



The German Advisory Council
on the Environment

Environmental Report 2002

**Towards a New Leading
Role**

- Summary -

March 2002

The German Advisory Council on the Environment

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Preface

Experience has shown that advances in European and global environment policy-making depend upon certain nations assuming a pioneering role. Highly developed countries such as Germany are not only well capable of developing innovative solutions to environmental problems, they also generally profit from assuming such a role.

As early as during the Brandt government, institutional innovations were introduced which have once again become of topical interest in the current debate on integrating environmental protection into all policy-making areas. The foundation for Germany's leading role in the export of environmental technology was also laid early on. During the Kohl government, Germany assumed a pioneering role internationally in the areas of air quality control, climate protection and waste management policy-making.

The current government has strengthened this role in the area of climate protection, for example, by enacting the Renewable Energy Act, which has received international attention. Further, it is implementing a concept which it calls "ecological modernization" and which is intended to make industry and commerce broadly innovation-oriented. It would also be possible to introduce innovations into policy areas such as agriculture and transportation that would not only provide ecological and environmental benefits, but would also contribute to the further development of European and international environmental policy.

Comprehensive modernization of environmental policy is imperative especially as concerns persistent environmental problems such as diffuse source pollution and sectoral trends which have not been able to be effectively arrested using current instruments. The strategic challenge to environmental policy in the coming years will consist in resolving these persistent environmental problems, some of which have a high damage potential. Environmental policy will not only have to employ new instruments, it will also have to go beyond its own narrow area of competence. It will have to confront polluting sectors with the problems that need to be resolved and to mobilize their innovation potential to the greatest extent possible in the interest of sustainable development.

In this regard, this environmental report focuses on the opportunities for Germany, as well as the need for Germany, to continue to be an innovation-oriented pioneer, and criticizes developments to the contrary.

This report is addressed to the German government in its entirety. The assessments and recommendations made herein are directed not only at the Federal Ministry of the Environment, but also at all other government offices. The report is also directed at the legislatures, the state governments, the scientific community and, last but not least, interested members of the general public.

In May 2000, a new Environmental Council was appointed. Currently, the Council consists of the following members:

Prof. Dr. jur. Gertrude Lübbecke-Wolff, Bielefeld (Chairperson),

Prof. Dr. phil. Martin Jänicke, Berlin (Deputy Chairperson),

Prof. Dr.-Ing. Max Dohmann, Aachen,

Prof. Dr. med. Thomas Eikmann, Gießen,

Prof. Dr. rer. hort. Christina von Haaren, Hannover,

Prof. Dr. rer. pol. Peter Michaelis, Augsburg,

Prof. Dr. phil. Konrad Ott, Greifswald.

There was also a change in the directorship of the Council Secretariat during the time this report was being prepared. DirProf. Dr. rer. nat. Hubert Wiggering, who had been the Secretary-General of the Secretariat since 1993, left the Secretariat in March 2001. Dr. phil. Christian Hey took over the position of Secretary-General in October 2001, and has since not only tackled his administrative duties with great commitment, but has also promoted work on this report by greatly contributing to its content. During the interim period Dipl.-Volkswirt Lutz Eichler managed the Secretariat. It was due to his commendable efforts that the Council was able to continue its work in a well-organized fashion.

The scientific staff at the time of the completion of this report consisted of: Dr. rer. nat. Helga Dieffenbach-Fries, Dr. rer. pol. Ralf Döring (Greifswald), Dr. rer. pol. Tobias Jäger, Dipl.-Politologe Helge Jörgens, Dr. rer. nat. László Kacsóh, Dipl.-Ing. Stephan Köster (Aachen), Dipl.-Ing. Tanja Leinweber (Hannover), Iris Ober (Bielefeld), Dr. jur. Moritz Reese, Dr. rer. nat. Heike Seitz (Gießen), Dipl.-Politologe Axel Volkery (Berlin), Dipl.-Physiker Tobias Wiesenthal, Dipl.-Ökonom Peter Lorenz Zerle (Augsburg).

Those members of the staff who left the Council during the time the report was being prepared were: Dipl.-Biologe Thomas Beil, Dr. rer. nat. Jürgen Franzaring, Dipl.-Geoökologe Michael Hahn, Dr. rer. pol. Armin Sandhövel, Ass. jur. Michael Schmalholz, Dipl.-Chemikerin/Ass. jur. Anja Schmolke.

The late appointment of the new Council, the change in the directorship and the numerous changes in the staff which often left positions vacant for months, and the preparations made necessary by the Council's planned move to Berlin in 2002 have made working conditions difficult for everyone involved in preparing this report and have added considerably to the pressure of finishing the report in a timely fashion.

The permanent members of the Secretariat's staff at the time of the completion of this report were: Diplom-Sekretärin Klara Bastian, Dipl.-Bibliothekarin Ursula Belusa, Efim Borodowski, Dipl.-Biologin Yvonne Kiefer, Sabine Krestan, Bettina Muntetschiniger, Petra Schäfer, Dipl.-Verwaltungswirtin Jutta Schindehütte, Dagmar Schlinke, Gabriele Stellmacher.

The European Environmental Advisory Councils (EEAC), the so-called Focal Point, which has been hosted by the Council offices and directed by Dr.-Ing. Ingeborg Niestroy since April 1999, will move to offices of the Dutch Advisory Council for Research on Spatial Planning, Nature and the Environment (Rad voor Ruimtelijk, Milieu- en Natuuronderzoek—RMNO) in the Hague in May 2002.

The Council would like to thank the members of ministries and federal and state government offices, especially members of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, members of the Federal Ministry of the Environment, of the Federal Statistical Office, of the Federal Agency for Nature Conservation, as well as all other individuals and institutions, who assisted the Council in preparing this report.

As has been the case in past reports, the Council once again depended on external experts. This report incorporates a paper supplied by Prof. Dr. med. Dr. rer. nat. Heinz-Erich Wichmann (Direktor des Instituts für Epidemiologie, GSF-Forschungszentrum für Umwelt und Gesundheit, Neuherberg) on the subject of "Pollutants and Pollution Protection".

Text drafts or comments on text drafts were provided by: Frau Yvonne Becker and Dr. jur. Bernhard Wegener, Universität Bielefeld, Dipl.-Verwaltungswissenschaftler Roland Zieschank, Forschungsstelle für Umweltpolitik Berlin, Dipl.-Ökonom Jochen Schwarzbauer and Dipl.-Ökonom Jürgen Dietz, Universität Augsburg, and Dr. rer. oec. Hans-Joachim Ziesing, DIW Berlin.

Further, the Council held numerous discussions with scientists from a wide variety of disciplines, as well as with politicians, members of ministries and other government authorities, and members of private associations. The Council would like to thank everyone who participated in preparing this report. It would especially like to thank those members of the scientific staff and administrative and support staff who will be leaving the Council when it moves and who nevertheless untiringly contributed, in spite of the difficulties that had to be overcome during this report period, to the Council's being able to finish this report on schedule.

Wiesbaden, March 2002

**Max Dohmann, Thomas Eikmann, Christina von Haaren, Martin Jänicke,
Gertrude Lübbe-Wolff, Peter Michaelis, Konrad Ott**

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Environmental Report 2002

Towards a New Leading Role

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English Publications of the Environmental Council

1 Ethical and Conceptional Principles of Sustainability

1.* Since the adoption of Agenda 21 at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, “sustainability” has become a central concept in international and national environmental policy-making. Almost ten years after the adoption of Agenda 21, it has become evident, however, that a problematic development is taking place in the sustainability discussion. The term “sustainable development” is increasingly being used indiscriminately and arbitrarily, in both the scientific and the political discussion on sustainability. Thus, it has become necessary to recall the normative and conceptional principles of sustainable development.

2.* Sustainability is (still) a regulative concept for dealing with natural capital in the long term. The three-pillar concept, which is politically influential in Germany, initially led to a revaluation of environmental concerns because it postulated that economic, ecological and social development are of equal importance. The results of research projects that have used this concept demonstrate, however, that the three-pillar concept has degenerated into a type of wish list to which every actor adds whatever he/she deems important. The concept thus encourages increasingly arbitrary definitions.

3.* There is wide agreement that the concept of sustainability is based on the concept of intergenerational fairness. Otherwise, there is little agreement, even at the conceptional level, on what sustainability means exactly. In particular, distinctions are made between weak sustainability, strong sustainability and a type of sustainability that mediates between weak and strong sustainability. The differences between these basic concepts stem from different assumptions about substitutability between natural and man-made capital, about compensating damage, and about discounting future events. The concept of strong sustainability is based on the assumption that existent natural capital must be preserved because natural capital that has been consumed cannot generally be replaced by other types of capital such as man-made capital or human capital. The concept of weak sustainability, on the other hand, is based on the assumption that present generations have an obligation to leave future generations a capital stock which remains undiminished overall, but that man-made capital can in principle be substituted for natural capital on an unlimited basis. Adherents of the concept of weak sustainability also tend to legitimate extensive consumption of natural goods at the expense of future generations by discounting future events and thus valuing future goods or benefits considerably less than present goods or benefits.

4.* In the opinion of the Council, the classical concept of weak sustainability is not reconcilable with the right of future generations to equal welfare opportunities and equal freedom of choice. Discounting future benefits is, in the opinion of the Council, only justifiable if there is good reason to believe that future generations will have better means of resolving problems at their disposal. Thus, the concept of weak sustainability should be discarded and the practice of greatly discounting future benefits discontinued. Even though it must be recognized that a strict concept of strong sustainability that allows no exceptions would be difficult to realize, any understanding of sustainability should nevertheless be based on the principle that natural capital should be kept constant over time. Mediatory understandings that emphasize the precautionary principle come to the same conclusion: modern environmental policy must be an actively pursued precautionary policy of investing in natural capital.

With this in mind, the Council understands the concept of sustainability as being an ecologically focused concept which should also take related social and economic phenomena into account, i.e., the Council understands it as being basically the same as the concept of strong sustainability.

2 Strategic and Instrumental Issues in Environmental Policy-Making

2.1 “Persistent Environmental Problems”

5.* In spite of the sometimes considerable success that has been achieved in using technology to control pollution from stationary sources, the overall quality of the environment has not improved since the early days of modern environmental policy. The majority of environmental problems have not been resolved to any sufficient degree. Instead, one can often observe an ongoing negative trend, which implies that environmental burdens will continue to increase. Problems which manifest a trend that long-term government measures have not been able to influence are problems that can be considered to be persistent. They will pose one of the most important strategic challenges to environmental policy in the coming years.

6.* The significance of persistent environmental problems is often underestimated in the public perception because of their low visibility and their complex nature. One consequence of this situation is that the role of science has to be strengthened, not only as regards analysing persistent environmental problems but also as regards placing these problems on the political agenda. The role of the environmental sciences, especially as

concerns unresolved environmental problems, is that of a key actor who can point to the need to take action and to help to promote public awareness of such problems. In addition, an efficient instrument with which to make people sensitive to unresolved environmental problems is environmental reporting which, by using long-term forecasts, takes into account the long-term problem of accumulation and the possibility that growth-engendered pollution trend curves will rise again.

7.* Dealing with persistent environmental problems will require a sectoral strategy which incorporates long-term objectives which are developed and implemented together with the sectors causing the problems, these being, primarily, the transport, energy, construction and agriculture sectors. The Council recommends that German environmental reporting attribute environmental problems to the sectors that cause them. In doing so, it can avail itself of the Federal Statistical Office's national environmental economic accounts, which already list the contributions of specific sectors to specific types of environmental problems.

Such sectoral strategies cannot, however, replace the traditional environmental policy instruments; rather, they can only complement them in a useful manner. Large and inhomogeneous polluter groups such as consumers, motorists and small users of energy can hardly be reached using negotiation or cooperation strategies. They thus make the continued use of direct, classical regulation necessary.

8.* Persistent environmental problems can, however, also be an indication that environmental policy does not have adequate capacity to deal with such problems. In this case, specific capacity building is necessary. Establishing new institutional arrangements and environmentally related strategic alliances, as well as shifting to the international level, are useful capacity-building approaches. Sectoral environmental strategies have the advantage, in this context, of being able to use extant capacities in administrations or firms in new ways in order to strengthen environmental concerns directly within polluter sectors.

9.* Successfully dealing with environmental problems also depends on the weight given to firms interested in resolving such problems. Such firms include innovative firms whose products further ecological modernization. Wherever possible, environmental policy-makers should quickly ally themselves with such firms.

2.2 Innovation-Oriented Environmental Policy

10.* The Council welcomes the fact that the German government is increasingly defining its environmental policy in the categories of an innovation-oriented strategy (“ecological modernization”) and has thus begun to pursue a new approach. Although it can not be ignored that purely technical means of resolving environmental problems are limited in outreach and effectiveness, the potential of innovative technologies to take some of the strain off the environment is considerable if they were widely used in national as well as international markets. In order to realize this potential fully, a strategic policy approach that integrates environmental, technology and economic policies in particular will be necessary. This will require dialogue-oriented policy formulation and types of regulation that allow adjustments, for example, with respect to depreciation periods. As regards the use of instruments, there are no patent recipes that can be derived from theoretical considerations or from the analysis of previous experience. Situation- and problem-appropriate solutions will often require a policy mix. Concrete and binding objectives can reduce innovation risks and increase the calculability of market conditions. This should be taken into account in further developing the German sustainable development strategy (see Section 3.1.1).

11.* When a country pursues a policy of ecological modernization, this necessarily presupposes a willingness on the part of the country to assume a leading role. In doing so, it is necessary for the country to continue to attempt to resolve environmental problems on a national scale *as well*. In spite of the fact that globalization has partially limited the capacity of nation-states, the Council would like to stress that claims that the ability of nation-states to pursue national environmental policies has been generally weakened have not been able to be convincingly supported empirically. The increase in international environmental protection regulations is not an argument against the possibility of individual countries assuming a leading role either. Small EU member states such as the Netherlands, Denmark and Sweden have made this evident. Nevertheless, it will be important to protect the EU member states’ current national scope to innovate in order to achieve a high level of national environmental protection from being further limited, and if necessary even to expand this scope.

12.* Environmental issues have gained considerably in importance in international innovation competition and international business location competition in industrialized countries. Given current global industrial and population growth, environmental issues will likely continue to gain in importance in this respect.

13.* The Council considers general fears that assuming a leading role in environmental policy-making could weaken national competitiveness to be unfounded. Numerous empirical studies have shown that there is no basic conflict between environmental policy objectives and competitiveness. On the contrary, a well-measured leader policy which promotes technological-economic innovation as well as the international diffusion of the basic features of the policy would increase national competitiveness and open up new opportunities on world markets.

14.* The Council recommends, especially as concerns climate policy, decisively using the possibilities open to Germany to assume a leading role and welcomes the initiatives taken by the government in this regard. In addition to the approach taken by climate policy, which uses international regulations, there is also the approach in which innovation-oriented leader countries force policy and technology competition. Given the problems with the Kyoto Protocol and the resistance of industrialized countries to a suitably far-reaching climate policy, a possible option would be to depend on countries leading in climate policy matters to create competition pressures and demonstration effects. The two approaches do not mutually exclude each other, but, rather, complement each other. International environmental regulations have always been determined to a great extent by leader countries.

15.* The Council would like to stress the importance of lead markets for environmentally friendly technologies. In addition to the potential competitive advantage that Germany would gain by being a lead market, it should also be taken into account that funds to cover the high startup costs of forward-looking technologies cannot be raised in developing countries. Only the highly developed countries can take on this role.

After all, the objective is to bring about a shift from the environmentally intensive industrial model of the developed countries, which has been imitated world-wide, to the sustainable development model. Germany, with its international influence and its high level of technological development, should, in the opinion of the Council, see this as one of its responsibilities.

2.3 Citizens and the Enabling State

The Enabling State

16.* Efficient and democratic policy-making must utilize and promote the willingness of citizens to assume responsibility for themselves and to serve public interests, and must create the necessary framework for citizens to do so. This is the objective of the

“government as catalyst” model established by the coalition agreement of October 1998. However, in practical policy-making, as elsewhere, this model of a government that enables citizens to actively serve public interests has not been sufficiently implemented, in spite of the laudable progress that has been made. This is the case as concerns the role of citizens as market participants as well as their role as participants in government decision-making processes.

Ecological Market Transparency as a Precondition for Market Participants to Be Able to Make Environmentally Oriented Choices

17.* Market transparency is the precondition for citizens as market participants — when buying products or choosing with whom to transact their business — to be able to make their environmentally oriented preferences known. This implies that information about environmentally relevant aspects of products, as well as any other environmentally relevant information related to market participants’ preferences must be easy to obtain. Market transparency is the precondition for “green” competition to be able to function. Since environmentally relevant facts, for example, about products, are not always easily ascertainable, the framework conditions for ecological market transparency will have to be provided by the government. There are numerous instruments that can be used to this end; , however, they need to be supplemented and made more efficient.

18.* To improve ecological market transparency, the Council recommends supporting EU efforts to provide better protection from misleading ecological advertising by amending the Directive on Misleading Advertising. The Council is of the opinion that the most suitable way of preventing consumers from being confused by the great number of different eco-labels is to enter into labelling agreements with producers and manufacturers.

19.* Protected names and symbols are, under certain conditions, a suitable means of creating ecological market transparency. The eco-label that was introduced for foodstuffs in 2001 is well conceived and is an important step forward under the current framework conditions. There is however, a drawback to the new label, namely that it is not an EU label. The Council recommends pressing, at the EU level, for necessary improvements to the EU Regulation on Organic Production of Agricultural Products — especially as concerns using the EU Eco-Label on non-EU products — and for better marketing of the EU Eco-Label so that it can, additionally, also become more important.

20.* The basic concept of the German Blauer Engel (Blue Angel) eco-label does not need to be changed. The Council advises against expanding the awarding criteria to

include non-environmentally related criteria, such as social criteria. In view of the fact that the Blue Angel is losing in importance, greater marketing efforts need to be taken, efforts which include the mass media. The prospects for the EU Flower, which has been less successful in the past but which has been gaining in importance recently, have been improved considerably as a result of the EU Eco-Label Regulation being amended.

The participative element in the awarding procedure is, however, underdeveloped; as concerns this, Germany should press for further improvements. The EU eco-label, with its considerable potential for opening markets, should not be considered to be in competition with the German eco-label; it should, within the framework of the common promotional activities provided for by the EU regulation, also be heavily promoted by Germany.

21.* An efficient supervision scheme is of central importance for the ability of protected labels and designations to properly fulfil their function. The supervision scheme provided for by the EU Regulation on Organic Production of Agricultural Products suffers from shortcomings. When designing supervision schemes, it should be taken into account that schemes that allow the supervisees to select their supervisors on the market are prone to suffer from competition-induced malfunctions.

