

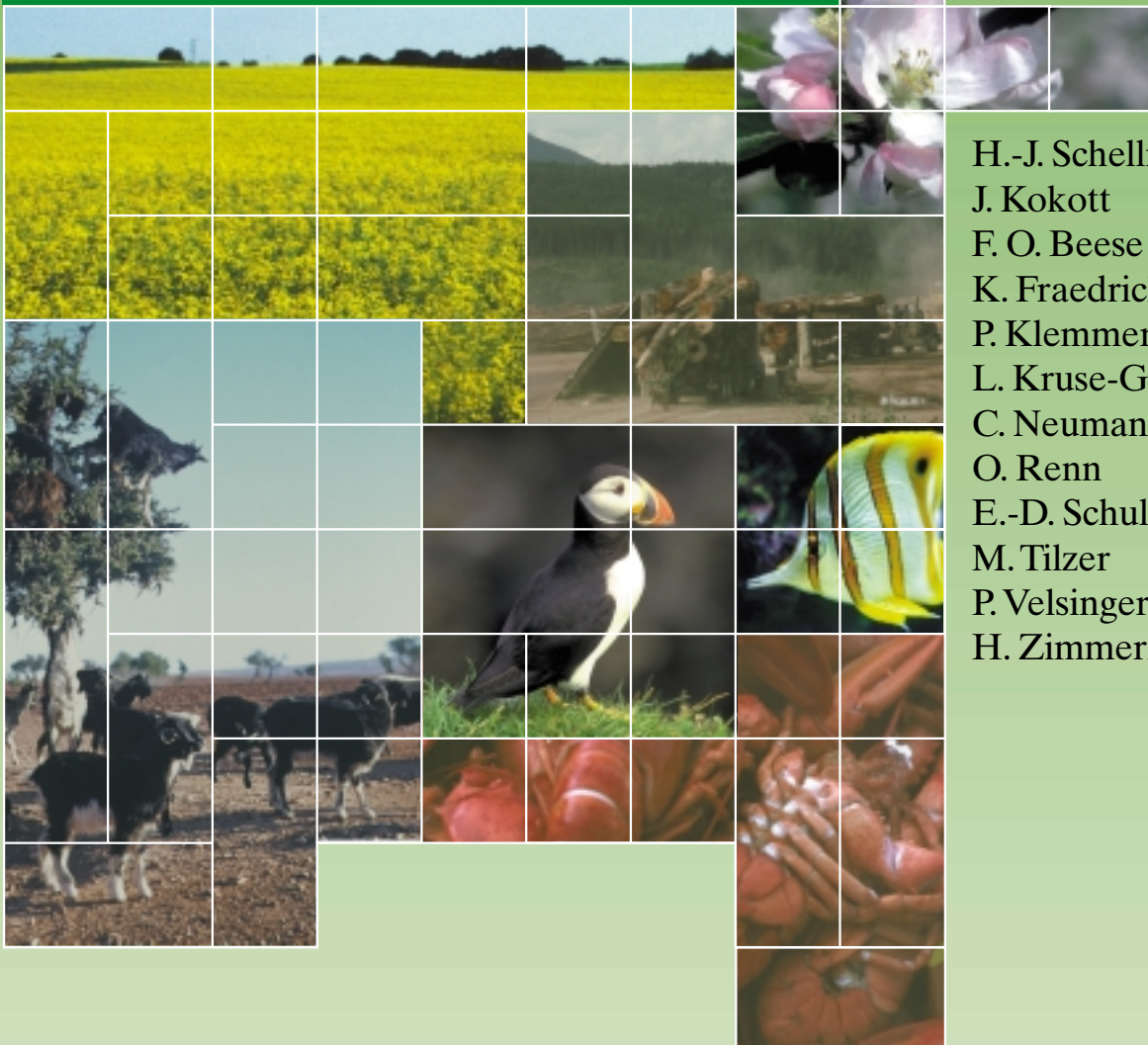
World in Transition



German Advisory Council
on Global Change (WBGU)

Conservation and Sustainable Use of the Biosphere

Summary for
Policymakers



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World in Transition:

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The full Report will be published by Earthscan Publications Ltd, London in spring 2001.

