is implemented mainly by the **Major Accidents Ordinance**. It applies to all parts of businesses (for example, production facilities and warehouses) where hazardous substances are present above certain threshold amounts. The operators of the affected parts of businesses are required to take safety precautions in order to prevent major accidents in the first place or to minimize their effects on humans and the environment as far as possible. According to the Seveso II Directive, the Member States are required to report to the European Commission every three years. The reports must show which achievements have been made in implementing the directive. These reports are prepared for a fixed period under review on the basis of a questionnaire drawn up by the European Commission. The European Commission evaluates these reports and publishes a summary of the relevant information.
Further information: www.bmu.de/anlagensicherheit/downloads/doc/38157.php (in German)

15. Integrated national programmes for the sound management of chemicals (Work area 26 GPA)

The national program on chemicals management encompasses many activities in various areas, for example plant protection agents and biocides, occupational health and safety, waste management, implementation of REACH and GHS, which are outlined here under the various goals of the OPS and the work areas of the GPA.

16. Protected areas (Work area 32 GPA)

In Germany, protected areas are categorized in accordance with the Federal Nature Conservation Act (BNatSchG). In addition to nature conservation areas covering 3.5% of the national area, there are large-scale protection zones consisting currently of 14 national parks, 13 biosphere reserves and 100 nature parks and covering more than 25% of the total national area.

To implement the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora) and the European Bird Protection Directive the EU-wide protected area network "Natura 2000" is currently being set up. It provides for the conservation and development of habitats and species that are particularly worthy of protection from an EU point of view. In accordance with their available nature sites, all member states have to contribute to build up this European network of protected areas. In Germany, around 14% of national area is registered as Natura 2000 sites. This represents about 10% of EU-wide notified Natura 2000 areas. To a large extent these Natura 2000 areas overlap with the various categories of protected areas under the BNatSchG.

High-quality air, water and soil form the basis for a functioning natural environment. Therefore, the German federal government strives to avoid and limit the amounts of pollutants entering the environmental media and to protect those areas specifically from that kind of impact. Many measures and regulations aiming at preventing pollutants from entering the environment have been described in previous chapters. In addition, there are, for instance, the **Act Concerning the Implementation of the Reform of the Common Agricultural Policy ,** which entered into force on 1st August 2004. It decouples the direct payments to farmers from the amounts produced. In doing so, Germany dispensed with the option of continuing to pay out part of the premiums based on production, for example, for crops, cattle or sheep, and took on a pioneering role within the European Union in implementing the 2003 reform of the Common Agricultural Policy. By 2013, Germany will have switched to a system of regionally uniform premiums for grassland and arable land. Another important activity was the **amendment of the Fertilization Ordinance** in January, 2006. Among other things, it regulates the minimum distance to water bodies to be observed when applying fertilizer. It also limits the amount of nitrogen from organic manure of animal origin to 170 kilograms of nitrogen per hectare per year, and it spells out requirements for proper use as well as for periods during which application of fertilizer is banned. Furthermore, the amendment defines requirements for operational comparisons of nutrients and prohibits certain types of equipment for fertilizer application. See also section B.I.10.

17. Prevention of illegal traffic in toxic and dangerous goods (Work area 33 GPA)

Germany is also party to the **Rotterdam Convention**, also known as the **PIC Convention**. PIC stands for "**P**rior **I**nformed **C**onsent" relating to the export of hazardous chemicals. The PIC Convention applies not only to industrial chemicals, but also to plant protection products and pesticides. Its central concern: to ensure that the countries that import hazardous chemicals receive sufficient information, especially regarding their toxicological and ecotoxicological characteristics as well as safe handling. To this end, the convention requires trade with hazardous chemicals to comply with a qualified information and notification procedure. According to this procedure, businesses may import these substances only after the country in question has been informed about the substance's characteristics and its risks for human health and the environment and has granted permission to import. *Further information:* http://www.pic.int/home.php?type=s&id=77; www.bmu.de/chemikalien/pic-konvention/doc/37043.php (in German)

The Regulation (EC) No 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals implements the Rotterdam Convention into EU law. The EU regulation also includes additional measures, for example, it applies the information and notification rules of the Convention to all chemical substances and pesticide formulations restricted within the EU. *Further information*:
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:204:0001:0035:EN:PDF