22.* Ecological market transparency requires the extensive disclosure of product properties. Disclosure should preferably be effected by means of obligatory labelling or alternatively by means of transparency data banks. The Council recommends that the transparency strategy of the chemical policy reform, with which the EU Commission would like to bring about the disclosure of the properties of and uses for chemicals, be supported. The Council further recommends that it be made obligatory for packaging to list the DSD's Green Dot licence fee in order to provide consumers with information about the quality, quantity and economically relevant recovery properties of packaging.

23.* According to prevailing opinion, there is no legislation that would allow government authorities to provide information about the environmentally relevant properties of products and services. The Council thus recommends that appropriate comprehensive, rather than authority- or sector-specific, legislation be passed.

24.* Making environmentally relevant information about firms public contributes to creating market transparency. The European Eco-Management and Audit Scheme (EMAS) combines publicity elements with incentives for better environmental management. The amendment of the EC Eco-Audit Regulation has created important preconditions for improving the acceptance of the scheme. However, in addition to making numerous welcome changes, the amendment also took a couple of steps backwards with respect to the self-assessment requirements, which offset the progress made with respect

to ensuring compliance. Further improvement in the efficiency and acceptance of EMAS can only be expected if the cost-benefit ratio of participating in the scheme can be further improved. It would be possible and useful to honor EMAS certification by taking it into account on a case-by-case basis within the existing discretionary powers of government authorities, for example, as regards monitoring frequencies and processing priorities in licensing procedures (see, however, 37.* below, on the inappropriateness of general regulatory privileges). The current possibilities for granting preferential treatment to EMAS-certified firms when awarding public contracts should be taken advantage of. Further, private market participants — consumers, banks, insurance companies — should also make participation in EMAS worthwhile by honoring firms' participation in the scheme. The preconditions for doing this could and should be further improved by conducting more intensive publicity campaigns — preferably to be coordinated at the EU level — for the EMAS logo.

25.* Pollutant release and transfer registers could be used to make firm-related pollution data available to the public, thus making improved environmental services the object of competition between firms. The Council recommends that the establishment and implementation of the planned UN/ECE Protocol on Pollutant Release and Transfer Registers be actively supported and be given positive publicity.

The Role of Citizens in Government Decision-Making Processes

26.* German legislation and the way policy is made in Germany are still determined by the idea that the role of citizens in government consists basically only in voting at regular intervals in elections. Any direct, active participation in government decision-making processes which goes beyond participating in public opinion formation processes tends not to be considered part of the democratic process, but rather a disruption of the process. Because of this authoritarian-based, restrictive concept of democracy, Germany is amongst those member countries lagging behind with respect to developing democracy.

In the 1990s, Germany strongly resisted developments in EU environmental policy-making towards creating greater transparency and participative openness in government and public administration affairs.

At the end of 1988, the then new federal government, by signing the Aarhus Convention (the UN/ECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters), declared its willingness to engage in transparent and participative policy-making in a manner that would be in line

with the government-as-catalyst model. Since then, the government has, however, pursued a policy of restrictive implementation.

Government Environmental Information

27.* In Germany, there are still considerable reservations about granting citizens extensive rights to information and actively and routinely providing them with relevant information, in spite of recent progress made in this context. This is partly also the case as concerns the German government, which should play an exemplary role in this context, one that would be in line the enabling state model. The shortening of the time allowed for deciding whether to comply with requests for information, as required by the Aarhus Convention, should be accepted as being appropriate and practicable and should be actively implemented. Original EU-level plans to extend rights of access to environmentally relevant information to include private parties that provide services of general economic interest, plans which unfortunately in the meantime have been moderated considerably, were system-appropriate and deserved to have been better supported by Germany. The practice of making information, for example, bills and proposals for ordinances, available in a timely fashion on the Internet is still underdeveloped in Germany. Further, government environmental agencies do not provide any systematic, publicly accessible implementation reports. It is especially regrettable that a proposal by the European Commission regarding the provision of such reports was ignored in the Common Position of the Council on amending the EU Directive on Public Access to Environmental Information.

Public Participation in Licensing Procedures

28.* Participation in plant- and facility-related licensing procedures was once comparatively high. Legislation passed in the 1990s to speed up the procedures, however, was a significant step backwards. In view of the fact that public participation is important in implementing environmental legislation and hardly influences the length of the procedure, the Council thinks the trend to reduce public participation needs to be reversed. For all notification procedures and environmental licensing procedures in which the public does not participate, the Council recommends that a general obligation be introduced to publicly announce the receipt of notifications or applications. This would enable associations or individuals to inform themselves about the relevant procedure, if necessary by claiming their rights to be given access to information as provided for by the German Environmental Information Act. Provisions for public participation should also be

expanded, primarily at the EU level, to also include substance- and product-related permitting procedures.

Public Participation in Establishing Standards and Agreements That Substitute for Standards

29.* The obligation embodied in the Aarhus Convention to allow early public participation in administrative procedures establishing standards should be seen as an opportunity to pass legislation that would establish uniform, participation-friendly rules as regards public participation in such procedures. The Council recommends allowing the public to participate in a direct and unmediated manner through commissions.

The problem of insufficient public participation in environmentally relevant standard setting procedures is even more critical when such procedures involve using voluntary commitments and environmental agreements as instruments, rather than legal rules. All mutual commitments arrived at using these instruments should, as a matter of principle, be declared in an agreement, which should then be published as a draft proposal and comments invited.

Public Participation in Plans, Programmes and Policies

30.* The obligations embodied in the Aarhus Convention to allow public participation in plans, programmes and policies are formulated in weak language. The Council advocates that the current German policy, pursued at home and at the EU level, of interpreting and implementing these obligations such that participation is avoided to the greatest possible extent be abandoned. The current scope provided by the EU Directive on Strategic Environmental Assessment should not be used in a restrictive manner. The reservations expressed by Germany against the EU Proposal for a Directive on Public Participation in Certain Environmental Matters are, in the opinion of the Council, unjustified.

Association and Citizen Lawsuits

31.* Because of its restrictive legal system, which only allows lawsuits pertaining to specific individual, subjective rights, Germany is lagging far behind other countries, especially as concerns granting associations the right to sue. National and international experience with granting associations the right to sue has been largely positive. The Council welcomes the fact that association lawsuits pertaining to nature protection are now allowed at the federal level. The progress that this represents is, however, not sufficient. Extensive possibilities to file association lawsuits that are not restricted to individual areas in environmental law or to particular types of government measures, and

that pertain to government failures to act as well as to positive activities, should be gradually introduced. In addition to introducing special possibilities for associations to file lawsuits, it would also be appropriate to expand the possibilities for individual citizens to do so. In the European context, Germany should not only support the Commission's Proposal for a Directive on Public Participation in Certain Environmental Matters, but should also support the stipulations it contains concerning the legal right to file lawsuits.

2.4 Regulation and Deregulation

Weaknesses in the Deregulation Discussion

32.* In the last decade, increased international competition in many areas, chronic unemployment and the scarcity of government control resources have caused considerable pressure to deregulate. The increased attention to the cost-benefit relationships of regulations that has gone hand in hand with this development is to be welcomed without qualification. The current deregulation discussion and current deregulation policy in Germany, however, suffer from a number of basic weaknesses. In the 1990s, in the area of environmental law, the deregulation discussion and deregulation policy were characterized by being based not on qualitative notions but on purely quantitative notions that were often too undifferentiated, by a personal responsibility rhetoric which often supplanted rational incentive-oriented analysis, by one-sided perceptions of the relevance of competition to environmental regulation, and by generally discrediting regulation .

33.* Demands for environmental deregulation in Germany have traditionally concentrated especially on two areas: environmental permitting procedures and relief for EMAS-certified firms. In the opinion of the Council, the time has come to put an end to the discussion in these two areas.

The Indispensability of Regulation

34.* Sweeping characterizations of environmental regulations as being inefficient and sweeping claims that economic instruments are superior are inappropriate. They serve to damage an indispensable instrument of environmental policy. Whether the potential allocative efficiency advantages of economic instruments can actually be realized depends on preconditions that are all too often ignored. Economic and other environmental protection instruments that have indirect effects will undoubtedly gain in importance. Regulations can in many areas, however, not be replaced by economic instruments such that there is a gain in efficiency. Those instruments that are suitable for regulating

environmentally relevant behaviour have specific advantages and disadvantages. Whether regulatory instruments or economic instruments or measures of some other type promise the greatest efficiency advantages with regard to use in a particular area can only be established by thoroughly analysing the relevant incentives and other framework conditions, including monitoring and enforcement costs and other transaction costs. In many cases, a policy mix which combines or balances the strengths and weaknesses of various instruments, will turn out to be the best option.

Speeding Up Environmental Permitting Procedures

35.* The burden placed on the economy by waiting-time costs caused by environmental licensing requirements has been drastically reduced in the last decade. The average length of time required for pollution control licensing procedures in those German states that have current, relevant statistics is between 2.4 and 4.9 months (generally between three and four months). Almost all of the procedures take less than six months. In particular states the proportion of procedures that took less than six months in 2000 was 87% (North Rhine-Westphalia), or even 90% (Hesse). Procedures that take longer than one year have become a rare exception. Even water protection licensing procedures, for which there are fewer statistics, have been successfully speeded up.

36.* In order to achieve this, the overall system of government supervision of compliance with environmental law, whose most important and most efficient element is environmental licensing procedures, has had to suffer being weakened: licensing requirements and public participation have been rolled back. As a result, inter alia, of licensing deadlines, government working capacities have had to be focused on processing license applications, which has left even less scope to effectively perform application-independent supervision activities. To a considerable extent, however, accelerated processing has been achieved without there being a corresponding loss in supervision efficiency, while increasing the efficiency of the legal and administrative systems. The Council strongly advocates that shortening procedures even further should only be attempted as long as doing so does not adversely affect the efficiency and the quality of government supervision. The possibilities for efficiency-friendly procedure acceleration have been largely, but not completely, exhausted by the legislative and, above all, by the administrative measures that have been taken. The Council sees further possibilities for improvement primarily in reducing the often disproportionately time-consuming involvement of government specialist agencies and municipalities, in establishing measures to improve the quality of submitted applications and in having regulatory authorities intensively attempt to clarify legal uncertainties that can protract

procedures. In so far as legislative and administrative measures, in addition to further improvements in administrative procedures and improved efforts on the part of applicants, can, in this context, still make a useful contribution at federal and state levels, they should at least as regards certain uses — for example, specifying unclear legal terms or ensuring that submitted applications are of an appropriate quality — be by and large positive regulatory measures rather than deregulation measures.

EMAS Privileges

37.* Combining calls for deregulation or deregulation measures with participation in EMAS is fundamentally problematic in the opinion of the Council. EMAS is a scheme that is intended to motivate and honour environmental performance above and beyond that which is generally required. Granting privileges that allow EMAS-certified firms to perform such that they do not meet general requirements runs counter to the spirit of the scheme and endangers its viability.

Discussing Efficiency instead of Deregulation

38.* The discussion about deregulation should be replaced by a discussion about the efficiency of government regulations which is based on rational analyses of incentives in particular and on empirical data. This would require that the experience and perceptions of those who deal with the application of environmental regulations on the ground, e.g., relevant actors in firms and government offices, be carefully evaluated, and evaluated in detail. The Council hopes these remarks will stimulate corresponding evaluations.

3 Current Environmental Policy Developments

3.1 Overarching Issues

3.1.1 The EU's and Germany's Strategies for Sustainable Development

The EU's Sustainability Strategy

39.* The move towards a strategic, target oriented model of environmental policy that was initiated at the EU level in the 1990s has lost momentum recently. The main reason for this is that although various strategies have been established, they have not been coordinated with one another. Amongst these are

- the EU Strategy for Sustainable Development, whose basics were established at the European Council meeting in Gothenburg in June 2001,
- the 6th Environmental Action Programme, proposed in January 2001, which upon being adopted by the European Council and the European Parliament will provide guidelines for EU environmental policy, and which will represent the environmental policy core of the EU sustainable development strategy,
- the Cardiff process, which was begun in 1998, and which provides for developing sectoral strategies for integrating the environment,
- the Lisbon strategy for “employment, economic reform and social cohesion”, which was established in March 2000 and which is intended to represent the economic and social dimension of the EU sustainable development strategy.

On the whole, current strategy development is characterized by an obvious institutional overload, which is made especially obvious by a strong tendency to postpone decisions on specifying and integrating strategy elements. This is due to a lack of personnel and clearly defined competences. Demanding strategies cannot be formulated, coordinated and implemented in passing.

Furthermore, the process of developing strategies, especially the Cardiff process, is not sufficiently problem-oriented. Sectors are not specifically confronted with the unresolved problems which they help to cause. The original orientation towards persistent problems has not been maintained.

40.* During the further process of strategy development, those involved will have to clearly determine which problems to give priority, which objectives to set, and which competences, procedures and means of indicator-based assessment to use. They will also have to determine what role particular strategy components should play and how they should be coordinated.

The following points should be clarified in order to ensure that the various strategies exhibit at least a minimum degree of transparency and that there is a minimum of coordination between them:

- The relationship of the sustainability strategy to the Lisbon process. If the decision in favour of the three-pillar sustainability concept (which the Council criticizes) cannot be changed, the Lisbon Process should be reformulated such that the high level of efficiency envisaged for environmental policy-making by Agenda 21 can be achieved. Under no circumstances should linking the strategies lead to current environmental strategies being weakened, or even to limiting the scope of environmental policy-

making. The process of linking the sustainability strategy to the Lisbon strategy is only acceptable if it results in the environmental part of this strategy being made much more demanding. The introduction of the so-called open list of environmental indicators or themes channels this process in a useful direction.

- The relationship of the Proposal for an EU Strategy for Sustainable Development to the 6th Environmental Action Programme. The objectives set forth by the Commission in the SDS proposal are by far the better approach and should be incorporated into the 6th Environmental Action Programme.
- The relationship of the Cardiff process to the other strategies as a whole. Here it is imperative that the sustainability strategy or the 6th Environmental Action Programme provide overarching objectives.

41.* The process of formulating objectives and strategies requires clear decisions concerning fundamentals. This in turn requires that there be a strategic centre with a clear mission and clearly defined competences. In its *Environmental Report 2000*, the Council stressed the importance of vertical decision-making structures by mainstreaming strategy development. This type of decision-making should be used to promote the active participation of environmental governmental departments and agencies rather than to weaken them.

The European Council is the appropriate decision-making entity for making fundamental decisions and for evaluating the Cardiff process and the sustainability strategy. The European Council, however, has neither the time nor the personnel to competently fulfil this role. It would thus be useful to establish an entity — a standing committee or a task force — that would include representatives of the Commission and in which the Environment Directorate General would participate substantially. Institutionally, this entity would have to be attached to the president of the Commission. The Council of Environmental Ministers has requested that the Committee of Permanent Representatives assess the practicality of establishing a group of high-ranking officials to deal with the environmental aspects of the sustainable development strategy. This is an indication that they have recognized, at least to some basic degree, that the fact that the lack of a central controlling and coordinating entity is a problem. The Council calls upon the German government to take efforts to have this group established and to have it established along the lines sketched out above.

42.* The appropriate framework for defining the objectives of the Cardiff process would be the 6th Environmental Action Programme because of the relatively binding nature of the decision-making process involved. If the 6th Environmental Action Programme is

adopted without objectives and measures being further specified, they will then have to be specified when designing the main (sectoral) theme-based strategies. The so-called open list of environmental indicators or objectives proposed for the Lisbon process could serve as a starting point. Indicators or objectives that pertain to persistent environmental problems are of particular importance.

43.* The integration of environmental protection aspects into other sectoral policies, which is imperative and which is required by the EEC Treaty, should be accomplished, as planned, by means of the Cardiff process of environmental policy integration (i.e., by means of sectoral strategies). The Cardiff process should be continued in the long term by establishing clear procedural and institutional objectives. In order to improve the problem awareness and motivation of everyone who is involved in the process, it will be necessary to develop the most important environmental policy objectives using detailed problem analyses and to clearly determine the sector-specific causes of problems. In this context, the work of the European Environmental Agency in the area of transportation (TERM 1 and 2) can be considered exemplary.

Better networking with the sustainability activities and integration strategies of the member states, activities and strategies which in particular cases are very advanced, is also necessary. The more advanced member states as regards environmental policy-making should coordinate with one another in order to obtain greater influence in the European Council and the individual Councils of Ministers. The German government seems to be limited in its ability to engage in such activities at the EU level because of personnel shortages. Thus, new personnel needs to be hired in order to actively link environmental policy-making at the national and the EU level.

The German Sustainability Strategy

44.* In December 2001, the State Secretary Committee for Sustainable Development submitted a draft proposal for a national sustainability strategy to the German government, which will decide on the final version in April 2002. This version will also be the German contribution to the World Summit for Sustainable Development in Johannesburg in September 2002.

The first part of the draft presents ten concrete "management rules", in addition to basic comments on the sustainability model. The middle part contains some 30 individual objectives, most of which are quantified. These individual objectives are also taken to be indicators in that the degree to which each of them has been achieved is supposed to

indicate where Germany is on the path towards becoming a sustainable society. The last part presents concrete measures pertaining to a total of eight priority themes.

Three of these themes — climate protection and energy policy; environmentally friendly mobility; and agriculture, the environment and nutrition — correspond to the thematic orientation of the EU sustainability strategy. In addition, a fourth theme — land consumption — is dealt under the title of “sustainable settlement”. The other four priority themes pertain to areas other than environmental protection: demographic change, education/universities, innovative companies, and global responsibility (fighting poverty, fair trade). Cross-connections between the eight themes are emphasized, but the problem-oriented environmental policy integration approach used nevertheless tends to divert attention from these cross-connections.

The cross-sectional dimension of the themes is pointed out by using four “coordinates” in the sustainable development model: generational fairness, quality of life, social cohesion and international responsibility. This is an attempt to lessen the lack of clarity in the three-pillar concept of sustainability. In fact, however, it creates new pillars and new clarity problems. When dealing with the quality of life, for example, the draft also topicalizes fighting crime, although it is questionable whether there is any specific relationship between fighting crime and the quality of life for future generations or between fighting crime and other aspects of sustainability. This is not to say that fighting crime is not an important topic, but a sustainability concept that is open to any and every important topic necessarily can no longer fulfil its function of being of able to provide orientation.

45.* The process of formulating a German sustainability strategy must be assessed positively for the following reasons:

- The German sustainability strategy is well based institutionally: the cabinet and the prime minister (chancellor) are responsible for the strategy; a special institution, the State Secretary Committee for Sustainable Development (the Green Cabinet), has been established; there are basic rules for the process; and the Council for Sustainable Development provides an arena for discussion and criticism.
- Those parts of the draft of the strategy that pertain to the environment focus on the main polluting sectors (energy, transportation, agriculture, and construction and settlement).
- The innovation-oriented approach used takes the fact into account that highly developed countries such as Germany are not only competing with one another to

innovate but are also increasingly competing with one another to develop environmentally friendly technologies (see sections 10.* ff.).