ISBN 3-9806309-8-6

Imprint:

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All WBGU Reports can be downloaded through the Internet from the website.

Translation: Bonnscript

Cover design: Erich Kirchner, Heidelberg using the following illustrations:
Lobster (Nova Scotia, Canada); Puffin (Staffa, England); Field of rape (Schleswig-Holstein, Germany); Timber work (British Columbia, Canada); Apple blossom (Altes Land, Germany); Goats (Morocco): Source Prof. Dr. Meinhard Schulz-Baldes
Coral fish: Source Dr. Rüdiger Wandrey

Copy deadline: 1.10.1999

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Summary for Policymakers

Overcoming the crisis of the biosphere

We are currently experiencing a major crisis of the biosphere: the *Sixth Extinction of genetic and species diversity*. Every day nature's genetic and physiological blueprints are lost without us being able to explore the opportunities that they present to us. The cause of this Sixth Extinction is humankind who has transformed, isolated, fragmented or destroyed the world's landscapes and ecosystems. This process is so far-reaching that the general ability of the living world to rebuild a complex interrelation of species after severe disruptions is at risk for millions of years to come. The vast majority of scientists believe that there are only a few decades left to prevent this fateful development with environmental policy measures.

The German Advisory Council on Global Change (WBGU) believes that the crux of all strategies of this kind is to place at least 10% of the earth's land area under protection. As a result the planetary biosphere services (such as regulating the world's climate) could be preserved, as could the biodiversity hotspots where the natural capital of genetic information is concentrated.

In Europe a demand of this kind has long been a statutory requirement, but in Germany it has not yet been implemented. Scientific analyses show that an appropriate global protected area system can be financed by well-considered cuts in the worldwide system of agricultural subsidies.

The most important instrument of biosphere policy under international law is the Biodiversity Convention. In the field of biosafety the Council's recommendations became reality in the form of the Cartagena Protocol shortly after this Report went to press. Other important steps have not yet been taken: the German Federal Government should advocate that the United Nations Rio+10 Declaration contain firm calls for these steps to be implemented.

Urgent need to act

The German Advisory Council on Global Change focuses its 1999 Annual Report, entitled „World in transition: conservation and sustainable use of the biosphere“, on an interdisciplinary analysis of the biosphere crisis. A number of concrete recommendations for political decision-makers are derived on this basis.

The measures recommended can only hope to be successful, however, if they are fitted into the logic of a global framework on „biosphere governance“. The community of nations will have to decide whether, in what way and in what places it wishes to preserve, maintain or actively design. It will be many years before biosphere governance will step out of the shadow of the profound ignorance that surrounds the biosphere. For instance, although prognostic capacity was very quickly acquired in relation to climate issues, the complexity of life on this planet has only really begun to be sounded by the academic world. In addition to formulating recommendations, therefore, there is a need to outline a research strategy for the biosphere.

Biosphere and biological diversity are therefore issues that in future must be placed much higher on the international and national political agenda – both in terms of policy and research.

Imperatives for conserving and shaping the biosphere

In this report the Council formulated five „biological imperatives“ to serve as orientation points for policy and with which the values of the biosphere are conserved and used sustainably for this and future generations. The order of the imperatives does not imply any ranking: the Council treats all of these maxims for action equally alongside each other.

First biological imperative: preserve the integrity of bioregions

The Council recommends pursuing a *dual strategy* here. First of all, it makes sense to impose usage restrictions within regions or zones that are intended to assume a regional regulatory function or where ecosystem services are most important. Added to that are the protected areas of trans-regional or even global importance. Secondly, however, in those zones that are suited to extensive or intensive use in agricultural or forestry terms, sustainability limits should not be exceeded. The Council has drawn up practical „guidelines“ for these zones to ensure that sustainability is maintained.