Germany is also party to the **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal**. The convention contains rules effective worldwide on the permissibility, permitting and control of exports of hazardous wastes. According to the convention, transboundary shipments of wastes require permission from the exporting country, all transit countries and the importing country. In addition – in contrast to the Rotterdam Convention – it includes a requirement to take back or recover illegal shipments of waste. Furthermore, exporting hazardous wastes from OECD countries to non-OECD countries is prohibited as a matter of principle. This ban, passed at the 3rd conference of the parties, is not yet in force, because an insufficient number of countries has ratified this change. The European Union has nevertheless anchored this export ban in EU law by means of the **EC Regulation on Shipments of Waste**, which applies directly in Germany. EU law now also conforms with the **OECD Council decision C(2001)107/FINAL concerning the revision of decision C(92)39/FINAL on the control of transboundary movements of wastes destined for recovery operations**. The German **Waste Movement Act** establishes the principle that waste disposal in Germany has priority over disposal abroad. It also contains provisions for monitoring and controlling transboundary shipments of wastes as well as for taking back illegally exported wastes.
Further information: http://www.bmu.de/abfallwirtschaft/abfallverbringung/doc/39578.php

The conferences of the parties to the Basel Convention passed several technical guidelines concerned with hazardous substances:

- **Updated general technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with POPs**;
- **Technical guidelines regarding PCBs, PCTs and PBBs**;
- **Three further technical guidelines regarding wastes containing or contaminated with POPs** (one regarding DDT, one regarding eight pesticides and hexachlorobenzene (HCB) as an industrial chemical and one regarding unintentionally produced PCDDs, PCDFs, HCB and PCBs);

In addition **Technical guidelines regarding wastes which may contain mercury** are under preparation. Waste management and health was an important topic at the ninth conference of the parties. *Further information:* www.bmu.de/abfallwirtschaft/fb/abfallexporte/doc/3577.php#2 (in German)

II Knowledge and information (OPS Objective B)

1. Research, monitoring and data generation and availability (Work areas 18, 19 GPA)

There are a variety of research programmes for investigation in the fields of environment and human health, which are also a contribution for SAICM. Some of them are described below:

The Federal Ministry of Education and Research (BMBF) is providing a total of 800 million euro to fund partnerships for innovation between science and industry which take up the challenge to explore and use opportunities for sustainable strategies, including environmental protection and human health. To this end the BMBF established a Forum for Sustainability to provide information on sustainable development research. *Further information:* http://www.bmbf.de/de/502.php

The objective of the research work of the Federal Ministryof Health is to protect human health. A main area deals with impacts of the environment, e.g. chemicals, on human health. To this end there is an action programme for environment and health (APUG). The APUG was presented to the public in 1999 in a joint action by the Federal Ministry of Health (BMG) and the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU); since 2002, the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV) has also contributed to the programme. In addition, the Federal Office for Radiation Protection, Federal Institute for Risk Assessment and the Federal Environment Agency participate in the programme. Thus APUG is a joint programme to connect policy areas of environment, health, consumer protection on a ministerial level. The programme includes strategies, measures and objectives for comprehensive investigation and exploration of effects of environmental impacts on human healthand is embedded in the European overall research work. Research projects and campaigns are promoted; a focal area is health of children and adolescents. Further information: *www.apug.de*

The Federal Ministry of Food, Agriculture and Consumer Protection's (BMELV) research into protecting consumers from the effects of chemicals focuses on improving the quality of foodstuffs and animal feed and on providing the relevant information.
To support sustainable development in agriculture there are programmes to promote research, development and demonstration projects in the renewable resource sector, organic farming and adaptation to climate change.
Further information:
http://www.bmelv.de/nn_751692/DE/11-Forschung/Forschungsplan2008.html__nnn=true
http://www.bmvel-forschung.de/

The Federal Institute for Risk Assessment (BfR) deals specifically with:

- Assessment of food and animal food with regard to their chemicals safety;
- Safety of chemicals and pesticides;
- Safety of consumer products (consumer goods, cosmetics, tobacco goods, textiles and food packages);
- Development, assessment and validation of alternative methods for animal tests;
- Risk communication.