- In the area of the environment, the draft's management rules go far beyond the management rules of the Federal Parliament Select Committee on Protecting Humans and the Environment.
- Some important quantitative objectives have been established, as have implementation periods, which makes it possible to assess the degree to which they have been achieved.

46.* The Council nevertheless is of the opinion that the process of formulating a sustainability strategy suffers from the following problems:

- It has been ignored by the media and thus by the German public at large, to an extent that endangers its being successful. One reason for this is that the German term for sustainability is not only not very appealing semantically, its meaning has become extremely diffused, as is also the case with the English term "sustainability" or terms for sustainability in other languages. Further, the heterogeneity of the draft's objectives, which constitute almost the complete range of possible environmental, economic and social objectives, may be generally suited for future programmes, but they tend to blur the outlines of the strategy.
- The draft contains individual ambitious objectives, such as the objective of reducing land consumption from 130 ha to 30 ha per day, that are to be assessed positively, but it is in just such difficult areas as reducing land consumption that objectives first seem credible when concrete measures have been decided upon.
- The environmental objectives do not, for the most part, include any that pertain to the state of the environment, although long-term changes in this state is what sustainability is all about. The state of groundwater resources should, for example, be taken into account by having a groundwater objective.
- There is no objective, as called for, inter alia, by the Council for Sustainable Development, pertaining to reducing CO₂ emissions by 40% by 2020 (as compared to 1990).
- The draft does not differentiate sufficiently between objectives and indicators. Some of the indicators are not truly indicators, i.e., simple measures of magnitudes, but rather more or less arbitrarily established partial objectives. Further, some of the indicators are not sufficiently representative. For example, it is to be feared that the indicator designated as Protecting the Stock of Selected Animals, which is based on six species

of birds, and which is completely insufficient from an expert conservationist point of view, will engender policy-making efforts focused on increasing the stock of the six bird species rather than on generally protecting the habitats of endangered animal and plant species.

- The types of indicators chosen, as well as the overall selection thereof, convey a positively biased picture of environmental developments. This is especially the case with the indicators that indicate the relative intensity of environmental burdens as a function of economic performance, rather than indicating increases or decreases in absolute burdens. Indicators such as the Air Pollution or Health Satisfaction indicators may send an inappropriate all clear signal. Thus, additional indicators should be used that pertain to problematic developments or trends, such as pesticide use.
- The “indicator” Gross Domestic Product suggests that growth can be overcompensated for by increasing environmental efficiency. In order to bring about absolute environmental relief, increases in environmental efficiency would have to be larger than increases in GDP. Given the high German GDP growth rates, it has not been possible to accomplish this.
- The strategy has begun formulating concrete objectives for the important polluting sectors, but it is still a long way from specifically confronting polluters with the pollution they cause. Priority is given to seeking a general dialogue with the public at large or with the scientific community. The Council recommends holding regular sectoral conferences at which specialist ministries and interest groups present their views on concrete problems pertaining to their interests and propose ways of resolving these problems. A test case would be the German coal mining industry and its long-term perspectives. In this case, appropriate scientific input would be necessary, and, in this context, the Federal Environmental Agency could play an important role.
- Important transportation policy problems are addressed and some cautious measures are recommended, but Germany, as a Central European cross-shipment country, has every reason to take further-reaching “on site” measures, similar to those taken in Switzerland, in order to contribute to bringing about a reform of EU transport policy and changes in EU transport patterns.
- The eight priority areas of action in the draft are largely a reflection of current government policy. Whereas the strategy formulates concrete and detailed objectives and measures for problems already dealt with in this legislative period, it is very vague as regards long-term planning. This runs counter to the basic function of sustainability

strategies, namely to provide society's actors with a means of orienting themselves for more than one legislative period.

- A basic problem is that there is insufficient capacity to manage the process of formulating and implementing the strategy. The numerous delays to which this process has been prone are the result of putting the management of the process almost solely in the hands of a competent but nevertheless too small group in the chancellor's office. This capacity must be increased, especially as concerns communicating the strategy to the public.
- Finally, the contribution that the public sector could make as a potential leader in matters of environmental performance has been largely ignored. The Council recommends that the public sector set exemplary reduction objectives, for example, to reduce average fuel consumption in public car and truck fleets or to reduce energy consumption in public buildings.

47.* The draft proposal for a sustainability strategy has the character of a future-oriented reform concept with comparatively heterogeneous objectives. It remains to be seen whether and to what extent linking a reform of environmental policy with numerous other reforms in other policy areas will spawn productive learning effects and new alliances or whether it will spawn hypercomplexity that cannot be dealt with. Because of this open-ended situation, the Council would like to stress, as has also the State Secretary Committee for Sustainable Development, the need to not only regularly assess the results obtained, but also to regularly assess the strategy itself.

Only by having a demanding sustainability strategy with far-reaching objectives, concrete measures and straightforward assessment mechanisms will Germany be able to maintain the reputation it has gained as being a leader in climate protection in particular and to extend this reputation to other policy areas.

3.1.2 Towards EU Environmental Liability

48.* In February 2000, the European Commission presented the White Paper on Environmental Liability, in which they propose to harmonize environmental liability law in the member states and to introduce an EU-wide environmental liability regime. They think that this will implement the polluter-pays principle in a more consistent manner, will prevent environmental damage and will create new incentives to observe EU environmental law. According to the white paper, a framework directive is to be used to create a framework regime for environmental liability law. Initially, the framework directive will contain the essential minimum requirements and can, as experience with the directive

is gained over the years, be augmented by further requirements. In order to further design and discuss the proposed directive, the Commission has presented a consultation paper which has made it obvious that that they have backpedaled considerably on their original approach. (The directive proposal, which has now been presented, was presented after this report was completed and thus could not be taken into account in any detail. However, it follows basically the same conceptual considerations as the consultation paper to which the Council refers here.) The proposed environmental liability regime is to apply, according to the consultation paper, only to the following particular types of environmental damage:

- damage to biological diversity protected by the Wild Birds Directive (79/409/EEC), by the Habitats Directive (92/43/EEC) and by national legislation pertaining to protected areas,
- pollution of waters protected by the Water Framework Directive,
- contamination of land that causes serious harm to human health.

Liability for damage caused by activities defined by Community environmental legislation as being potentially dangerous is to be strict, whereas liability for other types of damage is to be fault based.

49.* In principle, the Council assesses the Commission's proposal to establish Community environmental liability legislation positively, but is of the opinion that the details of the proposal require further discussion and amendment. Given that establishing a liability directive would engender far-reaching interventions into the various national legal traditions, which are not to be harmonized more than necessary, the Council would like to see the proposed directive remain a framework directive in character. As such, it should focus on liability for ecological damage.

In order for it to do so, uniform damage criteria and criteria for assessing ecological damage need to be established. In the interest of insurability and in order to prevent the various member states from interpreting the criteria differently, such that competition would be distorted, the directive would need to be made much more specific. As concerns compensation through restoration, which should be given priority, the directive should also be more specific. Further, the narrow scope of the directive, which is limited to a small number of environmental damage types, should be widened.

50.* With regard to traditional types of damage, including damage to human health, which are subject to liability regimes in all of the member states, it would suffice to improve the ability of these regimes to function by making it easier to prove damage.

51.* Compliance with laws or regulations should not, contrary to the Commission's view, constitute reason to exempt damage. By exempting damage that occurs in spite of compliance with all laws or regulations, member states that have not designed their national legal and administrative systems to be sufficiently demanding would be rewarded with a less strict liability regime. The preventative effect of a liability law that is independent of compliance with legal regulations is especially needed when these regulations are inadequate.

52.* Financial security for cases, where liability of the polluter is not feasible, should, as regards strict liability, which pertains to particular activities defined as dangerous, be specified as a uniform responsibility for potential polluters to carry appropriate insurance.

53.* The Council advocates incorporating the responsibility to remediate environmental damage into public law, thus clearly separating it from the area of classical environmental liability for traditional types of damage.

3.1.3 The "Artikelgesetz": In Particular the Implementation of the IPPC Directive and the EIA-II Directive

54.* The "Artikelgesetz" (Separate Act), which went into force on 3 August 2001, implemented the central EU directives pertaining to integrated environmental protection, namely the EU Directive on Integrated Pollution Prevention and Control (IPPC Directive, 96/61/EC) and the Amendment of the Directive for Environmental Impact Assessment (EIA-II Directive, 97/11/EC), in an acceptable manner. Nevertheless, in some respects there is still a need to supplement the act and above all to specify its details better.

55.* It is to be welcomed that the centralised approach of setting emission limit values and consumption levels, which links approval decisions to generally binding precautionary standards, was retained in implementing the IPPC Directive, as this is in the interest of legal certainty and enforcement. Implementation using this approach is, however, not really complete until the environmental standards which define the technological state of the art and which are to continue being used in making approval decisions have also been designed to be integrative. In this regard, the planned amendment of the Technical Directive on Clean Air (Technische Anleitung Luft) should be completed quickly and the water-related standards should also be revised. The required integrative standards should be justified in detail to make them transparent.

56.* The changes in the EIA Act that have been effected by the "Artikelgesetz" allow the essential points of the EIA-II Directive to be implemented true to scale, and they also rectify the implementation problems that had already become apparent with the old EIA

Directive. The greatly expanded scope of the act, the introduction of EIA in cumulative projects and the improved (cross-border) participation of the public are welcome improvements to an environmental policy that endeavours to comprehensively determine, integratively assess and suitably resolve environmental conflicts. As concerns some details, there are, however, still implementation deficits, which means German national law has not achieved the high standard intended by Community law. In particular, it is still the case that not all projects that are required by the EIA-II Directive to be subject to EIA are required to be subject to EIA in Germany. Finally, there are no complementary administrative regulations concerning the implementation of new EIA law that would ensure uniform and quick implementation.

3.1.4 Future EU Chemical Policy

57.* The most urgent problem with regard to EU chemical control remains the control of existing chemicals, i.e., chemicals marketed in the EC before 1981. These chemicals account for approximately 99% of all chemicals marketed. In spite of the introduction of the EC Regulation on Existing Substances in 1993, registration of existing substances is progressing slowly. The reason for this is that the competent public authorities are overburdened with conducting risk assessment, and, given current legislation and the current distribution of burdens, there are few incentives for manufacturers and importers to provide the authorities with the necessary data. Since downstream users are not required to provide information as to what they use chemicals for, there are in particular no reliable data on exposure paths. It is estimated that, given the current speed of evaluation, risk evaluations for the 4,000 most problematic existing substances will not have been completed until the year 3000. In addition, the time-consuming process of issuing substance restrictions delays the implementation of control measures. All in all, the current system has not been able to begin to resolve the existing chemicals problem. Reforms are thus urgently needed.

58.* On 13 February 2001, the European Commission presented a new strategy in its White Paper on a Strategy for a Future Chemicals Policy. On the basis of this paper, legally binding regulations pertaining to the new strategy are to be proposed in 2002. Key to the new strategy is the introduction of the new process for the Registration, Evaluation and Authorisation of Chemicals (REACH).

59.* The registration procedure provided for by the white paper is absolutely the same for existing and new chemicals and will be based on the current registration procedure for new chemicals. Of the 100,000 existing chemicals listed in the European Inventory of

Existing Commercial Chemical Substances (EINECS), the new system will probably be able to register a total of 30,000. For chemicals to be registered, various data relating to the physico-chemical, toxicological and ecotoxicological properties of the relevant chemicals will have to be submitted, the specific data to be submitted depending on production quantities. Whereas existing chemicals previously had to be registered as of a production quantity of 10 tonnes/year and new chemicals had to be registered as of a production quantity of 10 kg/year, both existing and new chemicals will now have to be registered as of a production quantity of 1 tonne/year. The so-called base set, which is to contain data on physico-chemical properties, on toxicity, on mutagenicity and reprotoxicity, and on ecotoxicological properties, will have to be submitted as of a production quantity of 10 tonnes/year. Present legislation requires that this description be submitted as of a production quantity of 1 tonne/year for new chemicals. For existing chemicals, on the other hand, the description is only required if they are to be listed in a so-called priority list.

60.* The second step, namely the evaluation by public authorities of the data submitted to them, is required for chemicals which are produced or imported in quantities of more than 100 tonnes/year or which have certain dangerous properties (chemicals that are mutagenic, that are extremely toxic, that are highly persistent or are highly bioaccumulative, or that have molecular structures that give reason for concern). Registration and evaluation are to have been completed step-by-step by 2012. An authorization procedure is to be introduced for particularly hazardous chemicals "that give rise to very high concern". POPs and chemicals that are proven to be carcinogenic, mutagenic or reprotoxic (CMRs) will require authorization. The number of chemicals subject to authorization is presumed to be 1,400, i.e., approximately 5% of the chemicals registered in step one. After a certain transitional period, a deadline will be established after which all unauthorized uses of a particular chemical will be prohibited. Particular uses can be authorized on the basis of risk evaluations which will have to be submitted to the competent public authority by the applicant. The need to secure authorization will initially not be based on persistence, bioaccumulation or toxicity properties (PBT properties), i.e., on substances' being very persistent or very bioaccumulative (VPVB substances) or on substances having strong endocrine effects.

61.* The white paper is a step towards improving chemical regulation in several important aspects. Particular aspects should, however, be reconsidered, whereby it should be taken into account that future chemical policy must contribute to achieving OSPAR Convention objectives.

The Council warns against making improvements in the registration of existing chemicals by creating deficits in the registration of new chemicals. The Council thus recommends establishing a simplified registration procedure for chemicals produced or imported in quantities of less than 1 tonne/year. At least as concerns new chemicals, the registration threshold should remain at 10 kg/year and submission of a base set should still be required for chemicals produced or imported in quantities of more than 1 tonne/year.

Threshold quantities should also relate to the total quantity of a chemical that is produced or imported rather than to the quantities thereof produced or imported by a particular producer or importer. In any event, it should be taken into account that even the smallest amounts of certain chemicals can engender risks. The quality of the data collected and the risk evaluations made by industry should be ensured using appropriate measures. New test methods for identifying problematic substances more quickly need to be developed and existing test methods need to be continually improved. This is especially the case as concerns the use of computer models to predict the properties of chemicals based on their molecular structure (QSAR).

62.* The Council welcomes the fact that the planned authorization procedure will prohibit particular uses or authorize them conditional to the submission of risk evaluations and that it will reverse the burden of initiative and the burden of proof, which constitutes a large step forward in realizing the precautionary principle. The requirement to obtain authorization should be extended to include substances that have endocrine or sensitizing effects, and PBT and VPVB substances. As long as the properties mentioned here do not constitute criteria for requiring authorization, substances with these properties should be dealt with separately from the authorization procedure by being treated as priority substances.

It is crucial to the success of the strategy to do everything possible to ensure that deadlines are observed. Thus, it must be ensured that substances may not be marketed or used when the applicant does not supply the required data.

The white paper's proposal to establish public databases on chemicals in order to provide the public with information is a first step towards improved transparency. This does not, however, go far enough. Thus the further-going proposal of the EU Council to require manufacturers, users, and marketers to provide information about the chemicals contained in their products and to label them accordingly is to be welcomed.

As regards the transparency and acceptance of the control system, public participation in concrete risk management decisions, e.g., in authorizing particular uses of a substance, would be desirable.

To prevent gaps in protection, chemical controls should also apply to chemicals in products.

63.* The Council calls upon the German government to press, in the course of further negotiations, for the improvements mentioned here. In the political discussion about the white paper, it is becoming evident, however, that implementing the reforms proposed in the white paper will encounter considerable resistance. It will thus be important, above all, to prevent the crucial advances proposed in the white paper from being watered down. In particular, the prohibition of the marketing of substances when producers or importers do not supply the data required to register or evaluate the substances and the reversal of the burden of proof in the authorization procedure should not be watered down.

3.1.5 Integrated Product Policy

64.* In February 2001, the European Commission, in its Green Paper on Integrated Product Policy, presented the first conceptual ideas on how to design future EU product policy from an environmental point of view. The Commission defines integrated product policy as being a policy "which seeks to reduce the life cycle environmental impacts of products". The Commission is obviously aware of the problematic nature of this policy area. What is produced, how much of it is produced, and how it is produced is, in market economies, not determined by the state but rather by the market. Production decisions are always made decentrally by companies based on their estimates of demand. Admittedly, certain government interventions are necessary to remedy market failure, but these, like classical environmental protection measures of the first generation, traditionally tend to be peripheral to the production process and only in exceptional situations do they affect the core area of entrepreneurial freedom and consumer freedom, e.g., by prohibiting a particularly hazardous substance. The concept of production-integrated environmental protection that has increasingly been used in recent years has greatly diverged from this classical model of marginal intervention in that it no longer relies (only) on end-of-pipe scrubbing technologies to reduce emissions from production plants; instead, it now relies on designing the production process itself so that it is as efficient and low-emission as possible. This concept alone constitutes an even greater intervention into entrepreneurial decision-making, one that is not always unproblematic. This problem becomes even greater the more not only production processes but also products are targeted by

environmental policy-makers. When, with good reason, it is deemed necessary to have a policy that affects the totality of supply and demand decisions more than previous policies in order to make market activities more environmentally friendly on the whole, the question arises as to how to design a policy that accomplishes this without greatly diminishing the freedom of market participants and thus also greatly diminishing the efficiency of the market.

The green paper takes the correct approach in stressing that a product policy that is both environmentally effective and market compatible cannot use some patent recipe, but rather that it will, above all, have to use market forces themselves to the greatest extent possible, as well as a finely tuned mix of instruments. The further development of this approach, however, is not on a par with the current discussion on integrated product policy; using vague and insubstantial concepts it goes basically nowhere.

65.* If one includes, in principle, services in products, as the Commission considers doing in its green paper, or at least if one does not exclude them a priori, then the control objectives of an environmentally related product policy relate to potentially all economic activities. It follows from this that product policy is such a complicated matter that any kind of reasonable, substantial control at the level of general policy programmes and concepts is possible only to a limited degree. Concrete action strategies can only be developed in a meaningful manner for specific product or consumption sectors by taking into consideration specific target groups, their interests and information levels, the given economic conditions, substitutabilities, etc. From a rational point of view, using the general form of a concept or strategy paper, one can only, in addition to raising awareness, clarify

- what kind of basic incentive and control problems there are,
- what the advantages and disadvantages of the various possible policy control instruments or combinations of instruments are, whereby how to use them concretely can only be meaningfully determined by taking a targeted approach (thus, in a general concept paper, one can only talk about their uses in an exemplary sense),
- whether the organization of policy decision-making processes is suited to producing reasonable solutions to the basic incentive and control problems mentioned here, or which improvements in these processes are necessary, and
- what product groups policy-makers should deal with on a priority basis.