Second biological imperative: secure existing biological resources

The *biological resources* that are required to ensure the continuous adjustment and further development of crops and livestock must not be jeopardised. These include the wild species related to the cultivated plants. Particular attention should be paid to zones in which valuable plant genetic resources occur in a considerable concentration („centres of genetic diversity“).

Third biological imperative: maintain biopotenzial for the future

The biosphere contains many substances and blueprints that are as yet unknown, we must secure these *options* for the possibility of future use. There are particularly great opportunities in areas in which biological diversity is concentrated in natural ecosystems (e.g. tropical forests, coral reefs) and therefore a relatively large number of interesting „solutions“ of a biochemical or structural nature are to be found. These hotspots of biological diversity are particularly worthy of protection.

Fourth biological imperative: preserve the global natural heritage

There is a global consensus across the international community in favour of preserving the natural heritage. There are a variety of reasons for this: they range from the concrete „survival arguments“ through to more normative rationales. What is required in order to meet this goal is a *network of protected areas* that includes representative examples of every natural ecosystem on the earth. Of course, it is not just

certain ecosystems or landscapes that belong to the natural heritage, but also the species that live in them. *Measures to protect species* are therefore necessary if such species would otherwise have no other means of survival.

Fifth biological imperative: preserve the regulatory functions of the biosphere

The major *biogeochemical cycles* within the Earth's system are currently subject to extensive influence from humankind. This influence can already be felt at the coupling between the biosphere and the climatic system, since climate change has a negative impact on the biosphere and vice versa. Consequently, the global „guard rail“ that the Council has already developed for climate protection may be transferred and applied to the biosphere. For the global regulatory mechanisms there are already geographically explicit *critical focal points* that require special protective measures. Minimum demands may thus be formulated with regard to the area of natural ecosystems that needs to be protected.

Eliminating knowledge gaps

Perhaps the most important aspect under the heading „biosphere“ is the dramatic lack of knowledge. Only a small proportion of species has been described so far and we do not even know the total number of species worldwide. Explaining scientifically the ecological functions performed by just one species or ecosystem is complicated and difficult enough: the task of providing such an explanation for all species is colossal. Therefore, it is essential to set clear priorities for biosphere research.

Currently, one important foundation of knowledge is at risk: even in Germany the ability to identify animal and plant species is limited to an ever-diminishing group of experts. Knowledge about regional biological diversity may also be about to be lost. A research strategy that hopes to address biodiversity cannot however limit itself to research in biosciences in the narrower sense – such as taxonomy or ecosystem research. It must integrate the sustainable use of biological diversity (research in agriculture, forestry and fisheries). This calls for an interdisciplinary approach that also incorporates, for example, economics, ethics, psychology and sociology.

The crisis of our biosphere demands that researchers adopt a problem-oriented, strategic approach. The starting point should be the following core questions: Which of the goods and services that the biosphere provides to humankind and to society

are in jeopardy? What area of natural ecosystems and how much biological diversity is required at the local, regional and global levels, to ensure the supply of these goods and services for the long term?

In its 1999 Annual Report, the Council outlines a strategic framework for biosphere research that can serve as a basis for an interconnected European, and indeed, international research programme. The parameters are set by three demands: (1) Priority must be given to research into the knowledge base necessary for implementing the biological imperatives and the „guard rails“; (2) furthermore, there must be research into specific methods and instruments; (3) in light of the knowledge and theory gaps, extensive basic research is necessary that must contain both bio-ecological and socio-economic elements.