Further information: http://www.bfr.bund.de/cd/8054

The **Deutsche Bundesstiftung Umwelt DBU** is one of Europe's largest foundations and promotes innovative and exemplary environmental projects. Since 1991, almost 6800 projects have received financial backing totalling about € 1.2 billion. The promotional activities concentrate on environmental technology and research, nature conservation, environmental communication and cultural assets. *Further information:* http://www.dbu.de/359.html

Research, environmental monitoring and making data available are central concerns of the German federal government. In this vein, Germany is participating in the **International Cooperative Programme on Integrated Monitoring of Air Pollution Effects on Ecosystems**. This is one of six international cooperative programmes of the Geneva Convention on Long-range Transboundary Air Pollution. The program is concerned with comprehensive observation of the effects on ecosystems of air pollution stemming not from local sources, but from long-range and transboundary transport. Since the monitoring programme covers all environmental media, it is also a building block for environmental monitoring across media. Furthermore, within the framework of a research project, Germany compiled a national emissions inventory for inadvertently released POPs.
Further information: www.umweltbundesamt.de/umweltbeobachtung/uid/index.htm (in German);
http://www.umweltbundesamt.de/chemikalien-e/index.htm (in English)

Regarding dioxins and furans, the Federal Environment Agency (English website: http://www.umweltbundesamt.de/index-e.htm) manages the **Dioxin Database of the Federal Government and the Federal States**, in cooperation with the Federal Institute for Risk Assessment (English website: http://www.bfr.bund.de/cd/template/index_en) and the Federal Office of Consumer Protection and Food Safety (BVL) (English website: http://www.bvl.bund.de/cln_007/nn_495478/EN/Home/homepage__node.html__nnn=true). The database provides background information and measurement results on dioxin pollution in the environment. *Further information:* www.pop-dioxindb.de/index.html (in German)

A further cornerstone of this work in Germany is **health-related environmental monitoring**. Its purposes include:

- identification and gathering of data about the exposure of the population to pollutants, noise and other environmental influences,

- quantification of sources of exposure,

- description of temporal and spatial trends for forecasting exposures,
- identification of “new” problematic substances occurring frequently in humans,
- toxicological and health assessment of the exposures identified,
- examination of the influences of environmental factors on the health of the population as a whole, and in particular of sensitive segments of the population,
- conception of prevention and risk minimization strategies within the framework of health and environmental policy measures as well as monitoring their success,
- development of new and appropriate techniques for human biomonitoring, if necessary.

The Federal Environment Agency is currently gathering health-related environmental data by means of two approaches: the representative **German Environmental Survey (GerES)** collects and evaluates the exposure situation of the population throughout Germany. The **German Environmental Survey for Children (KUS)** examines the environmental exposure specifically of children (see B.I.3). For the first time, it provides representative data about the potential risk group children. This data can serve as a basis for deriving and substantiating environmental standards.
Further information:
http://www.umweltbundesamt.de/gesundheit-e/gbub/index.htm (in English);
http://www.umweltbundesamt.de/gesundheit-e/survey/index.htm (in English)

Human biomonitoring (HBM) is based on the analysis of pollutants in bodily fluids and tissue, such as, for example, the amount of lead or mercury in the blood or urine of individuals or groups of the population.
Further information: www.umweltbundesamt.de/gesundheit/gbub/hbm.htm (in German)

The **Environmental Specimen Bank for Human Organ Specimens** is a part of the federal government’s German Environmental Specimen Bank. It archives human organ specimens which have been examined as to their pollutant content.
Further information: http://upbhum.klinikum.uni-muenster.de (in German);
http://anubis.uba.de/wwwupb/servlet/upb?action=change_lang&language=0 (in English);
http://www.umweltbundesamt.de/gesundheit-e/gbub/index.htm (in English)

As part of their implementation activities, agencies of the individual states of the Federal Republic of Germany also carry out programmes of studies that are useful in observing the state of the environment. There are numerous examples of these, not all of them fully known at central government level, yet they represent a well-developed nationwide level of know-how. The results of the programmes of studies are used as the basis for designing and organising regional measures.