66.* That the green paper has little to offer as regards the first two points and nothing to offer as regards the last two is unfortunate. There is, however, already an EU product policy and this policy can be further developed irrespective of the green paper. The

problems that an environmentally oriented product policy must deal with are known and instrument issues have been analysed in depth. The need to take action is much greater than the need to acquire further knowledge. The Council recommends that the German government direct its efforts to improve environmentally oriented product policy at the EU level as well as at home towards:

- Improving policy coordination, especially between economic and environmental policy.
- Ensuring minimum standards for environmentally related product quality through regulatory measures such as prohibiting particularly hazardous substances, setting emissions standards, etc.
- Ensuring environmentally related market transparency by using instruments that ensure that consumers are provided with simple and easily understandable information about product properties.
- Using economic instruments to help to bring about longer life cycles, to reduce resource intensity, to reduce hazardous substance content, to improve energy efficiency, and to make products or product groups reusable and recycling friendly.
- Ensuring high standards and appropriate decision-making structures in standardizing products. Basic improvements in actual procedure transparency and further improved institutional and financial support for including environmental interests are essential. It should also be taken into consideration that private standardization associations are in principle less well suited to protecting the environment than to establishing standards to ensure product safety and product compatibility, i.e., their traditional tasks, because of the interest structures involved. The main standards for product-related environmental protection should thus continue to be established using legal regulations in as concrete a manner as possible; it should not be left up to private associations to establish such standards.
- Establishing product policy programme planning that is based on the setting of justified priorities, planning that provides industry early on with an idea of what innovations are needed. Such programme planning is missing from the green paper; it should be developed in the next step.

3.1.6 New Community Guidelines on State Aid for Environmental Protection

67.* State aid (direct subsidies, tax relief and other benefits for individual companies or sectors) affects production costs and market conditions and can thus engender

competitive distortions which run counter to the interests of the Common Market. Articles 87 ff. (previously articles 92 ff.) of the EC Treaty limit the permissibility of granting state aid. This is also the case as pertains to state aid granted for environmental protection purposes. In order to provide member states with guidelines for granting aid, as well as to provide themselves with guidelines for assessing state aid as to its permissibility, the EU Commission established the Community Guidelines on State Aid for Environmental Protection. In February 2001, a new version of these guidelines came into force. This version, which especially takes changes in the energy sector and new types of aid into account, is to remain in force until 2007.

68.* The Commission considers granting environmental aid to run, in principle, counter to the principles of free competition. Nevertheless, since environmental problems can be dealt with in a manner that is in line with the principles of free competition and in line with the polluter-pays principle by internalizing costs, the Commission considers aid permissible in a limited number of exceptional cases. These premises are fallacious both from an environmental policy point of view and a competition policy point of view. The suspicion that environmental aid generally distorts competition is simply not justified. Competition is not an end in itself; it is merely a means of allocating resources efficiently and thus achieving a maximum welfare level. Only those interventions which reduce the effective functioning of competition can be considered to distort competition. Granting environmental aid does not, however, necessarily impair the effective functioning of competition. On the contrary, the whole purpose of voluntarily granting aid to support environmentally friendly production methods is to correct competitive distortions that can be seen to result from the fact that environmentally intensive goods can be sold more cheaply than environmentally friendly goods when environmental costs are not allocated. Given, for example, that the environmental costs that would be incurred in the EU if concentrations of atmospheric greenhouse gases doubled are forecast to amount to approximately €50 billion annually, the aid provided in the EU to the goods-producing and service sectors in order to protect the environment and conserve energy has been extremely modest, namely approximately €1.4 billion from 1996 to 1998.

69.* Investment aid, which is to be granted merely so that Community standards are met, may, pursuant to the new guidelines, be granted to small and medium-size enterprises for 15% of eligible costs for a period of three years after the adoption of new Community standards. The Council is of the opinion that it would have been useful to restrict the granting of aid such that it would be granted only after Community standards have been implemented at the national level; together with the three-year timeline, this would provide an incentive to implement them quickly. Investment aid which enables firms

to improve on the Community standards may, in principle, still be granted for 30% of the eligible investment costs. Only as regards particular purposes, for example, supporting renewable energy, is the Commission prepared to allow member states to grant aid amounting to 100% of eligible costs. There is, however, no reason for these restrictions. The basic aid rate, namely 30%, is not enough to provide the intended incentive, since 70% of the extra investment costs still has to be carried by enterprises themselves. The Council thus recommends working towards convincing the European Commission that member states should generally be allowed to reimburse enterprises up to 100% for the extra costs they incur when making environmental investments that are not required. In the case of new, untried technologies, authorizing an additional risk allowance could be considered. The Council also criticizes certain provisions pertaining to particular areas such as the rehabilitation of polluted industrial sites and the energy sector.

70.* The Commission's extra cost approach, which confines eligible costs strictly to the extra investment costs necessary to meet environmental objectives, is also problematic. The need to explicitly declare the environmentally related extra costs will cause problems as regards product-integrated environmental protection measures and will thus privilege end-of-pipe technologies.

71.* Concessions such as ecotax relief for the goods producing sector are a special type of environmental aid. Such concessions largely spare those portions of the economy that are particularly subject to international competition from having to internalize environmental costs via taxes. The Commission is only prepared to accept this type of aid when certain restrictive conditions obtain (aid is degressive; quid pro quo guarantees are given, e.g., in voluntary agreements; sanctions will be levied in the case of noncompliance). Admittedly, such "internalization-sparing aid" can be considered to have more of a competition-distorting character than aid that directly supports environmental protection services. In assessing whether aid is permissible, it should be taken into account, however, that such tax relief serves primarily to lessen a burden for individual groups of economic actors that their direct competitors in other member countries do not have to bear in the first place. Thus, being restrictive in approving aid is not appropriate in this context either. Given the assessment criteria for approving aid, it is, however, consistent of the Commission to make its continued approval of German ecotax relief conditional upon the establishment of binding sanctions that would be levied if German industry did not fulfill the obligations it has taken on in the framework of the Convention on Climate Change.

72.* On the whole, the provisions of the aid guidelines restrict the scope of national environment policy to an excessive extent. The Council thinks there is a danger that this could slow the development of innovative technologies and prevent member states from assuming leading roles in environmental matters. In the past, however, it has been member states' assuming such roles that has led to advances in environmental policy and environmental technology, and this should remain the case (see Section 11.* ff.). Conflicts with the Commission as regards aid approval should, in appropriate cases, be avoided for the time being by using solutions similar to the Renewable Energies Law.

3.2 Selected Environmental Policy Areas

3.2.1 Climate Protection

Climate Research and Climate Effects Research

73.* The state of research documented by the Intergovernmental Panel on Climate Change (IPCC) in its Third Assessment Report substantiates that a continued increase in the concentration of greenhouse gases in the atmosphere will most likely have catastrophic effects. In view of this research, the "all clear" position of "climate sceptics" is not convincing.

The largest single risk for Europe is that the Gulf Stream could be weakened. Even though recent studies deem that the probability that the Gulf Stream might cease flowing in this century is low, the long-term risk that this would pose for European civilization is unacceptably high. In the future increased attention should be given to whether tropical diseases are spreading to Europe, since climate change is creating conditions that promote their spread.

Long-Term Formulation of Objectives

74.* The Council recommends that international climate protection policy establish the objective of not exceeding atmospheric CO₂ concentrations of 500 ppmv even in the long term. Against this background, the obligations of the Kyoto Protocol can only be seen as constituting the beginning of a further-going reduction policy. As regards the issue of burden distribution between the industrial and the developing countries, German policy on the international distribution of emission entitlements should be guided by egalitarianism moderated by recognizing that countries must have temporal scope to carry out adjustments.

75.* In this context, the Council thinks it is unfortunate that one of the main objectives in the Commission's Proposal for an EU Strategy for Sustainable Development, namely to further reduce greenhouse gases by 1% annually until 2020 (after the first obligation period of the Kyoto Protocol has ended), was not adopted in Gothenburg by the European Council. It is to be welcomed, however, that the European Parliament, in January 2002, spoke out in favour of a 1% annual reduction from 1990 on. The Council is of the opinion that the currently discussed, controversial CO₂ reduction objective of 40% by 2020, as a long-term objective for German climate policy, would be effective and achievable. It would increase the chances of achieving an ambitious EU climate protection objective and thus the chances of motivating other EU countries to participate in a common reduction policy.

It is important to extend the time horizon of national climate protection policy and to introduce a reduction path that extends beyond the first possible commitment period of the Kyoto Protocol. Numerous studies have shown that such a path can be dealt with in a flexible manner and that it can be designed to be economically and socially compatible.

The German Government's Climate Protection Policy

76.* In recent years, the German government has laid the groundwork for intensifying climate protection efforts. As a result of implementing specially targeted policy measures (e.g., promoting renewable energies and introducing the ecological tax reform), the transformation process in eastern Germany and other developments such as the liberalization of the electricity market, CO₂ emissions fell by 15.3% between 1990 and 2000, whereby the largest reductions were achieved in the industrial and energy sectors. The transportation sector is the only sector to experience a distinct rise in CO₂ emissions compared to 1990; in the last two years, however, reductions have also been achieved in this sector. In order to achieve the target the government has set for itself (reducing CO₂ emissions to 25% below 1990 levels by the year 2005), additional reduction efforts will be necessary. Thus, the German government established a new national climate protection programme in October 2000.

Although this programme contains many welcome measures, there is a danger that the climate protection objective will not be met unless further improvements are made. The CO₂ reductions expected to result from voluntary agreements and information campaigns were partially set too optimistically. In other cases, the CO₂ reductions exceeded expectations.

Amongst the measures needed that go above and beyond the climate protection programme, the revision of the numerous special arrangements and support measures for

the most CO₂-intensive fuel, namely coal, is the most important one. The current coal support policy is not compatible with demanding national climate protection objectives.

Reducing CO₂ emissions to 40% below 1990 levels by 2020 is desirable and achievable. It is also compatible with phasing out nuclear energy by 2020. In order to make achieving this objective economically and socially compatible, a cost-efficient climate protection path should be followed which will lead to a considerable increase in efficiency as regards final energy demand and energy conversion, and to a fuel mix that uses little carbon (substituting natural gas for coal as part of transitional strategy for switching to renewable energies in the long term). This would not conflict with supply security concerns. On the contrary, it would increase supply security. On the whole, it is to be expected that such a climate policy will have positive employment effects.

The Ecological Tax Reform

77.* The Council commented at length on the ecological tax reform in its *Environmental Report 2000*. It welcomed the reform's approach of generating incentives to reduce pollution by allocating its costs to polluters. However, it criticized the concrete design of the tax, especially because it is not emission oriented and because it includes too many exemptions for enterprises in the manufacturing, agricultural and forestry sectors. Priority should be given to correcting these shortcomings in the ecological tax reform when further developing it.

The Council recommends keeping the agreed-upon stages in the reform as they are and slowly increasing the tax rates in a predictable manner until even beyond 2003. The tax on electricity should, in the medium term, be replaced by a tax on fossil fuels used by the energy sector, a tax that would be based on the CO₂ intensity of the fuels. Insofar as this can be accomplished without breaching the climate protection agreement between the government and industry, the current exemptions for enterprises in the manufacturing sector should be made dependent upon the energy intensity of production processes, export and import intensity, and energy audits. Concessions for railway transportation and mass transit should, if necessary, be introduced for a transitional period and in a degressive manner. As regards the use of revenues, the current earmarking of revenues for labour market policy uses can only be considered to be a transitional solution, to be used only until the social systems have been reformed. The use of revenues for direct environmental technology support measures should only be considered in cases in which the tax has no effects on market behaviour because of market failure and only when there is no possibility of abuse.

Emissions Trading

78.* The EU as well as the member states are preparing for the emissions trading system provided for by Article 17 of the Kyoto Protocol, the details of which have yet to be established, by considering establishing emission trading systems of their own, which, if necessary, could be integrated into the Kyoto system and which would, for the time being, already exploit the potential of this system for the EU or the member states. In March 2000, the European Commission presented a green paper on greenhouse gas emissions trading that envisages implementing an intra-EU emission trading in 2005. The green paper was followed by an official directive proposal in October 2001. In Germany, a working group consisting of representatives of the government, the Bundestag (Lower House), industry and environmental associations are discussing possible concepts for a German emission trading system.

79.* From an ecological as well as from an economic point of view, it would be desirable to have an emissions trading system which includes all emitters, applies to primary energy producers, establishes strictly quantified emission levels, and is as international as possible.

The voluntary emissions trading systems favoured by industry do not promise any increase in efficiency over the voluntary agreements already in place in Germany. They are also not genuine emissions trading systems in the sense of being recognized instruments, but rather systems with exchange flexibility.

80.* The European Commission's directive proposal envisages a genuine, quantified, sectoral emissions trading system for important sectors, the special feature of which is that emission quantities are not established centrally for the whole area in which the system applies, but decentrally by the member states. Despite the shortcomings of this system, which are due to its sectoral approach, it can have advantages, especially as concerns ensuring that the necessary intra-European contributions to the EU's Kyoto commitments are made. Currently, it looks like the majority of the EU member states that have made reduction commitments within the framework of intra-European burden distribution are going to miss their objectives by a wide margin. The planned, binding trading system, if designed properly, will be able to introduce the necessary discipline into this situation.

81.* The precondition for the planned trading system to be effective and efficient is, however, that current incentives for member states to undermine the functionality of the system by free riding need to be countered more effectively than currently provided for, by especially establishing national emission ceilings and control and sanctioning

mechanisms. Only if the functionality and efficiency of the system is better ensured in this regard than is currently provided for, would the considerable costs of such a system and the retirement of the current system of agreements be worth it. Abolishing current regulations (e.g., within the IPPC-directive) would also only be acceptable if this precondition were to obtain. In any event, reducing the requirements of current regulations should initially only be provided for on a trial basis. The Council recommends that the German government support the directive proposal *contingent upon* this precondition.

Promoting Cogeneration

82.* Cogeneration as a particularly efficient technology for generating electricity is an indispensable element of the national climate protection policy. Since generating electricity in modern highly efficient cogeneration plants is currently, in spite of the high electricity yield produced, usually considerably more expensive than generating electricity in conventional power plants, cogeneration cannot compete with conventional plants without government support or promotive legislation.

83.* The German government has dropped the quota system it originally envisaged. Instead, the new Cogeneration Act provides for a bonus model which pays for cogenerated electricity fed into public grids. This new act is supplemented by an agreement between the German government and German industry.

84.* The Council welcomes the improved support of cogeneration plants provided by the new Cogeneration Act. The details of the act, however, give cause for criticism. In particular, the fact that the construction of new cogeneration plants is not to be supported is not appropriate. It is questionable whether industry will voluntarily construct a sufficient number of new plants. The Council deems that the time limits to which the support is subject and its degressive levels are efficient. Given the long planning and implementation phases involved, it would, however, have been desirable to provide support for a longer period of time. The overall limit specified for support amounts is counterproductive as concerns target achievement. What deserves the greatest criticism, however, is that the bonus arrangement does not take differences in the CO₂ efficiency of cogeneration plants into account.

On the whole, it would seem, given the above-mentioned restrictions, that it is not too likely that the planned target of reducing CO₂ emissions by 23 million tonnes will be achieved by promoting cogeneration, nor is it likely that the considerable potential that cogeneration has will be exploited.

Phasing Out Nuclear Energy and the Indirect and Direct Coal Subsidization Policy

85.* Substituting nonnuclear generated electricity for nuclear generated electricity should not hamper achieving the CO₂ reduction target for 2005, as only two (small) nuclear power plants are to be shut down between now and 2005. The Council does not believe that the nuclear power phase-out will cause any insurmountable problems as regards achieving longer-term climate policy objectives. The capacity of the nuclear power plants that are to be shut down will partly no longer be needed due to energy conservation and can partly be substituted for by using renewable energies and gas-fired cogeneration plants. Given a cost-efficient reduction path, a reduction target of even 40% could be achieved at acceptable costs. A reduction path that is based on efficient energy technologies and a new fuel mix that includes a high proportion of renewable energies is recommended. These technologies are technologies in which Germany has already assumed a leading role, a role that has also engendered positive employment effects.

86.* A cost-efficient CO₂ reduction path requires that the share of coal used to produce energy be reduced considerably. The Council thus advocates phasing out hard coal subsidies. They realize that supply security is an important energy policy objective, but do not believe that the subsidies are necessary to ensure supply security. Long-term supply security can be better ensured by increasing energy efficiency and by using renewable energies to a greater extent.

3.2.2 Protection of Environmental Quality

Fine Particles

87.* The particles that originate mainly from vehicles with diesel engines are currently considered to pose the largest air pollution problem. The current state of knowledge as regards this problem can be summarized as follows:

Diesel soot has been shown by animal experiments to be carcinogenic, i.e., to cause lung cancer. Indications that it is carcinogenic in humans have also been mounting in recent years.

It has been adequately established that respirable airborne PM₁₀ and PM_{2.5} particles can adversely affect morbidity and mortality by causing respiratory, cardiac and circulatory illnesses, after both short-term and long-term exposure. There are serious indications that ultrafine particles (PM_{0.1}) in particular have adverse effects on health and life expectancy.

88.* Recent studies on the health relevance of fine particles indicate that it is necessary to minimize the emission of fine particles and limit their adverse impact. Directive 99/30/EC specifies limit values for PM₁₀ particles, and these limit values are currently being implemented nationally. The Council is of the opinion that limit values for PM_{2.5} particles should also be established which are based on their effects. In this regard, there is still considerable need to conduct further research, especially with respect to

- characterizing the composition of particles from various sources (motor vehicles, domestic heating, industry),
- measuring emissions to determine various particle sizes and analysing their chemical composition,
- conducting animal experiments on the relevance of physical particle properties (mass, surface, number) and chemical particle properties (organic, inorganic, metallic compounds, etc.),
- conducting epidemiological studies on the role of various particle fractions, their composition and their sources.

89.* Since motor vehicles in Germany are an important source of airborne particle emissions and the main source of fine and ultrafine particles, measures for motor vehicles are particularly needed in order to reduce emissions. The Euro 4 standard for motor vehicle emissions, which will go into effect in 2005, will bring about a considerable reduction in particle emissions. However, especially the standards for passenger cars and light commercial vehicles still need to be further developed, and Germany should support the corresponding updating of EU standards. In the meantime, tax incentives could, and should, be used at the national level to promote the use of particle filters.

Aircraft Noise

90.* Traffic-related noise pollution has become one of the most serious environmental and health protection problems. Whereas in most other areas of pollution control great success has been achieved in reducing the pollution involved, noise pollution has continued to increase as traffic has increased, and no really effective countermeasures have been taken. Some time ago, in its special report *Umwelt and Gesundheit* (Environment and Health), the Council described in detail the increasing psychological stress that noise pollution causes to the population exposed to such pollution, and stressed the urgent need for a new, integrated and effective noise abatement policy. Above all, greater efforts need to be taken to abate aircraft noise. The many people who

live near, or work at, airports continue to be exposed to high levels of noise pollution considerable and thus to the concomitant health risks, or at least suffer serious impairment of quality of life.