The studies are concerned with recording and characterising the input, the behaviour of POPs, including their effects in environmental media and organisms, and with the options for remediation of contamination that has occurred and reduction at source in the technical field.
The Federal Environment Agency and agencies at *Länder* level in Germany (Bavarian Ministry for the Environment, Public Health and Consumer Protection) are participating with analytic services in the inter-regional *Monitoring Network in the Alpine Region for Persistent Organic Pollutants* (MONARPOP), a joint project being conducted by Austria, Switzerland, Italy and Germany to determine the presence of POPs and substances with POP-like properties in Alpine ecosystems.
Long-term soil observation sites, at which POPs and other soil contaminants are sampled, have been set up in all the German states. The aim is to use these monitoring sites to identify any long-term changes in the soil, evaluate cause and effect and make prognoses. Pollution by anthropogenic substances and their accumulation is a major source of changes to the materials in the soil. However, POPs have not been systematically included in the studies in all the German states. The sampling intensity and cycles also vary. The different states are also investigating and ascertaining background levels of POPs with differing degrees of intensity as part of the soil status survey.

Please refer also to B.I.5, II.3,4 for further sources of information and databases.

2. Promotion of industry participation and responsibility; information management (Work areas 20, 21 GPA)

A central instrument of chemicals management and information management is to involve industry and specific companies. **REACH** takes advantage of established practice. **Implementation of REACH** gets businesses involved in chemicals management and establishes better information management within the responsibility of the chemicals producing industry. REACH shifts the responsibility for assessing chemicals to companies. The same holds for risk management. At the same time, REACH improves and establishes information exchange between public agencies and businesses as well as along the entire supply chain including manufacturers, importers and users (see B.I.5 above).

The new **GHS system** also includes businesses as actors. The manufacturers and importers at the beginning of the supply chain categorize and label the substances. The dealers in turn are required to use these categorizations and labels. Anyone in the supply chain who changes the chemical composition, however, is subject to the same requirements as manufacturers and importers (see also B.I.5).

At the global level, the chemical industry is also making contributions toward implementing SAICM. In October, 2005, the **I**nternational **C**ouncil of **C**hemical **A**ssociations (**ICCA**) passed a **Responsible Care Global Charter** as well as a **Global Product Strategy**. The goal: safe production, processing and use of chemicals along the entire supply chain worldwide. The ICCA has already taken

several steps to put the Global Product Strategy into practice. It has passed a guideline for product responsibility for small and medium-sized enterprises which also supports the chemical industry in developing countries. In addition, it has elaborated a management approach that serves to implement the guideline on product responsibility in practice. This is complemented by additional measures, some of which are planned, others already begun: collection and assessment of data on chemicals on the market (in preparation), organization of the flow of information along the product chain, making information available to the public, strengthening scientific work (ICCA Long Range Research Strategy), capacity-building projects with UNEP as well as further voluntary initiatives on the part of ICCA member associations and their member companies which complement one another.

Further information: www.icca-chem.org (in English)

3. Pollutant Release and Transfer Registers (PRTRs) (Work area 23 GPA)

As of 2008, industrial firms in Germany must publish information on their pollutant emissions in a **Pollutant Release and Transfer Register (PRTR)**. This requirement includes information on pollutant releases to water, soil and air as well as the fate of waste and wastewater. The PRTR replaces the previous European pollutant register EPER. It is based on an international agreement of the United Nations Economic Commission for Europe (UN ECE), signed by forty European countries in addition to Germany, as well as on the E-PRTR Regulation adopted by the European Union on January 18, 2006 and binding for the entire European Union. The PRTR provides companies with the opportunity to publicize activities and capital investments that serve to reduce pollution releases and transfers. In addition, it informs citizens online about the pollutant emissions of the industrial companies in their neighborhoods.

Further information: www.bmu.de/pressemitteilungen/aktuelle_pressemitteilungen/pm/40856.php (in German)

4. Education and training; stakeholder, public and civil society participation, (Work areas 24, 25, 35 GPA)

There is a general right of the civil society to express their position on any issue by the available information on the legal basis of § 5 of the Basic Constitutional Law of the Federal Republic of Germany. That is also the basic for an independent research work in Germany.

Moreover, § 25 of the internal rules of procedure of the German federal government lays down requirements and definitions to provide the public with information.

It is also a concern of the government to provide the public and the stakeholders with information on risks for human health and the situation of the environment. The Federal Institute for Risk As-

sessment provides a forum for discussing what procedures on risk communication can be developed and used properly within a framework of transparency, reliability and openness.
Further information: http://www.bfr.bund.de/cd/1798.

The Federal Ministry for Health (BMG) provides information to the public via the Federal Centre for Health Education.
Further information: http://www.bzga.de/?uid=a3b9a3a980629997af74eb2b4fbfae1d&id=start

A central concern of the federal government, and its routine practice, is to inform the public, stakeholders and civil society. Numerous activities have been carried out in this regard. For example: strengthening the information and participation rights of employees and the public according to the Major Accidents Ordinance (see B.I.12 above). Furthermore, the **Plant Safety Commission (KAS)** in Germany has a pluralistic membership. Its 33 members represent the scientific community, environmental organizations, trade unions, institutions for statutory accident insurance and prevention (Berufsgenossenschaften), the business community and government agencies. The implementation of **REACH** and **GHS** will result in further improvement of information provided to the public, stakeholders and civil society (see B.I.5 above). The **Pollutant Release and Transfer Register** – PRTR continues to play an important role (see B.II.3 above). In addition, the **Environmental Information Act** gives all citizens the opportunity to demand environmental information from all federal government agencies as well as from certain private ones. This also applies to the authorities of the federal states, which have passed comparable rules. There are also numerous information brochures by agencies of the federal government and the federal states. They inform consumers about how to reduce their use of chemicals in everyday life. The **Eco-label "Blue Angel"** offers important guidance: for many product categories, for example paints, varnishes, furniture, floor coverings, glues and mattresses, it indicates which products have especially low emissions and therefore burden human health less.
Further information: http://www.blauer-engel.de/en/index.php (in English)
www.bmu.de/chemikalien/doc/4056.php (in German);
www.bmu.de/buergerbeteiligungsrechte/kurzinfo/doc/4015.php (in German)

III Governance (OPS Objective C)

1. Education and training; stakeholder, public and civil society participation, (Work areas 24, 25, 35 GPA)

See B.II.4.

2. Questions regarding international law, international agreements (Work area 27 GPA)

Germany is a signatory of all international treaties relevant for chemicals (see in particular B.I.2,4,5,11,17). In addition, Germany is participating in the **OECD Environment, Health and Safety Programme**. The OECD countries are responsible for approximately 75 percent of global chemicals production. For this reason, they are particularly interested in improving safety in handling these chemicals. The core of the programme is cooperation in compiling data relevant to the environment and human health which are needed for assessing the hazards posed by the substances. It also encompasses a chemicals and pesticides programme. The chemicals programme is concerned with the following topics: reciprocal recognition of data, guidelines for non-clinical safety assessments, good laboratory practice, hazard and risk management, classification and labeling, existing chemical substances, databases and accident management. A Working Group on Pesticides discusses issues for international cooperation in regards to pesticides; a Biocide Task Force in regard to biocides.

Further information: www.bmu.de/chemikalien/doc/4056.php (in German)

3. Social and economic considerations (Work area 28 GPA)

In Germany, law-making in principle takes social and economic concerns into account in addition to ecological ones. Consulting the interested parties plays an important role when considering social and economic concerns. Today, there are manifold rights and forms of consultation at all levels and in almost all policy fields in Germany. In addition, the affected or interested associations are invited and heard in practically all law-making procedures – with the exception of foreign policy and defense policy.

Further information: http://www.buergergesellschaft.de/index.php?id=106460 (in English)

In the EC "Better Regulation" plays a very important role. It is a concept with a broad range of activities, such as regulatory and socio-economic analysis, in particular during the preparation of legislation. *Further information:*
http://ec.europa.eu/enterprise/regulation/better_regulation/impact_assessment/ia_conference.htm

A socio-economic impact assessment must always be completed where a chemical substance is to be restricted under the REACH Regulation. Such a decision will be based on comprehensive documents that present the results of a socio-economic analysis (SEA) as required under REACH. Information on the SEAs is published on the website of the European Chemicals Agency to enable third parties to participate in the analysis. This aims to prevent a biased assessment, as other firms can add information on alternative substances and technologies, or national authorities can add environmental risk or economic data; non-governmental organizations may also add information. This aims to improve transparency. The European Commission will decide how these contributions by third parties are weighed up and reflected in the decision.