91.* Undisputably, one should not reasonably be expected to tolerate noise levels that in the long term can impair one's health. Noise levels leading to long term health impairment constitute undisputable tolerance threshold limits. One also has a constitutional right (Article 2, paragraph 2, sentence 1, of the German Constitution) to be protected from noise-related impairment of one's health. Given the various remaining uncertainties in noise research, a "tolerable threshold" cannot be established by making a medical distinction between noise pollution levels which are just tolerable and those which are no longer innocuous. Nevertheless, using current knowledge of the potential effects of noise pollution on health, risk-based precautionary decisions can be made. Noise pollution research indicates that chronic aircraft noise at levels above 60-65dB(A) during the day and 50-55dB(A) at night, measured as L_{eq3} , increases the risk of health impairment. Exposure to levels above 55dB(A) during the day and 45dB(A) at night is perceived as very disturbing and constituting a nuisance, whereby it should be taken into account that the distinction between constituting a nuisance and causing health impairment is not clearly definable due to, inter alia, individual sensitivity differences.

Moreover, it is not appropriate to the problems or interests involved to limit abatement concepts essentially to health protection. The adverse effects of aircraft noise are not only related to health. Usually they are primarily related to considerable decreases in quality of life, as it has also been established that people's ability to perform everyday activities can also be adversely effected. Adverse effects such as these can be perceived as being more serious than certain adverse effects on health. In this regard, the concept of "health-related quality of life" attempts to comprehensively determine the effects of aircraft noise on integrity and well-being. Quality of life understood in this sense must be recognized as a good worth protecting and needs to be given greater importance vis-à-vis interests in cheap air travel.

92.* The current instruments for providing protection from aircraft noise are poorly suited for reducing aircraft noise pollution to a level that does not damage health and is otherwise appropriate to protect the interests of exposed individuals. In particular, there is a lack of

- adequate state-of-the-art standards concerning permissible aircraft noise emissions,
- a legal protection concept which prevents intolerable noise levels as far as possible, not only as pertains to noise caused by building new airports or expanding extant airports,

but also as pertains to noise caused by extant airports, and which is based on legal limit values and an appropriate and efficient mix of active and passive noise protection measures,

- uniform legal night flight restrictions,
- guiding principles for planning and restrictions on settlement that are sufficiently strict to ensure that noise-sensitive land uses, including residential housing, do not continue to develop near high-noise airports, and that land uses that already exist in such areas will in the long term be replaced to the greatest extent possible by noise-insensitive commercial and industrial land uses,
- an obligation to draw up an integrated aircraft noise reduction plan or an action plan that is in accordance with the proposed EU Directive on the Assessment and Management of Environmental Noise and that also takes cumulative noise levels into account,
- the adequate inclusion of military airports and particularly noisy airstrips into the protection regime.

93.* In view of these manifold deficits in the legal noise protection concept, the Council welcomes the Federal Environment Ministry's proposed amendment of the Aircraft Noise Protection Act, as this would be an important step towards improving the noise pollution situation. The proposed amendment is, however, rather incomplete as concerns some points and falls short of what legislation could do to provide problem-adequate, appropriate noise protection. In the opinion of the Council, the following improvements should be made.

- Stricter, state-of-the-art noise protection measures at the source should be required, in as much of the EU as possible, through approval standards and refusing to grant permission to aircraft to land or take off when they do not meet these standards (at least the Bonus List of the Federal Ministry of Transportation).
- Noise protection requirements for existing airports should be further improved and brought into line with the proposed requirements for building new airports or making major modifications to existing airports. The protection zone concept in the Aircraft Noise Protection Act should be supplemented by establishing noise level limit values — continuous and peak limit values — for aircraft noise pollution, especially because overflight frequencies and peak noise levels (L_{max}) caused during overflight contribute greatly to the adverse effects caused by aircraft noise.

- Settlement restrictions near airports should be made considerably stricter. At least the constitutionally allowed possibility of preventing the construction of further housing, without paying compensation, should be fully utilized.
- A general night flight prohibition should be introduced. A well-balanced exemption policy could be used to gradually bring about a long-term transition to the targeted situation in which night flights would be prohibited to the greatest extent possible. The prohibition period and the allowable exemptions should, in the opinion of the Council, conform with the results of the Frankfurt mediation procedure (flights prohibited from 11 p.m. to 5 a.m.).

Electromagnetic Fields

94.* Concerns about the potential risks posed by “electromagnetic radiation” are on the rise among the population. So far, no conclusive evidence has been found that electromagnetic fields affect human health. Recent studies have not found any justifiable reason to suspect that they pose a health risk. Published studies conducted near cell phone base station transmitters, for example, found no indication of any relevant health risks. Further, these transmitters emit comparatively low power fields. Cell phones currently on the market comply with the SAR limit value of 20 mW/10 g of body weight. The Council thus sees no need at the moment to lower limit values to provide better precautionary protection for the public. The Council does recommend supporting further research, however, in order to exclude any residual risks.

95.* Citizens should be informed in detail about the establishment of new facilities that cause electromagnetic emissions. Further, community representatives should be included in the planning of new facility sites from early on. In Germany, a voluntary agreement already exists between cell phone network operators and the German Congress of Municipal Authorities, the German Congress of County Authorities and the German Association of Towns and Municipalities, in which it is stated that new cell phone base station transmitter sites will be established jointly with the municipalities and that the necessary infrastructure will be established in a conflict-free manner.

On the whole, the Council deems it necessary to continue current research projects and to support further research in the areas mentioned here in order to conclusively answer open questions about electrical supply lines to houses and electromagnetic fields, especially those caused by cell phones. Clear scientific findings that can be conveyed to the general public by means of an extensive risk information campaign can bring about a more objective discussion of risks in which unfounded concerns can be addressed. Of particular

scientific interest is research that systematically determines the frequency of symptoms, mental problems and changes in quality of life that occur during exposure to electromagnetic fields.

3.2.3 Privatizing and Liberalizing the Water Supply

96.* The various options for privatizing or liberalizing the water supply sector in Germany have been the subject of controversy for some time. Those who advocate the further privatization or liberalization of the water supply sector justify their advocacy by claiming that further privatization or liberalization would bring about increases in the efficiency of the water supply. The arguments they use are, however, in the opinion of the Council, only convincing to a limited extent. Arguing that privatization or liberalization will engender increases in efficiency assumes that existing water supply structures are correspondingly inefficient. That they are inefficient is to be expected because the current water supply sector is highly fragmented and public water supply companies are not subject to any direct competitive pressures, and thus they can pass their costs on to the consumer without having to bear any risk. Nevertheless, the current regulatory framework does allow various aspects of competition to take effect at the wholesale level (substitutional competition, competition at the wholesale level, competition for investment, price supervision by the antitrust office). Further, raising water rates often encounters acceptance problems. These factors cannot of course replace real competition, but they do engender considerable pressure to maintain cost discipline and to operate efficiently.

The international water price comparisons often dubiously used to substantiate inefficiency claims prove very little for a number of reasons (differences in quality, supply security and proportion of potential customers connected; different environmental standards and rate or price formation models; competitive distortions caused by subsidies). Further, it has to be taken into account that a high proportion of water supply costs are fixed costs, so that the price of a cubic metre of water necessarily increases when consumption decreases. Thus, a water supply sector that wishes to implement the sustainable development principle and that thus targets the smallest per capita consumption possible lays itself open to unjustified inefficiency criticism when this criticism is based exclusively on water prices.

97.* Far-reaching privatization or liberalization of the water supply sector can involve two types of competition: "competition within the market" and "competition for the market". Both options, however, have their economic and environmental drawbacks, which, in the

opinion of the Council, require careful consideration. They cannot be pushed aside by stating wholesale that one should have faith in market forces.

98.* In order to realize the real efficiency potential of “competition within the market”, a common carriage model would be necessary. Unlike in the electricity sector, there is, however, no country-wide interconnected supply network for water in Germany, so that initially the corresponding infrastructure would have to be created. Further, since it costs more to transport water than electricity and since water can usually be extracted near where it will be consumed, network sharing would generally only be expected to engender a high degree of competition in heavily populated areas. As has been recently seen in England, the common carriage model leads to further problems, because when networks are shared, the special properties of the good “water” necessitate making complex arrangements pertaining to who bears what costs, the quality of the water to be fed into the network, and possible liability issues. Also, feeding water of various quality into a common network is not possible without taking cost-intensive treatment measures.

With regard to environmental and health protection, it should be emphasized that to maintain present standards, a great number of additional control measures would be required that would go hand in hand with enforcement costs. Further, “competition within the market” would tend to bring about an increase in supplying water over long-distances. This would possibly not only require adding greater amounts of chlorine to the water thus supplied but would also weaken incentives to protect regional groundwater resources, and would thus run counter to the principles of sustainable water supply. On the whole, the Council judges that “competition within the market” in the sense of common access to networks has no advantage, either economically or environmentally.

99.* With “competition for the market” in the sense of a competitive bidding procedure, environmental and health policy problems could be prevented, at least in principle, by establishing an appropriate regulatory framework and by designing contracts appropriately. However, as has been seen in England, enforcing suitable standards can often encounter strong resistance on the part of private operators. Compliance with certain requirements (e.g., network maintenance) is also difficult to ascertain, which causes monitoring problems. Further, one must consider here that separating environmental policy control from plant operation requires the competent authorities to hire more, and more highly qualified, staff, which can cause considerable additional costs.

Concrete contract design affects the efficiency-increasing effect of “competition for the market” decisively. Since approximately 80% of water supply costs are fixed costs, the scope for large cost reductions can only be realized if private suppliers not only manage

operations but also assume investment costs to the greatest extent possible. If competitive distortions are to be avoided in the next tender, this, however, necessitates very long contract periods, which causes the tender to lose its competitive character almost completely. If short contract periods relating exclusively to operations are chosen, the resulting competition intensity is considerably higher, but the private operator can only influence the variable costs, and the scope for realizing cost reductions is correspondingly small. Further, it should be noted that tenders in highly concentrated markets are susceptible to collusion among bidders and other irregularities.

100.* Given the above situation, it is not surprising that even the advocates of further privatizing or liberalizing the water supply expect that doing so would only increase efficiency by approximately 10 to 15%. Since annual turnover in the water supply sector (DM 13 billion) is considerably less than in the electricity sector (approx. DM 160 billion) or telecommunications sector (approx. DM 90 billion), the available scope for reducing costs, in absolute terms, is comparatively modest. Thus, even according to optimistic estimates, cost reductions would amount to only approximately DM 21 annually per capita. On the whole, the Council fears that there is little to gain from further privatizing or liberalizing the water supply, but possibly a lot to lose. Thus, the Council recommends that the possibilities for increasing efficiency within the framework of the current publicly owned structures should be assessed before taking further privatization or liberalization steps. Possible ways of increasing efficiency would be to introduce binding benchmarking procedures, to increase cooperation between public water suppliers and to use private types of business organization, including public-private partnerships, to a greater extent.

3.2.4 The Amended Federal Nature Conservation Act

101.* The amended Federal Nature Conservation Act introduces reforms that will, on the whole, increase the importance of nature conservation. It sets new priorities and initiates improvements for nature conservation. Among other things, it introduces a biotope network, establishes the possibility of designating nature reserves with a view to their future development, revises the list of legally protected biotopes, provides, for the first time, for marine nature conservation in Germany's exclusive economic zone waters, defines "good agricultural practice" in terms of nature and landscape conservation, introduces environmental monitoring, comprehensively revises landscape planning, extends the applicability of the "Eingriffsregelung" (mitigation and compensation regulation) and introduces the association lawsuit at the federal level. The Council welcomes these changes. However, as regards some points, more extensive changes (that better exploited the possibilities intrinsic to framework legislation) or more concrete

changes would have been desirable. As regards a few points, the Council is of the opinion that the amended act is a change for the worse vis-à-vis the previous version of the act, for example, as regards the “Eingriffsregelung” and the general failure to ensure that the provisions of the act will have a direct impact.

Given the vague nature of many of the new act’s provisions, which is partly due to constitutional constraints, the implementation of the act by the German states will be of crucial importance for the quality of future nature conservation policy. The following recommendations thus largely relate to the future implementation of the act by the German states. As concerns certain points, however, the Council is of the opinion that the inadequate wording of the act needs revising.

Objectives and Principles

102.* The comprehensive revision of the act’s objectives and principles is to be welcomed. However, the newly added generic reference to nature and the landscape as having an “intrinsic value” could possibly be counterproductive with respect to administrative practice.

The special requirement delineated in the principles (Article 2, paragraph 1, sentence 5, of the amended act), namely to develop, maintain and protect areas for recreational purposes, is problematic because it is not limited to areas used for local recreation.

One of basic functions of the Federal Nature Conservation Act as a type of framework legislation is to establish objectives and principles for the states. Thus, it is particularly unfortunate that the objectives and principles (articles 1 and 2 of the amended act) in the amended act no longer have any direct validity. As a result, there is a danger that the amended act could lose its standardizing effect on the objective framework of landscape planning and the implementation of the “Eingriffsregelung” in the German states.

Biotope Network

103.* The amended act’s quantitative and qualitative stipulations pertaining to the network are not specific enough to be implemented. These minimum target stipulations will have to be fleshed out by the German states. The Council is of the opinion that the 10% of the land that, in accordance with the minimum targets, is to be provided by the states for the biotope network should be used exclusively for its core areas. From a qualitative point of view, the amended act does not clearly specify how the network is to be used. It should be assumed that the network is intended to protect only particularly endangered species, groups of species, and biotopes worth protecting. Using the biotope

network to protect all species would put too much of a strain on the network as currently conceived. The amended act is also not restrictive enough as concerns the modalities for protecting the network: landscape conservation areas, stewardship contracts, arbitrary planning designations (for example, as simple priority use areas, pursuant to Article 7, paragraph 2, number 2 of the Regional Planning Act), and “other suitable measures” constitute too weak a form of preservation, at least as concerns the core areas of the network, but also as concerns its interconnecting areas.

The Relationship of Agriculture to the Environment

104.* The definition of “good practice” in agriculture, forestry and commercial fishing given in Article 5 of the amended act is an important step forward, especially because it prohibits the ploughing of grasslands on slopes, ploughing in areas with a high water table, and ploughing in wetlands, and because it imposes an obligation on farmers to maintain detailed records on fertilizer and pesticide use. To a great extent, however, whether this brings about actual progress will depend on how the states flesh out Article 5. For example, the general requirement to refrain from causing avoidable damage to biotopes bordering on cultivated areas and the requirement to maintain a certain density of biotope elements on agriculturally used land will have to be fleshed out. Pursuant to the currently valid version of the act, the states have to bear the costs of creating necessary new biotope elements; farmers do not have to fear they will have to bear these costs.

The Council recommends that provisions be established by the states for the purpose of levying sanctions in the case of noncompliance with the “good practice” definition.

Landscape Planning

105.* Landscape planning is the main nature conservation and landscape care instrument for establishing site-specific objectives and thus specifying general principles of nature conservation. The Council is of the opinion that the greater scope given to landscape planning in Article 13 ff. of the amended act is an important step forward. The binding introduction of area-wide landscape planning in articles 15 and 16 is especially important. In addition to its traditional tasks, landscape planning can now become the basis for the envisaged Strategic Environmental Assessment of Plans and Programmes, for informing farmers about particular “good practice” requirements and for remunerating them for landscape-related ecological services in an ecologically and economically efficient manner. That the act allows too many exemptions from the requirement to establish landscape plans could, however, have disadvantageous effects. The act also fails to stipulate concrete deadlines for revising plans, and to require the participation of

the public in landscape planning. These gaps should be closed by the states when implementing the act.

The “Eingriffsregelung”

106.* The clarification of the “Eingriffsregelung”, the expansion of its scope to include large changes in the water table, and the specification that interventions in especially valuable areas are only allowable in the main public interest are to be assessed positively. It is, however, to be feared that efforts to simplify the “Eingriffsregelung” could reduce the scope to appropriately design rehabilitation measures. Lumping together rehabilitation and restoration makes it practically impossible to prohibit an intervention. The old provision made it easier for public authorities to motivate those wishing to carry out interventions to implement more demanding rehabilitation measures, because they could point out that, without rehabilitation, an intervention could be prohibited. With the new provision, there is a risk that cheap, inhomogeneous measures such as succession rehabilitation could become the rule. To remedy the implementation problems built into the “Eingriffsregelung”, the states should introduce rehabilitation registers.

Association Lawsuits and Participation of Associations

107.* The Council welcomes the introduction of association lawsuits at the federal level. However, the Council also thinks it necessary that associations should have more extensive participatory and lawsuit rights. In addition to the provisions in Article 58 of the amended act, these rights should, in a next step, be made particularly applicable to all planning procedures, including plan approval procedures and urban development planning, which serve as the direct or indirect basis for interventions into nature and the landscape.

Public Lands and Environmental Monitoring

108.* The inclusion, in Article 7 of the amended act, of the requirement to take nature conservation and landscape care on public lands into particular consideration gives the government an exemplary role in matters of nature conservation, a role that has long been called for. The introduction of environmental monitoring in Article 12 of the amended act is also a positive further development worth mentioning. The next step is for the federal government and the state governments to agree on how to comprehensively collect data at the national level and how to make data gathered by the states correspond to the national data.

3.2.5 Agricultural and Fisheries Policy

Reorienting National Agricultural Policy

109.* Agricultural policy not only needs to be reoriented because of the obvious deficits in the areas of consumer protection, food safety and the protection of animals. It will also be absolutely necessary to reorient agricultural policy in order to prevent permanent damage to the natural resources upon which life depends and in order to ensure the continued existence of agriculture on most of the land currently used agriculturally. The Council emphatically supports the efforts of the German government to put issues pertaining to consumer protection, food safety, the environmentally friendly production of foodstuffs, and the species-appropriate keeping of animals at the centre of agricultural policy.

110.* Consumer protection issues have been ignored in the past. The reorganization and renaming of the Ministry of Agriculture has, however, given consumer protection a new status. The ban on using animal meal as livestock feed which was imposed in response to the BSE crisis was long overdue given the fact that the risks involved in this practice were known. It is, however, regrettable that the EU Council of Agricultural Ministers has not been able to muster a majority for banning the use of animal meal permanently.

111.* The agricultural sector contributes to the ongoing endangerment of land, groundwater and especially biodiversity by using fertilizers and pesticides, and thus causing diffuse inputs of nutrients and pollutants, and by engaging in landscape interventions. A tried and proven means of countering this problem is to use current agricultural environmental measures to promote environmentally friendly farming. The envisaged modulation of part of the direct payments to divert funding into supports for extensive and environmentally friendly farming and grassland farming, for reducing the livestock stocking rates in particular regions and for employing environmentally and species-appropriate livestock keeping methods is to be assessed positively in this context.

112.* Current regulations pertaining to livestock keeping need to be applied more strictly, especially as concerns nitrate pollution, which is particularly dependent on livestock stocking rates. The Council welcomes the fact that the German government has, with its Hen-Keeping Ordinance, gone beyond what is required by the EU and has thus assumed a leading role within the EU.

113.* The increased measures taken to promote ecological farming should be directed more towards eliminating the structural disadvantages it suffers from because of its niche production nature. This is the only way to achieve the objective of increasing the

proportion of land farmed ecologically to 20% by 2010. To accomplish this, a strategy should be developed that makes ecological farm products marketable in supermarkets. Further, the possibilities for marketing such products regionally should be improved. The standardized Eco-Label for ecological farm products is the first necessary step towards expanding ecological farming. In addition, it will be necessary to further develop the EU Regulation on Organic Production of Agricultural Products (see also Section 19.*).

Reorienting Common Agricultural Policy

114.* The Common Agricultural Policy (CAP) continues to favour conventional, intensive farming methods over environmentally friendlier methods. A basic reform of the CAP is also necessary because of the upcoming eastern enlargement of the EU. In 1999, when establishing Agenda 2000, the opportunity to completely reorient the CAP was wasted. The increased support for rural areas and organic farming methods, which became the “second pillar” of the CAP, is, however, to be assessed positively.

115.* The half-time assessment of Agenda 2000 has been set for 2003. This assessment should be used to establish a basic reform direction with respect to Agenda 2007 and to agree on reform steps that can be taken in the short term. The rigorous shifting of funds from the first to the second pillar of the CAP should be the guiding principle of the reform. A first step towards accomplishing this would be to introduce modulation in Germany. The requirements pertaining to how these funds are used in the second pillar would have to be flexibilized. Further, the current discrimination against payments in the second pillar should be eliminated. This concerns, above all, co-financing, which discriminates against poorer countries and regions.

116.* The German government should do what it can to have direct payments based on the total area of farms, including landscape elements. This would put an end to discrimination against grasslands or unused areas such as border areas, succession areas and field scrub while considerably reducing the costs of determining the size of areas eligible for direct payment subsidies. Correspondingly, areas on which agricultural environmental measures are implemented should also be included immediately in the total area eligible for subsidies, as there is no reason why desirable structural elements should not be subsidized. The efficiency of subsidies should be increased by orienting subsidy programmes more towards the actual need to take action on farmlands (designation of peripheral areas, formulation of need criteria).

117.* An integrated policy for rural areas should also be able to create new income possibilities for farmers, possibilities such as partially moving processing and marketing

structures back to farms, producing renewable resources and energies, performing landscape and nature conservation stewardship activities, and diversifying services (rural tourism, recreational services, cultural events, etc.).

Long-Term Developments under World Trade Regulations

118.* The CAP's intervention measures and export subsidies will once again be subjected to scrutiny at the next World Trade Round. Further reform of the CAP cannot, therefore, be considered independently of negotiations on the further liberalization of agricultural markets. In the future, it will only be possible to continue to grant a large part of the subsidies by rededicating them as green box subsidies, i.e., subsidies that are linked to environmental services. The next World Trade Summit should endeavour to agree upon minimum standards for environmentally friendly agriculture. The EU should continue to receive compensation for its higher environmental standards.

It is to be welcomed that, at the behest of the EU, the next summit will also negotiate on including "not directly trade-related regulations" and that the WTO Committee for Trade and the Environment is to be given a special role in the negotiations.

As called for numerous times by the Council, subsidies should be completely reoriented, in the medium and long term, towards supporting economic services. Introducing modulation is only the first step in this context. This strategy is only recommendable for preventing long-term conflicts with world trade regulations.

119.* With a well-targeted, environmental-services-oriented, integrated agricultural environmental policy, total expenditures would not have to be as high as the funds currently paid out of the first pillar.

Fisheries Policy

120.* The EU Commission's Green Paper on the Future of the Common Fisheries Policy confirms that EU fisheries do not operate on a sustainable basis. Definite measures are needed to reduce fishing effort, i.e., fishing capacities in the legal sense, rather than the actual capacities. The necessary reductions should begin with the fishing fleets in the individual member states. Germany has already taken definite measures to reduce capacities. Any further reductions would cause fisheries infrastructure to collapse.

Additional preservation measures need to be taken for individual fish stocks. Such measures include rehabilitation measures and stipulations concerning the use of selective fishing techniques that prevent younger individuals from being caught. Fishing gear that can damage the sea floor should also be prohibited (as it causes structural elements to be

covered with sediments, destroys plant cover, etc.). Coastal fisheries already conform to these stipulations to a great extent, primarily because they use passive fishing gear. Special support programmes that could be set up like stewardship programmes would make it possible to preserve labour-intensive coastal fisheries, which are also a tourist attraction, while maintaining their comparatively environmentally friendly fishing methods.

4 Current Problems and Future Developments in Waste Management

4.1 Problems and Objectives in the Waste Recovery Sector

The Changed Situation in the Waste Management Sector

121.* In the late 1980s and early 1990s, the advantages of waste recovery were rediscovered as a result of the scarcity of disposal capacities (the so-called disposal crisis). Today, however, the municipalities that operate state-of-the-art pretreatment and disposal facilities complain about excesses in the recovery sector (bogus recovery) which cause them to operate their disposal facilities at below capacity.

With the passage of the Closed Substance Cycle and Waste Management Act, the economically reasonable recovery of waste became a statutory obligation. Whether or not waste is recovered depends, however, less on the statutory obligation, which is difficult to enforce against the interests of waste producers and waste owners, than on the economic situation, which is itself shaped by, inter alia, legal requirements. Recovery practice is largely determined by waste producers' and waste owners' interest in avoiding the high costs of disposal in state-of-the-art pretreatment and disposal facilities. In the last ten years, this has brought about problematic developments, especially as concerns the disposal of mixed industrial waste.

Untoward Developments in the Recovery of Mixed Industrial Waste

122.* Extremely cheap possibilities of recovering mixed industrial waste with which local disposal possibilities cannot compete are available because there are extremely different disposal standards, internationally as well as within Germany. Many of the 376 municipal landfills in Germany do not comply with technical standards specified by the Technical Directive on Municipal Waste (TDMW). In addition, of the 30 million tonnes of municipal waste and industrial waste resembling municipal waste that were disposed of in 1998, more than half, 16 million tonnes, was deposited in landfills without being pretreated.

Whereas waste disposal in state-of-the-art municipal waste incineration plants costs several hundred euros per tonne, the cheapest prices in Germany for unpretreated disposal in landfills amounted, according to market polls, to €30 to €45 per tonne. The Council has been quoted prices that were as low as €15. That such cheap disposal possibilities are available to such a considerable extent for unpretreated waste is due to the fact that the TDMW, which for a long time has allowed the landfilling of unpretreated municipal waste only in very exceptional cases, has not been adequately implemented by the German states. It is also due to the fact the TDMW and now also the Waste Landfill Ordinance only allow exceptional dumping of unpretreated waste and the operation of non-TDMW-compliant landfills until mid-2005. This deadline motivates especially the operators of noncompliant landfills, which will not be able to operated after 2005, to exploit their landfill capacities until then to the greatest extent possible by offering cheap prices.

123.* These cheap German disposal possibilities create a strong incentive to declare industrial waste as “waste for recovery” in order to avoid having to dispose of it in state-of-the-art and thus expensive disposal plants. A Supreme Administrative Court decision of 15 June 2000 also made it easier to do this by ruling that waste producers are not required to keep recoverable waste separate from disposable waste. The result is that waste producers can circumvent their duty to consign unrecoverable waste to municipalities by mixing it with recoverable waste and declaring the mixed waste as waste for recovery. Legal precedents have allowed mixed waste containing only 15% recoverable waste to be declared as waste for recovery. This means that mixed industrial wastes can be directed around disposal with state-of-the-art pretreatment, for example, by sorting out the small part thereof that is recoverable and then dumping the greater part, unpretreated as it is, in what are now landfills but what will be tomorrow’s contaminated sites.

124.* This situation has engendered a dramatic drop in the industrial wastes consigned to municipalities for disposal and has greatly exacerbated the underutilization of pretreatment facilities. This causes higher fixed costs which are borne largely by private households in the form of higher rates, as they have no comparable means of circumventing municipal disposal fees. To increase capacity utilization in the interest of citizens, operators of municipal incinerator plants have in the meantime begun to offer their free capacities on the recovery market at prices far below €100 per tonne. This allows industrial waste which was being kept out of municipal incinerator plants to now be disposed of in these plants by using a different designation (“incinerate with energy recovery” instead of “finally dispose of”). The cheaper prices are subsidized by the fees paid by citizens.

125.* The Council is of the same opinion as the municipalities involved that the “recovery” of mixed industrial waste that has been made possible by the Supreme Administrative Court’s decision is largely bogus recovery which is motivated purely by the desire to avoid disposal costs and which has no advantages over disposal — it often even has considerable disadvantages. The Council also considers the measures with which the German government intends to resolve this problem to be inadequate (see Section 132.* ff.). The problem cannot be expected to ease itself until the definitive ban on landfilling untreated waste enters into force in 2005.

The Pros and Cons of Waste Recovery

126.* The untoward developments in recovery described above give reason to reassess whether and under what conditions it is correct to assume that waste recovery, as opposed to waste disposal, is the environmentally more favourable option.

Recovering waste is not necessarily environmentally friendlier than disposing of waste. In many cases, recovery, especially high-quality recovery, undoubtedly has advantages over disposal. However, the higher the environmental standards for disposal and the more the framework conditions in the recovery sector favour low-quality recovery, the less it can be assumed that recovery is generally advantageous for the environment.

Recovery generally has environmental advantages over disposal as regards conservation of resources, although not in all the cases currently recognized as recovery. Further, recovery does not cause the environmental burdens intrinsic to disposal. On the other hand, recovery does cause environmental burdens of its own, for example, burdens caused by individual recovery processes (emissions caused by energy recovery, by cleaning processes, by melting processes, etc.), burdens caused by the products or by-products resulting from recovery or by the direct use of processed waste (distribution of pollutants caused by agricultural use of sludges), and burdens caused by the additional transport of materials.

127.* Whether waste recovery is actually environmentally friendlier than waste disposal can thus not be generally determined, but rather must be determined on a case-by-case basis for definite types of waste and recovery streams by comparing the environmentally relevant advantages and disadvantages delineated here. It cannot be assumed as fact that waste recovery is environmentally friendly; rather, its environmental friendliness has to be ensured by creating the appropriate legal framework.

Further, waste management policy has to take economic factors into account. Whether waste recovery or waste disposal is the environmentally more favourable option thus

depends, at the end of the day, on the weight given to numerous factors, and weighting these factors differently for different situations leads to different answers. Making assumptions about the advantages of recovery or disposal does not help here, since it is questionable whether the assumptions made hold true for any particular case or type of case.

128.* The weighting problems involved in this context are, however, extremely complex. The factors to be weighted are manifold, relate to very different types of waste, waste mixes and recovery streams, and are largely incommensurable. Any attempt to objectively and consistently determine the optimal means of disposal for a particular case involving a particular waste type or waste mix by considering all the relevant factors is bound to fail. The question can thus only be how to arrive at somewhat feasible and consistent solutions without markedly ignoring or incorrectly weighting the above-mentioned factors.

The Indispensability of Legal Recovery Controls

129.* It is basically correct that market forces should be mobilized to the greatest extent possible in order to achieve waste management objectives, in particular by implementing market instruments that allocate, to the greatest extent possible, the environmental costs of waste recovery and waste disposal to the individual party responsible for causing the costs. The possibilities for doing so, however, are very limited by the complexity of the uses of the environment that are involved — in particular, by the variety of pollutants contained in waste, as well as by amounts and combinations of these pollutants, and by the variety of pathways by which they are spread via disposal facilities and the products or by-products resulting from recovery.

The environmental friendliness of waste disposal can and must be ensured largely by using legal instruments that are not specifically waste management instruments, for example, pollution control standards, water standards and product standards. Especially as concerns recovery, however, there is still a need for legal controls pertaining specifically to waste management. In particular, controls pertaining to waste inputs into recovery processes will remain largely indispensable.

Harmonization of Waste Disposal Standards

130.* The most effective means of ensuring that waste streams do not flow into environmentally inferior, cheap disposal possibilities is to harmonize disposal standards at an environmentally sophisticated level. Since especially the recovery market is an EU market, the harmonization of standards must include harmonization at the EU level.

With the adoption of the Landfill Directive and the Waste Incineration Directive, important improvements were made for the EU member states in this regard. The Waste Landfill Ordinance established essential prerequisites for harmonizing the disposal standards within Germany, and the disposal prices they induce, by setting the binding date for the expiration of special permits for non-TDMW-compliant landfills and for the landfilling of untreated waste for 1 June 2005. Ordinance 30 on Implementing the Federal Air Pollution Control and Noise Abatement Act (30/FAPCNA) also represents an advance in harmonizing standards in that it raises the emission standards for mechanical-biological waste treatment facilities.

These improvements are, however, not enough. At the EU level the Landfill Directive still leaves considerable scope for landfilling untreated or inadequately pretreated waste. The Waste Incineration Directive approximates the standards for the regular incineration of waste and the incineration of waste with energy recovery through co-firing in industrial plants and facilities without completely harmonizing them. The harmonization of standards effected at the national level by the Waste Landfill Ordinance will not take effect until 2005. The standards set by 30/FAPCNA for existing plants and facilities will not be valid until five years after it enters into force. The above-mentioned regulations do not cover all of the waste streams for which stricter standards are needed at the national level and especially at the EU level. Further, it is to be feared that there will be implementation deficits, especially as concerns the actual implementation of EU law in the member states. Thus, what is necessary, in addition to making further progress in harmonizing disposal- and recovery-relevant standards, is to improve implementation instruments throughout the EU. In addition to expanding association and citizen lawsuit rights, linking the freedom to transport recoverable waste to observing EU waste disposal standards could contribute at the EU level to improving implementation.

The Scope for Controlling Waste Recovery at the National Level — General Comments

131.* The member states' waste management scope is limited by EU law, especially with regard to waste recovery, since waste for recovery can be freely transported throughout the EU. This poses particular problems for Germany because the recovery concept used in the Closed Substance Cycle and Waste Management Act has not been sufficiently approximated to the concept used in EU law. This makes it difficult, inter alia, to use the practically most important means that the EU Regulation on the Supervision and Control of Shipments of Waste provides for preventing objectively absurd recovery in foreign countries: raising objections to the unjustified recovery of waste under economic and

environmental considerations. Thus, approximating German waste law to EU waste law by making the German recovery concept less demanding recommends itself. This proposal does not aim at making recovery policy less demanding, but rather at placing necessary demands on the appropriate legal system.

The scope for a national waste policy that promotes high-quality recovery and prevents bogus recovery cannot be determined with any certainty given current uncertainties about the requirements of EU law. The European Court's ruling in a pending case pertaining to whether incinerating municipal waste in an incineration plant that utilizes waste heat qualifies as recovery will be of particular significance in this context. It is thoroughly possible that the court will rule that it does qualify as recovery. This would not necessarily, however, render irrelevant the obligation to consign to municipalities waste that national law currently classifies as disposable waste. The Council assumes that EU law cannot be interpreted as prescribing the complete liberalization of the waste market, and will not be interpreted as such in this court case. The Council is further of the opinion that it is regrettable that the German government has not attempted to use opportunities (for example, this court case) to secure an interpretation of EU law that preserves national scope.

The Most Environmentally Friendly Waste Management Option, Waste Segregation Requirements and Waste Recovery Standards as Priorities

132.* Giving priority to the most environmentally friendly waste management option should, in the opinion of the Council, constitute the environmental policy guideline for waste management regulation, but is not suitable to be transposed into a directly applicable legal order.

133.* As long as framework conditions obtain that make it economically attractive to recover waste in order to avoid disposal, any solution that aims at ensuring that waste is only recovered when recovery is the environmentally and economically better option will have to rely on segregation requirements. However, segregating different types of waste cannot justifiably be required in general and at all costs, but rather only when it is in the interest of legal waste management objectives and only when it is economically reasonable. Thus, waste segregation requirements must remain relative. In the opinion of the Council, it would be useful to legally require waste producers and waste owners, in so far as it is economically reasonable, to segregate waste, and store it separately, to the extent necessary to facilitate reasonable recovery of the highest quality possible and to facilitate the direct disposal of nonrecoverable waste, whereby economically reasonable

segregation is understood to consist in the same segregation efforts as are considered reasonable for private households in Germany.

Whereas the obligation to consign partially recoverable mixed industrial waste to municipalities for purposes of disposal is problematic as regards EU law, a segregation requirement of this type would only be problematic if noncompliance with the requirement were penalized by classifying prohibited mixtures as disposable waste. This would not be necessary, however; in order to enforce a segregation requirement, fines could be imposed instead, without infringing EU law.

134.* The German government, however, is against a general legal segregation requirement, for reasons of complying with EU law. Instead, they presented a proposal for an industrial waste ordinance on 7 November 2001 which gives producers of industrial waste the option of keeping certain recoverable waste fractions (paper and cardboard, glass, plastics, metals, biowaste) separate from one another and from other waste or the option of pretreating mixed waste that contains these types of waste such that a recovery quota of at least 85% is achieved. In view of the fact that every industrial enterprise also produces unrecoverable waste, there is also a provision which requires such enterprises to use an appropriate number of waste containers (at least one) provided by the relevant public waste disposal service. Compared to a previous proposal which was rightfully rejected by the parties involved because it was completely impracticable, the government's proposal is a step forward. The Council considers it, however, still inadequate and difficult to implement. It deems the specified quota, which will make pretreatment enterprises responsible for meeting waste producers' segregation obligations, to be a poorly suited and, in view of the fact that it requires extensive documentation, an incommensurately complicated control instrument. What should prove effective is primarily the requirement to provide an appropriate number of waste containers. This useful approach should be made even more effective by expressly allowing municipalities the assessment and standardization scope to establish appropriate statutes.

135.* National recovery control instruments that are not problematic with respect to EU law are national standards for the permissibility of recovery measures. One disadvantage of this type of instrument is, however, that it can only be applied to recovery measures within Germany and cannot be used to prevent the transport of waste to other EU member countries to be recovered there. Thus, regulations are needed primarily at the EU level. As in the past, EU environmental policy will continue to be further developed by following examples from amongst the ranks of the member countries. Member countries' waste

management policies often force the EU to catch up. Moving forward in EU environmental policy-making depends to a great extent on the willingness of individual member countries to assume a leading role. The probability of an EU regulation being established can be increased by first developing and testing a convincing regulatory concept at the national level. Assuming such a role should thus not be something to shy away from when it comes to setting standards. Nonetheless, it goes without saying that this could have at least temporary economic disadvantages. The scope for member countries to assume leading roles is thus also limited. Thus, waste policy must focus on further developing EU waste law.