4.Legal, policy and institutional aspects (Work area 29 GPA)

The laws described in this documentation form the relevant legal framework for implementation of SAICM in Germany. The institutional framework for implementation is made up of the federal government as well as the responsible federal agencies. The Federal Institute for Occupational Safety and Health (BAuA) is the registration agency for chemicals in Germany. BAuA is also responsible for licensing biocides. Assessment of the data is carried out in cooperation with

- the Federal Environment Agency (UBA),
- the Federal Institute for Risk Assessment (BfR),
- the Federal Institute for Materials Research and Testing (BAM)
- and the Division "Safety and Health regarding Chemical and Biological Agents" of BAuA.

In certain cases, the following agencies are also involved in licensing biocide products:

- the Federal Office of Consumer Protection and Food Safety (BVL) and
- the Robert Koch Institute.

The Division "Safety and Health regarding Chemical and Biological Agents" of BAuA, the Federal Environment Agency and the Federal Institute for Risk Assessment are responsible for then evaluating the risks posed by substances as well as for deriving protective measures for employees, the environment and consumers. The BVL, in turn, is responsible for licensing plant protection products (see B.I.6 above). Within the framework of the federal system, the federal states and their own environmental agencies play important roles in implementing SAICM.

The federal states (Länder) are responsible for implementation of immission, water and waste control especially for industrial installations. Many programmes for environmental monitoring are launched in responsibility of the federal states.
Further information: http://www.baua.de/nn_5568/en/Homepage.html?__nnn=true (in English)*;*
http://www.umweltbundesamt.de/index-e.htm (in English)*;*
http://www.bfr.bund.de/cd/template/index_en (in English);
http://www.bam.de/index_en.htm (in English);
http://www.bvl.bund.de/cln_007/nn_495478/EN/Home/homepage__node.html__nnn=true (in English)

5. Stock-taking on progress (Work area 31 GPA)

Among other reporting procedures, reports by the federal government are part of the stock-taking process. For example: the Environment Report, the Soil Protection Report, the Forestry Report, the Report on Implementation of the WHO “Children’s Environment and Health Action Plan for Europe” (CEHAPE), the Report on the Plant Protection Monitoring Programme, the Federal Government’s Report in the Framework of the POPs Protocol, the Report to the European Commission on the Implementation of the Seveso II Directive or the Strategy on Sustainable Development. Nearly all regulatory measures and action programs mentioned in this report require some form of reporting or compilation of registers.

6. Prevention of illegal traffic in toxic and dangerous goods (Work area 33 GPA)

Germany is party to the **Rotterdam Convention**, also known as the **PIC Convention**. PIC stands for “**P**rior **I**nformed **C**onsent” relating to the export of hazardous chemicals. Its central concern: to ensure that the countries that import hazardous chemicals receive sufficient information, especially regarding their toxicological and ecotoxicological characteristics as well as safe handling. To this end, the convention requires trade with hazardous chemicals to comply with a qualified information and notification procedure. Surveillance of import and export of dangerous substances is the responsibility of customs.

Germany is a party to the Basel Convention. Both the European Regulation on Shipments of Waste and the Waste Movement Act (see B.I.17 above) apply here, with the requirements regarding monitoring, control and recovery of illegally shipped wastes described above. This requires Germany to re-import failed and/or illegal waste exports. To ease implementation, the federal states have commissioned a common institution with the fulfillment of this task. This institution is not allocated to a single federal state.

In addition, German representatives are members of **IMPEL/TFS**, an informal network of representatives from European enforcement authorities, whose goal it is to develop implementation of the Regulation on Shipments of Waste in the individual EU Member States.

7. Trade and environment (Work area 34 GPA)

International trade is subject to WTO and EU rules. With regard to trade with chemicals, the REACH-Regulation and GHS are most relevant, as well as the Rotterdam Convention. At a national level, the Federal Ministry of Economics and Technology (BMWi) is consulted in the development of all trade and environment related legislative acts.