Further Developing EU Waste Law

136.* EU waste law is based on an environmentally undemanding recovery concept. What is needed in the short run is a clear definitional distinction between thermal recovery (recovery as energy) and disposal. Efforts to make this distinction at the EU level should be supported by Germany even though they may not always conform to what Germany considers ideal, for example, as concerns a demanding thermal value criterion.

Further, the standards for recovery and disposal measures need to be further developed and harmonized at a demanding level. One of the most pressing tasks in this regard is providing standards for waste incinerator waste input (see Section 140.*).

The freedom to transport recoverable wastes within the EU should be linked to a requirement that incinerators receiving waste transported over borders must comply with EU environmental standards. This would also appear necessary in view of expectations that recoverable waste will flow into the future new EU member countries. This flow should be restricted by not allowing complete freedom to transport recoverable wastes to these countries until after the transitional deadlines for their complying with EU waste disposal standards have expired. This would, however, not ensure that waste exports do not occur before the standards are *actually* complied with.

137.* In the short term, the EU Regulation on the Supervision and Control of Shipments of Waste needs to be revised more thoroughly such that permissibility of shipping waste from one member country to another is no longer made dependent on the distinction between disposal and recovery, but rather on a more differentiated assessment of relevant economic and environmental factors.

138.* In view of the fact, inter alia, that the sense or nonsense of recovery measures can only be judged by weighing up all the factors involved, and that doing so can lead to different conclusions (see Section 126.*), the Council advocates further developing

product-group-specific regulation strategies. In developing these strategies, special attention should only be given to requiring and promoting the establishment of separate collection systems if the systems actually, at least for the most part, feed into different recovery streams. The integrated product, material-related regulation strategy envisioned by the EU environmental commissioner should only be supported if the strategy can be implemented using tradeable material recovery quotas or other similarly binding systems. Otherwise the strategy would be tantamount to a deregulation strategy, which the Council could not support.

4.2 Waste Recovery Measures and Problems for Specific Types of Waste

Coincineration of Waste Used as a Substitute Fuel in Industrial Furnaces

139.* In the future, the volumes of waste used for energy recovery will increase considerably, the number of industrial furnaces, primarily in cement works and coal-fired power plants, in which waste is coincinerated will increase, and the number of waste types used for coincineration will increase. As substitute fuels and secondary raw materials become increasingly used for coincineration, the air emissions and sewage discharges resulting therefrom, as well as the quality of the products and residues produced, will increasingly be affected by the pollutants contained in the waste used.

140.* The legal framework for dealing with the problems this will cause is inadequate. In particular, binding standards pertaining to the permissible pollutant content of waste inputs are lacking. The establishment of such standards, since they are of crucial importance for waste management and environmental protection, should not be left up to private institutions such as the European Committee for Standardization (CEN) or the German Institute for Quality Assurance and Certification (RAL); rather, they should be established by democratically legitimated legislative bodies.

141.* In the opinion of the Council, the coincineration of waste should not be allowed to bring about a worsening of the environmental situation. The permissible pollutant content of substitute fuels should not be based on the interests of parties who sell substitute fuels, but rather on the pollutant content of the primary fuels being replaced. Because the content varies, average content values, rather than extreme content values, should be used as the guiding principle.

142.* With regard to the emission standards pertaining to the coincineration of waste in industrial furnaces, the Council would once again like to state that these standards should

be brought into conformity with the current standards that apply to waste incinerators. The law promulgated by North Rhine-Westphalia which specifically deals with incinerator waste gas flows by requiring that they be subjected to substance flow analysis is a step in the right direction. However, the question of whether this law is consistent with the current version of Ordinance 17 on Implementing the Federal Air Pollution Control and Noise Abatement Act (17/FAPCNA) remains to be answered.

The proposal for amending the Technical Directive on Clean Air is a step forward towards harmonizing these standards, as the proposal brings some of the general standards for industrial installations into conformity with the standards set by 17/FAPCNA. The EU Waste Incineration Directive is also a step forward as regards the harmonization of standards. These steps, however, do not go far enough, and thus there is a need to take action at both the national and EU level. At the national level, the planned amendment of the Technical Directive on Clean Air and the planned amendment of 17/FAPCNA should be used to harmonize the emission standards for waste incineration and waste coincineration such that they exceed EU requirements.

In harmonizing environmentally related disposal and recovery standards, it should also be determined how to extend 17/FAPCNA so that it applies particularly to the use of waste as a reducer in the iron and steel industry.

Agricultural Recycling of Sewage Sludges

143.* More sewage sludges are recycled today than ever before — over one-third of the sludges produced in Germany are used as fertilizer. The reason that there are misgivings about this recycling stream is that sludges regularly contain heavy metals, organic pollutants and other critical municipal sewage residues which may be detrimental to the environment and health. Increasing doubt about the environmental acceptability of the agricultural recycling of sludges have given rise to demands that the Sewage Sludge Ordinance be amended, especially that stricter pollutant limit values be established for sludges and soils. There have even been calls to put an end to this type of recycling.

However, in assessing the agricultural recycling of sludges, not only the risks involved in using them as fertilizer should be seen. The benefits of this type of recycling also need to be taken into account, as well as the fact that environmentally friendlier disposal alternatives are not available, and that fertilizers that could be substituted for sludges, especially commercial fertilizers made of animal excrement, also contain considerable amounts of pollutants.

144.* In view of these circumstances, the Council recommends proceeding in a step-by-step fashion. In doing so, the long-term precautionary objective should be to establish maximum pollutant levels for all types of fertilizers such that neither the accumulation of pollutants in soils nor the environmentally damaging or health-damaging contamination of groundwater or crops is to be expected. The current Sewage Sludge Ordinance does not ensure this; limit values for commercial fertilizer and other types of fertilizer are not even specified.

If an integrated limit value regulation for sludges, commercial fertilizer and other types of fertilizer is not politically realizable currently, the limit values specified by the Sewage Sludge Ordinance for maximum permissible pollutant levels for sludges should, in a first step, at least be made stricter, and limit values for especially environmentally relevant pollutants, namely LAS, DEHP, NPE and PAH or beno[a]pyrene, should be established. The limit values proposed in the European Commission's EU Sewage Sludge Management Working Paper (Third Proposal) should, in the opinion of the Council, be used for the parameters to be added to the Sewage Sludge Ordinance.

In making the current limit values in the Sewage Sludge Ordinance stricter, the currently very limited possibilities for disposing of sludges in an environmentally friendly manner other than by agriculturally recycling them should, in addition to the precautionary objective delineated above, be taken into account. Further, when initially making limit values stricter in the short-term, it should continue to be ensured that the comparatively much less polluted sludges from smaller sewage treatment plants will essentially still be able to be recycled on local fields. In view of these recommendations, the Council further recommends that the maximum permissible values for organic pollutants and heavy metals should be lowered to approximately 1.5 times the average levels currently measured. This would mean that approximately 30% of the sludges approved for use as fertilizer by the Sewage Sludge Ordinance would have to be disposed of some other way; thus, adequate incineration or coincineration capacities should be established as soon as possible.

145.* The Council recommends developing or further developing thermal processes for recovering phosphates from sewage and sewage sludges so that phosphates could be substituted for sewage sludges used as fertilizer. Recycling phosphorus in this environmentally significant manner could, in the long term, become economically interesting for large sewage treatment plants producing large amounts of sewage sludges.

End-of-Life Vehicle (ELV) Recovery

146.* A regime for the environmentally friendly disposal of ELVs was established in Germany in 1998 through a voluntary agreement with industry and a flanking regulation that comprehensively supports the agreement's objectives. Approximately two years later, in October 2000, and after much controversial debate, the EU Directive on End-of-Life Vehicles (ELV Directive) entered into force. This directive must be transposed into national law within 18 months of its entering into force. The directive differs from the German regime in that it stipulates that motor vehicle makers be required, as of 1 January 2007, to take back all of their makes from their last owners free of charge. Further, cadmium, mercury, lead and hexavalent chromium will no longer be allowed, apart from a few exceptions, to be used in producing motor vehicles and motor vehicle parts and components. As regards ELV recovery, the directive differentiates between simple recovery and a more environmentally demanding type of recycling which excludes energy recovery. The reuse and recovery rate for ELVs is to be increased to 85% by 2006.

147.* In order to transpose the EU ELV Directive into German law, the Federal Ministry of the Environment, in August 2001, presented a proposal for an ELV law which was approved by the Federal Cabinet in December, after making a few changes. The core of the proposal is the requirement, which corresponds to the above-mentioned requirement in the EU directive, that motor vehicle makers must take back all of their makes from their last owners free of charge as of 1 January 2007.

148.* The Council welcomes the fact that manufacturers' responsibilities in matters of ELV disposal have been extended in the EU ELV Directive and especially in the German government's ELV proposal. The allocation of all ELV disposal costs to the manufacturers can provide previously lacking incentives to optimize the development and design of new vehicles to make recycling easier. Thus, the requirement that manufacturers must dispose of ELVs should not be watered down. Further, the Council recommends that the objective of reusing or recovering 85% of ELVs should be targeted for sometime before 2006. Pursuant to the current voluntary agreement and the End-of-Life Motor Vehicle Take-Back and Recovery Ordinance this objective is to be achieved already by 2002. That this is realistic is borne out by the first monitoring report by ARGE-Altauto. Given the efforts already taken, it would be sending the wrong signal to now postpone the targeted year for achieving the first quantitative partial objective by four years.

149.* The method used in the EU ELV Directive of differentiating recovery quotas according to various recovery processes (material and energy recovery) is to be welcomed especially because it ensures the environmentally highest-quality recovery

possible. However, the Council is of the opinion that there is still scope in this respect for improvements at the national level. For example, the purely quantitative material and energy recovery quotas specified in the EU ELV Directive could be supplemented by specifying particular permissible processes for particular material streams in order to guarantee the greatest possible recovery quota while guaranteeing that the recovery processes are of high quality and are not harmful to health. At the EU level, the German government should also actively participate in the regular revision of exemptions from the ban on using heavy metals listed in the Annex of the EU ELV Directive. It should also work towards having exemptions that are not completely necessary deleted or made subject to timelines. Further, the German government should press for the inclusion of PVC in the list of prohibited materials in the EU ELV Directive, since the horizontal PVC strategy which the EU is attempting to put together is making only slow progress.

Electrical and Electronic Appliances and Devices Recovery

150.* Given the increasing use of electrical and electronic appliances and devices in the private and commercial sectors, the disposal of these appliances and devices at the end of their life cycles is becoming increasingly problematic. Currently only a portion of such appliances and devices are disposed of in an environmentally friendly manner, especially since corresponding legal requirements continue to be missing.

In June 2001, the European Commission presented two proposals for directives on producer responsibility for waste electrical and electronic equipment (WEEE) and for restricting the use of hazardous substances in electrical and electronic equipment (ROHS). The Commission agreed to draw up a third proposal for a directive on the environmentally friendly design of such equipment (EEE).

151.* The Council welcomes the WEEE and ROHS proposals. Producer responsibility for the disposal of waste equipment can create considerable incentives to innovate in the areas of product design and take-back logistics. These incentives can, however, only be effective if producer responsibility is designed to be competition oriented. The German government should thus more actively support the incorporation of individual producer responsibility for the take-back and recovery of electrical and electronic equipment.

152.* In view of the delays caused by failed efforts to establish a voluntary agreement in Germany, the EU should set a tight schedule for adopting and implementing the WEEE. The Council welcomes the fact that EU institutions have shortened the transitional phase for producer responsibility to go into effect to 30 months, but considers the exemption

regulation established by the European Council and the European Parliament to be too generous.

153.* It is of crucial importance for the environmental effectiveness of the directive that demanding and consumer-friendly take-back systems are established which ensure the greatest possible take-back rate. The Council thus recommends that minimum criteria and guidelines for the quality of take-back infrastructures be developed. In order to strengthen incentives to give back small appliances, a deposit requirement should be established. As regards the further development of substance bans, a precautionary approach should be used, one which would take into account potential exposure during the complete life cycle of products and which would provide incentives to substitute other substances. The substance bans should be expanded to include further brominated flame retardants (octa- and decabromodiphenyl ether).

Waste Packaging Recovery

154.* As regards the disposal of waste packaging, there continues to be great need for reform. Especially the cost-benefit ratio of recovering plastic packaging would appear to be in need of improvement. Given the current state-of-the-art in sorting technologies, the Council continues to call for limiting the separate collection and recycling of plastic packaging to large, fairly clean and largely unmixed hollow packaging and film. Small plastic packaging, on the other hand, should be collected in the future as residual waste by municipalities and incinerated in facilities with energy utilization systems.

The development of new sorting technologies could considerably improve the cost-benefit ratio of the recycling of small plastic packaging in the next few years. Against this background, the Council recommends waiting for practical experience to be gained with the new sorting technologies and assessing their general applicability as state-of-the-art technologies. Until then, any decision to reform the separate collection system should be postponed.

155.* There is also a need to take environmental policy action as regards beverage containers. According to surveys conducted by the Gesellschaft für Verpackungsmarktforschung (Society for Market Research on Packaging), the proportion of reusable beverage containers sold in 1999 amounted to 68.7%, which was a new all-time low. Nevertheless, the Council advises against charging a deposit on nonreusable beverage containers, as this would not only be of questionable environmental effectiveness, but would also cause unjustifiable extra costs. This is also the case as concerns the proposed amendment of the Packaging Ordinance introduced in the

Bundestag (Lower House) in July 2001, which provides for a modified deposit scheme. The best way to support reusable container systems, better than levying deposits or stipulating reusable container quotas, is to levy a differentiated tax on the various types of beverage containers in order to allocate the environmental costs to the polluter.

156.* The Council deems the stipulation of rigid recycling quotas, also as regards packaging in general, to be only a second-best solution, as compared to completely allocating the economic costs of producing packaging, using packaging and disposing of packaging to the polluter. In this regard, the Council welcomes the fact that in July 2001 the Green Party and portions of the SPD once again attempted, albeit unsuccessfully, to replace the Packaging Ordinance's quota scheme with a packaging tax.

As long as the government sticks to the current quota scheme, it should at least, in the opinion of the Council, ensure that meeting the quotas takes place in a competitive environment. In principle, the Packaging Ordinance allows competition in the disposal and recovery of waste packaging. Nevertheless, Duales System Deutschland AG, because of the various market barriers it creates, constitutes a monopoly. The Council is of the opinion that competition between the operators of various systems could reveal considerable cost reduction potentials and motivate technological and organizational innovation. Initial research findings indicate that there are various possibilities for introducing competitive structures into the disposal and recovery of waste packaging, whereby a licensing system of the British type promises the greatest efficiency potentials in the long-term perspective. Before introducing such a system, numerous individual design problems would have to be resolved.

Recovery of Scrap Wood

157.* Scrap wood often contains contaminants. Whether and how scrap wood should be recovered or whether it should be finally disposed of should depend on the contamination types and levels involved. Currently, there is no legislation in either Germany or the EU which regulates the disposal of scrap wood. In September 2001, the Federal Ministry of the Environment presented a proposal for an ordinance on the disposal of scrap wood which would, for the first time, establish specific, binding requirements for the recovery of scrap wood.

158.* The Council welcomes the proposal's choice of using a special regulation to ensure the environmentally friendly recovery of scrap wood. This approach is extremely useful. Some of the details, however, should be changed. In particular, the definition of material recovery, which determines the scope of the proposed ordinance, and some of

the recovery standards should be changed. The standards for recycling scrap wood into raw products for making wood products should be made more restrictive and more straightforward, which would make it unnecessary to change chemical legislation to accommodate contaminant types and levels in raw products. Special segregation requirements which foreseeably cannot be met should be avoided. The changes in chemical legislation required by the proposal would be obviated insofar as approval of contaminants in material recovery products (wood chips and shavings, wood products and the products made thereof) is concerned if stricter standards for material recovery were established. On the other hand, these changes do not go far enough in that the urgent need for similar regulation of other types of recycling, especially scrap cable recycling, has not been taken into account due to the resistance of the Federal Ministry of Economics.

159.* The proposed ordinance can only set standards for scrap wood recycling in Germany. It does not provide for any legal means of preventing the export of scrap wood or recycled scrap wood products. Thus, the export of scrap wood or recycled scrap wood products may well occur in order to side-step the ordinance. For this reason, harmonization of standards should be sought at the EU level. Regulation that leads the way at the national level will also improve the chances of accomplishing this.

4.3 The Pretreatment of Municipal Waste with a View to 2005: Forecasts and the Need to Take Action

160.* According to currently available forecasts of the development of residual waste for landfill and the development of pretreatment capacities, it is highly doubtful that pretreatment of all waste for disposal will be possible in Germany from 31 May 2005, when the Waste Landfill Ordinance no longer allow exemptions from its pretreatment requirement. Sufficient capacities will at best only be available (1) if the volumes of municipal waste for disposal shrink considerably by 2005, (2) if by this date considerably more mechanical-biological pretreatment facilities are put into operation than are currently provided for by the relevant plans, which are known to the German government, and (3) if by this date all of the possibilities for optimizing the capacity of existing incineration plants are fully exploited. And this does not take into account the capacity needed for industrial mixed waste requiring pretreatment which is currently not disposed of in municipal pretreatment facilities, but rather "incinerated with energy recovery". That all of the above-mentioned conditions will be met by mid-2005 is, in the opinion of the Council, not very likely. Less optimistic forecasts predict that pretreatment capacity deficits will amount to between 1.3 million tonnes and 7.9 million tonnes in 2005.

161.* It also seems unlikely that the Waste Landfill Ordinance in and of itself will motivate, in a timely fashion, the primarily responsible public disposal services to make the necessary investments and create the necessary pretreatment capacities. There are three reasons for this: First, the disposal market works against the requirement to pretreat waste. The current large surplus of incineration capacities deters municipalities from building waste pretreatment facilities. The likely possibility that pretreatment prices could fall even further also acts as a deterrent. Secondly, the requirement to pretreat waste does not provide adequate motivation to do so because actors who should act now in order to create sufficient pretreatment capacities for 2005, due to the difficulties in holding them individually responsible, do not have to fear that their failing to create such capacities will have any serious consequences for them. Thirdly, it is not to be expected that the German states will implement the ordinance efficiently, since they do not have the means, as regards the relevant disposal planning of municipalities and counties, to implement it vigourously and quickly.

162.* Given this situation, the German states should require their municipalities and counties to immediately provide detailed information about how they intend to implement the ordinance. Should this information not be convincing and should an unexpected surge in investment in pretreatment not take place soon, then it is likely that the foreseeable bottleneck that will occur in 2005 will lead to environmentally, politically and legally unacceptable circumvention of the ordinance and will also put policy-makers under pressure to open up recovery streams that are environmentally questionable. In this case, the German government should change its control concept in due time by extending the deadlines for the current provision allowing exemptions from the pretreatment requirement and by charging operators a fee for taking advantage of the exemption provision. Of crucial importance in this is setting the fee high enough to make it unattractive to continue to postpone creating the necessary pretreatment capacities. Thus, the fee should cost at least as much as pretreatment would cost. In order to provide a further effective incentive to quickly expand pretreatment capacities, the building of pretreatment facilities should be subsidized, using the fee revenues, such that the sooner they are to be built, the greater the subsidies paid for their construction.

163.* As a flanking measure, the German government should ensure that disposal authorities/enterprises responsible for pretreatment cannot engage in "bogus waste recovery" by moving their waste to other countries (see Section 136.* ff.). This should, of course, also be done if the government sticks to its strict pretreatment requirements.

4.4 Aspects of Future Municipal Waste Disposal

Sorting/Separation Systems

164.* Nowadays, sorting/separation systems for municipal waste and industrial waste resembling municipal waste serve primarily as an aid in implementing legal recovery requirements. Simple systems rely on mechanically assisted sorting by hand. Automatic sorting involves well-known resource recovery methods consisting of specially adapted and variable processes which use modern sensor and computer technologies in order to increase throughput, degree of separation and output. New developments in sorting technology in recent years are designed for use with segregated waste fractions, i.e., not for use with mixed waste, and thus rely on at-source separation. The efficiency of modern sorting technologies is highly dependent on the degree to which waste input is mixed and contaminated.

165.* In the opinion of the Council, it is not to be expected that the high efficiency with which separately collected household waste is processed can also be easily achieved with mixed waste. The Council recommends that the largely negative experiences that have been had with mixed waste processing should be borne in mind and that mixed waste concepts that rely on later sorting should be viewed cautiously. The Council underlines its assessment made in its 1990 special report *Waste Management*, namely that at-source separation continues to be the precondition for any type of high-quality material recycling, and would like to stress that this is also the case with industrial waste resembling municipal waste. As regards household waste, one should be cautious about experimenting with mixed waste concepts, because the willingness of citizens to sort their household waste in the interest of the environment could wane if mixed waste concepts were reintroduced.

166.* The state of the development of sorting systems also has an effect on whether the objective of achieving complete recovery of all household waste by 2020 can actually be realized. This objective is based on a waste management model which assumes development in the state of sorting systems which, in the opinion of the Council, will likely not obtain by 2020.

167.* It is not very likely that improved sorting systems would make possible any alternative types of household waste disposal that would have recovery rates that are economically and environmentally superior to the rates achieved by the current type. Thus, given this situation, there is no reason to change the present system of household

waste disposal to one in which household waste disposal is accomplished by private-sector-operated sorting systems (see Section 174.* ff.).

Mechanical-Biological Waste Treatment (MBWT)

168.* In its coalition agreement, the German government stated, at the beginning of the legislative period, that it would incorporate mechanical-biological waste treatment (MBWT), as an alternative to incineration, into municipal waste disposal systems to a greater degree. This it did on 1 March 2001, when the Ordinance on the Environmentally Friendly Landfilling of Municipal Waste and Biological Waste Treatment Facilities entered into force. This so-called separate ordinance includes the Ordinance on the Environmentally Friendly Landfilling of Municipal Waste (Waste Landfill Ordinance), the Ordinance on Facilities for the Biological Treatment of Waste (30/FAPCNA) and the Ordinance Amending the Waste Water Ordinance, Annex 23, Mechanical-Biological Waste Treatment Facilities for Municipal Waste. 30/FAPCNA has considerably diminished the differences between emission-related requirements for mechanical-biological waste treatment and for thermal waste treatment, differences that have been criticized by the Council. The Council recommends that, in addition, equivalent emission limits be established for biological treatment facilities, as these are not currently covered by 30/FAPCNA.

169.* It is to be assumed that, due to the stricter technical requirements, MBWT facilities will on average be larger and have greater pretreatment capacities in the future in order to keep investment and operating costs as low as possible. These costs consist of the costs of treating waste and the costs of subsequently disposing of the pretreated waste. Treatment costs include the investment and operating costs of the actual mechanical-biological treatment of waste and the treatment of emissions that occur during mechanical-biological treatment. Disposal of the pretreated waste causes costs for its deposition in landfills and possibly for incineration with energy conversion of fractions with high calorific values.

170.* In expert circles, substitute fuels derived from municipal waste are deemed, given the present legal, economic and environmental policy framework, to have worse future prospects than other types of waste that can be incinerated with energy recovery. The unfavourable conditions for finding a buyer for fractions with high calorific values can only be offset in the marketplace by the buyer's having economic advantages, i.e., by the buyer's being able to pay little for such fractions or to charge to take them. It is also conceivable that operators of industrial furnaces might not want to use substitute fuels

consisting of mechanical-biological residual fractions, or might not want to use as much as is produced. In these cases, it would be necessary to dispose of these substitute fuels in waste incinerator plants or even to warehouse them, both of which would be cost intensive.

171.* The consequence of the unforeseeable development in disposal prices for incinerable residual fractions, and especially for these fractions, is that the option of treating waste using mechanical-biological methods entails financial risks that cannot be ignored. The higher the additional costs of disposing of mechanically-biologically treated waste are, the less apparent the economic advantages of modern mechanical-biological treatment over incineration as the pretreatment alternative, given the current average price for thermal waste treatment. As soon as disposal costs for residual fractions amount to more than €50 per tonne of waste input, the economic advantages of mechanical-biological facilities over waste incineration facilities become questionable. Disposal costs of this magnitude could quickly be attained because of the costs of disposing of the stabilized fine fractions in landfills with high technical standards and because of the additional costs of incinerating the high-calorific fractions for energy recovery.

Landfill Technology and Aftercare Concepts

172.* Landfill aftercare will become more relevant in the future, since numerous technically inadequately equipped landfills currently in operation will cease operations in the medium term because of stricter framework conditions. The largely unpretreated waste deposited in these landfills has a great active potential to give off emissions over a long period of time. Pursuant to the Technical Directive on Municipal Waste, after a landfill site or landfill cell has been filled, the site or cell is to be capped, independent of the type and composition of the waste deposited there. The Council deems the capping of landfills which exclusively contain waste conforming to the waste acceptance criteria of the Waste Landfill Ordinance to be a justified and useful solution. Nevertheless, the Council is of the opinion that active landfills with a corresponding residual emission potential should be assessed on a case-by-case basis to determine whether active or passive emission reduction measures are necessary. With old landfills that have a high residual emission potential, it could be useful, given the particular boundary conditions that obtain, to choose a combination of active and passive measures. For example, before putting a passive cap on a landfill, the landfill body could, as an active measure, be artificially biochemically stabilized. Artificial landfill stabilization through aerobic treatment can improve or accelerate the decomposition of organic compounds and prevent subsidence. This does not, however, eliminate inorganic and decomposition-resistant organic compounds, and

thus potential pollutants remain in the landfill. Specific reinfiltration of landfill leachate can also help to stabilize compacted landfills. The Council thus recommends changing the Technical Directive on Municipal Waste to allow the reinfiltration of leachate under specific conditions.

Special Thermal Processes

173.* Special thermal processes (i.e., new processes that can be used as alternatives to the conventional grate firing process used in the waste disposal sector) have not yet reached technical maturity. The environmental advantages which the Council had once expected these special processes to pose have not yet been realized on a large scale. Further, they have not turned out to be economical. It is thus to be assumed that these special processes will not be of any particular importance in the future. It should, however, be taken into account that the crucial phase in developing these special processes coincided with an unfavourable period in which the market underwent radical change. That most suppliers and consumers of special thermal process services have forsaken these services, have “gutted” thermal process facilities and cancelled disposal contracts, is, inter alia, due to unstable framework conditions for waste management that are increasingly affecting the municipal waste sector unfavourably. Thus, a conclusive assessment of the technical and economic potential of special thermal processes cannot be made. The technical and economic problems that commonly occur while developing technical processes could possibly have been resolved under different framework conditions. Thus, it cannot be ruled out that the development of special thermal processes in Germany has failed for the time being or has at least drastically slowed down not because the basic ideas behind them were a problem, but because framework conditions were innovation hostile. This once again underlines the fact that stable, calculable framework conditions finally need to be created if municipal waste management is to be viable.

4.5 Privatization of Waste Disposal Services

174.* The splitting up of disposal markets into public and private disposal sectors has become the central regulatory issue for waste management policy since the Closed Substance Cycle and Waste Management Act entered into force on 6 October 1996. In its environmental reports in 1998 and 2000, the Council spoke out in favour of extensively privatizing waste disposal services and justified this stance by pointing out that

- private waste disposal service providers can provide such services more efficiently and thus more cheaply, and

- scarcity-based price formation via the market, and thus a flexible balance between supply and demand, is only possible if waste disposal services are provided privately.

Both of these advantages of privately supplying waste disposal services obtain fully in “ideal markets”, i.e., under conditions of perfect competition. The market for disposal services is characterized by numerous features that are not compatible with the prerequisites of an ideal market. The Council thus deems it necessary to look at the arguments for privatization once again in order to develop and better differentiate its previous positions.

Against this background, the Council recommends that the discussion about the privatization of waste disposal services should avoid all ideological or redistribution-related arguments and focus on the objective of economic efficiency while maintaining appropriately high environmental standards. To what extent switching from public to private waste disposal service provision can be expected to generate appreciable efficiency gains depends on the particular market structures and the prevailing competition intensity, whereby the collection and transport of waste has to be differentiated from the treatment and landfilling of waste.

175.* As regards the logistics services “collection and transport”, the Council is of the opinion that privatization would be objective-oriented as long as regularly held tenders ensured that permanent “competition for the market” took place. Applying this approach to the value-added stage “treatment and landfilling” would, however, not be very objective-oriented in the opinion of the Council, as the operation of incineration facilities and landfills requires extremely long-term, irreversible investment, which, on the other hand, does not allow sufficiently short contract periods. If “competition for the market” only takes place at intervals of 20 years or more, its efficiency effect is largely lost. In addition, institutions and economic framework conditions at the value-added stage provide strong incentives to form tendering cartels. Negative experiences with tendering public construction contracts should serve as a warning in this regard.

The problem of long contract periods could be avoided if only the right to operate disposal facilities that remained publicly owned was tendered. Given this case, operators would, however, have little scope for efficiency-increasing measures because of the high proportion of fixed costs they would have, which would amount to up to 90%. In addition, the necessary integration of production and investment planning would, in the end, result in close interaction between the operator and the government, which would undermine the competitive character of any tendering procedure.

176.* An alternative to “competition for the market” is complete liberalization, which would dispense with institutional market barriers as well as with consignment requirements (“competition within the market”). The Council is nevertheless of the opinion that this alternative would make neither environmental nor economical sense. From an environmental point of view, this alternative is to be faulted in that, if consignment requirements were lifted, waste streams would rove around looking for the cheapest disposal possibility and thus cause considerable environmental burdens. In addition, lifting consignment requirements would diminish the possibilities of monitoring waste streams and would thus tend to encourage illegal disposal practices. Finally, it should be noted that providers of disposal services would be forced, in a liberalized market, to enter into long-term take-or-pay contracts with waste producers in order to cover their capacity risks, and this would be diametrically opposed to the objective.

Seen economically, liberalization would initially generate high competitive pressures, but these would, however, hardly engender an economically desirable situation. Given current market structures, it would be to be expected that a process of ruinous competition would begin that would end in the development of regional monopolies which were not subject any regulation at all. The competition which would then occur on its own would be too weak for numerous reasons (transport costs, only a few companies that would be competing with one another, risk of competition-reducing collusive agreements, contracts that are binding in the long term). This would especially be the case with waste from private households, but would, to a lesser degree, also be the case with industrial waste. Without sufficient competition pressures, there are correspondingly few incentives to operate efficiently and there is a risk of the demand side being exploited through high prices. The price regulations that this would then necessitate would in turn provide additional incentives to increase already existing inefficiencies.

177.* In addition to the efficiency argument, an often advanced argument for the private provision of disposal services is that flexible, scarcity-oriented price formation would balance supply and demand and thus guarantee disposal security. The notions involved here are, however, based on an unrealistic ideal concept of a perfect market in which quantities and prices can continually adjust to changes in scarcity in a manner which is frictionless. Also, the flexibility required for this to happen would, in the opinion of the Council, not obtain in reality if disposal services were provided privately. On the price side, the inflexibility engendered by current fee legislation would, as a result of privatization, merely be replaced by the institutional inflexibility of long-term contractual arrangements. On the quantity side, current inflexibilities would not be affected by privatization. Thus,

when privatization is looked at closely, it becomes evident that it would also involve disposal security problems and that it has no direct advantages over public provision.

178.* In summary, the Council has come to the conclusion that privatization would only be to be welcomed as regards the logistics services “collection and transport”. As regards the treatment and landfilling of waste, i.e., the operation of incineration facilities and landfills, it is to be feared, on the other hand, that privatization would cause new problems rather than resolving current problems. Before further steps are taken to privatize incineration facilities and landfills, steps that would have irreversible consequences, the possibilities for moving towards the objectives of efficient service provision and scarcity-oriented price formation should be carefully assessed.

In addition to reforming fee legislation, which would allow price formation to be more strongly oriented towards actual scarcities, the Council deems the most important measure to increase efficiency in the public waste disposal sector to be the abolishment of small autarchic disposal service areas. Disposal areas should be demarcated such that relevant facilities can be designed for optimal capacity while taking environmental effects into account. The Council sees further possibilities for increasing efficiency in introducing private types of business organization (including public-private partnerships), which would allow a high degree of operating flexibility, and in conducting benchmarking processes, which, based on initial empirical experiences with such processes, could reveal considerable scope for increasing efficiency.

PUBLICATIONS

Reports and statements prepared by the Council of Environmental Advisors

(Available through bookshops or from Verlag Metzler-Poeschel, SFG-Servicecenter Fachverlage GmbH, P.O.Box 43 43, D- 72774 Reutlingen, Tel.: +49-7071-9353-50, Fax: +49-7071-9353-93; Parliamentary Papers at Bundesanzeiger Verlagsgesellschaft mbH, P.O.Box 13 20, 53003 Bonn)

*) = a summary is available in english, **) = a summary is available in french

UMWELTGUTACHTEN 1978 *)**)

Stuttgart: Kohlhammer, 1978, 638 S., Plast.
v e r g r i f f e n
zugleich Bundestags-Drucksache 8/1938

1978 Environmental Report *)**)

Stuttgart, Mainz: W. Kohlhammer,
1978, 638 pp.
out of print
also published as parliamentary paper
8/1938

UMWELTPROBLEME DER NORDSEE *)**)

Sondergutachten
Stuttgart: Kohlhammer, 1980, 508 S., Plast.
v e r g r i f f e n
zugleich Bundestags-Drucksache 9/692

Environmental Problems of the North Sea *)**)

Special Report
Stuttgart, Mainz: W. Kohlhammer,
1980, 508 pp.
out of print
also published as parliamentary paper
9/692

ENERGIE UND UMWELT *)

Sondergutachten
Stuttgart: Kohlhammer, 1981, 190 S., Plast., DM
19,-
ISBN 3-17-003238-0
Best.-Nr.: 7800105-81901
zugleich Bundestags-Drucksache 9/872

**WALDSCHÄDEN UND
LUFTVERUNREINIGUNGEN** *) **)

Sondergutachten
Stuttgart: Kohlhammer, 1983, 172 S., Plast., DM
31,-
ISBN 3-17-003265-8
Best.-Nr.: 7800-106-83903
zugleich Bundestags-Drucksache 10/113

**UMWELTPROBLEME DER
LANDWIRTSCHAFT** *) **)

Sondergutachten
Stuttgart: Kohlhammer, 1985, 423 S., Plast., DM
31,-
ISBN 3-17-003285-2
v e r g r i f f e n
zugleich Bundestags-Drucksache 10/3613

**LUFTVERUNREINIGUNGEN IN
INNENRÄUMEN** *)

Sondergutachten
Stuttgart: Kohlhammer, 1987, 112 S., Plast., DM
22,-
ISBN 3-17-003361-1
Best.-Nr.: 7800108-87901
zugleich Bundestags-Drucksache 11/613

Energy and Environment *)

Special Report
Stuttgart, Mainz: W. Kohlhammer,
1981, 190 pp.
Order No. 7800105-81901
also published as parliamentary paper
9/872

Forest Damage and Air Pollution *) **)

Special Report
Stuttgart, Mainz: W. Kohlhammer,
1983, 172 pp., DM 31
ISBN 3-17-003265-8
Order No. 7800106-85902
published also as parliamentary paper
10/113

**Environmental Problems of
Agriculture** *) **)

Special Report
Stuttgart, Mainz: W. Kohlhammer,
1985, 423 pp.
out of print
published also as parliamentary paper
10/3613

Indoor Air Pollution *)

Special Report
Stuttgart, Mainz: W. Kohlhammer,
1987, 112 pp., DM 22
ISBN 3-17-003361-1
Order No. 7800108-87901
published also as parliamentary paper
11/613

UMWELTGUTACHTEN 1987 *)

Stuttgart: Kohlhammer 1988, 674 S., Plast., DM 45,-

ISBN 3-17-003364-6

Best.-Nr.: 7800203-87902

zugleich Bundestags-Drucksache 11/1568

1987 Environmental Report *)

Stuttgart, Mainz: W. Kohlhammer

1987, 674 pp., DM 45

ISBN 3-17-003364-6

Order No. 7800203-87902

published also as parliamentary paper
11/1568

ALTLASTEN *)

Sondergutachten

Stuttgart: Metzler-Poeschel, 1990, 303 S., DM 32,-

ISBN 3-8246-0059-5

zugleich Bundestags-Drucksache 11/6191

Abandoned Hazardous Sites *)

Special Report

Stuttgart: Metzler-Poeschel
1990, 304 pp.

ISBN 3-8246-0059-5

also published as parliamentary paper
11/6191

ABFALLWIRTSCHAFT *)

Sondergutachten

Stuttgart: Metzler-Poeschel, 1991, 720 S., kart., DM 45,-

ISBN 3-8246-0073-0

zugleich Bundestags-Drucksache 11/8493

Waste Management *)

Special Report

Stuttgart: Metzler-Poeschel
1991, 720 pp.

ISBN 3-8246-0073-0

also published as parliamentary paper
11/8493

**ALLGEMEINE ÖKOLOGISCHE
UMWELTBEOBACHTUNG** *)

Sondergutachten

Stuttgart: Metzler-Poeschel, 1991, 75 S., kart., DM 20,-

ISBN 3-8246-0074-9

zugleich Bundestags-Drucksache 11/8123

**General Ecological Environmental
Monitoring** *)

Special Report

Stuttgart: Metzler-Poeschel
1991, 75 pp.

ISBN 3-8246-0074-9

also published as parliamentary paper
11/8123

UMWELTGUTACHTEN 1996 ^{*)}

Zur Umsetzung einer dauerhaft-umweltgerechten
Entwicklung

Stuttgart: Metzler-Poeschel, 1996, 468 S., mit 65-
seitiger Beilage, DM 68,-

ISBN 3-8246-0545-7

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