IV Capacity-building and technical cooperation (OPS Objective D)

1.Cleaner production with social and economic considerations (Work areas 9, 28 GPA)

The **internet portal** www.cleaner-production.de (in German and English; see above B. I. 7), is an important information source, not least for agencies, companies, trade associations, chambers of foreign trade and technology transfer institutions in threshold and developing countries. **Research projects**, for example the study “BAT in developing countries,” which was commissioned by the Federal Environment Agency, are another important component.

2.Capacity-building (Work area 36 GPA)

In the past 15 years, Germany has provided more than 350 million euros for more than 150 projects for “Capacity Building in the Area of Chemicals in Development Cooperation.” Furthermore, the federal government has already supported numerous projects on scientific-technical cooperation, among others, in the area of transboundary prevention of major accidents, within the framework of the **UNECE Convention on the Transboundary Effects of Industrial Accidents**, which corresponds to the Seveso II Directive in many respects. It is relevant above all for countries in Eastern Europe, as its purpose is to improve the safety of industrial facilities in that region and to bring it in line with the safety level in the European Union. The federal government is planning to expand this cooperation to include other countries as well, for example, China. A list of all current projects has been sent to the SAICM secretariat.

V Illegal international traffic (OPS Objective E)

1. Prevention of illegal traffic of toxic and dangerous goods (Work area 33 GPA)

See B.I.17 and B.III.6.

2. Trade and environment (Work area 34 GPA)

See B.III.7.

C. SAICM Implementation in Germany – Conclusion

In Germany there is already a well-established basis for SAICM. Most regulations are already implemented on a national basis or in the EU.
The following conclusions can be drawn from the stock-taking described in section B. above:

- Overall, Germany's environmental policy record regarding chemical security is positive. In recent years, the concentrations of persistent organochlorides such as polychlorinated biphenyls (PCBs) and dioxins decreased in many environmental media, especially in water and air, as well as in the human body. First-generation pesticides such as DDT, aldrin, dieldrin and toxaphen were replaced by more effective substances which are more easily degradable. The entry of heavy metals into the environment was also reduced drastically – for example as a result of the 1971 Act regarding Lead in Gasoline and subsequent acts.

- Even today, Germany has a high density of regulations which serves to protect human health and the environment from hazardous chemicals.

- Germany has ratified all international conventions that deal with hazardous substances and has either translated them into national law or is in the process of doing so.

- There are also comprehensive legal regulations in all relevant areas, such as discharges to water, soil and air, waste, pesticides, biocides facility safety, etc.

- In addition, the implementation of REACH and GHS is creating the conditions for safe use of chemicals.

Further developments may consider:

- At present, approximately 100,000 chemicals are on the market worldwide without sufficient data for all of them. REACH will provide data for existing chemicals systematically for the first time. In parallel with GHS a register of classified hazardous substances will be created. In future it will be important to control effectiveness and efficiency of the system to develop the data requirements in reference of the results of that evaluation.
- The statistics of the European rapid alert system RAPEX have shown that the number of complaints due to serious risks from chemicals in articles within the European Union rose from 924 to 1,355 from 2006 to 2007 alone, an increase of almost 47 percent within a year. REACH will provide consumers with more information. For chemicals in articles and products, it will also be important to evaluate the effectives and efficiency of the regulations in REACH.
- While Germany has passed sufficient legal regulations to prevent illegal disposal of hazardous wastes, there are, however, still problems in the implementation of the Waste Movement Act concerning the difference between used products and waste. Examples for this include used electronic equipment and end-of-life vehicles. Rather than being recycled in an environmentally friendly way, according to the Electrical and Electronic Equipment Act or the End-of-life Vehicle Ordinance, many of these - misleadingly declared as used products – are still exported.

The result showed the following picture of SAICM implementation in Germany and the European Union: a well-founded basis for SAICM has already been established. Nonetheless, in some areas activities could be strengthened or intensified, in particular regarding capacity building and technical assistance, as well as coordination between the various areas covered by SAICM and utilization of synergies.