The core policy recommendations from the German Advisory Council on Global Change

A „guard rail“ for the biosphere: protect 10–20% of land area

Current knowledge does not allow for the exact or scientifically founded „guard rail“ for biosphere protection in the sense of an actual proportion of the overall surface area that should be protected. Calculations based on estimates with regard to the preservation of different components and aspects of the biosphere that apply various assessments of its function and value, though inadequate in many methodological respects, do provide important reference points. The various approaches arrive at similar numbers: a representative selection of 10–20% of the earth’s land area should have „conservation use“ as its priority land use form. The Council therefore considers it imperative to consolidate and develop further the existing worldwide system of protected areas. New protected areas should be designated in line with ecological criteria; the existing protected areas should be brought into that context and developed into a system of protected areas. The status of implementation of the Habitat Directive and its foreseen EU-wide network, Natura 2000, has to be considered very unsatisfactory in Germany. The Advisory Council once again calls for implementation to be advanced quickly and for the overdue amendment of the Federal Nature Conservation Act to be completed.

An effective worldwide system of protected areas is affordable

A worldwide system of protected areas in the order of magnitude called for by the Council would trigger additional costs of less than DM 40 billion per year, according to initial rough estimates. It should not be impossible for the international community to close that funding gap. Funds could be released by reducing environmentally damaging subsidies, for example agricultural subsidies. Nevertheless, funding from the public purse alone will not suffice to provide adequate global protection for biological diversity. Therefore, political support should be given to efforts to establish „biosphere funds“, run in the private sector with certain tax relief facilities. The Council furthermore recommends making the foundation system in Germany more attractive in tax terms, for example by means of favourable treatment for environmental foundations.

More resolute implementation of the Biodiversity Convention

The Biodiversity Convention is the central set of international rules on biodiversity to enjoy broad-based acceptance. Its Parties committed themselves to *conservation* of biological diversity, *sustainable use* of its component parts and *fair and equitable sharing* of the benefits arising out of the use of genetic resources. There should be much more energetic pursuit of the implementation of these goals in Germany. For instance, they should be reflected to a greater extent in classic approaches to nature and species conservation and expand these by adding concepts for sustainable use of the biosphere. This would mean primarily incorporating agriculture, forestry and fisheries, but also the fields of biotechnology, research promotion, economic and fiscal policies, and development cooperation. The Council therefore considers it appropriate for Germany to develop a national biodiversity strategy. Close cooperation among the Federal Ministries is an important precondition for achieving such a strategy; the Council therefore recommends that an „Inter-Ministerial Working Group on Biodiversity Policy“ be convened.

Establish an „Intergovernmental Panel on Biological Diversity“

International biosphere policy currently lacks sufficient scientific advice. The UN’s 1995 Global Biodiversity Assessment did provide an initial scientific

overview, but this work was not consistently continued. The Council recommends as a first step investigating the extent to which these tasks could be achieved by closer networking among existing bodies. One can assume, however, that on that basis a scientific body of experts on biodiversity will be necessary in the form, for example, of an Intergovernmental Panel on Biodiversity (IPBD). Such a body would bring together all of the leading scientists as was the case around the climate issue. The contributions of an IPBD would lend the biodiversity debate greater objectivity. The world of science, too, would benefit in terms of improved coordination and connectivity. The Council recommends building on the experiences of the Global Biodiversity Assessment and the IPCC in establishing the IPBD in order to avoid potential structural weaknesses from the outset.

Strengthen UNESCO's MAB programme

The UNESCO programme „Man and the Biosphere“ (MAB) offers good opportunities for regional implementation of the Biodiversity Convention. In particular, the Council welcomes the trend towards larger, better connected and trans-national biosphere reserves. However, the MAB programme could be used more effectively as an instrument of international cooperation on biosphere protection. Since there is no financing mechanism for this specific task, countries should be encouraged to make greater use of the possibilities the GEF presents.

Achieve legally-binding agreement on the protection of the forests

There is apparently no halt to the destruction of forests. This is making success in climate policy more and more difficult to achieve and is destroying valuable biological diversity. In order to improve forest protection worldwide the Council has in the past proposed the addition of a Forest Protocol to the Biodiversity Convention and still holds this solution to be the most promising. More important, however, than the external form of such an agreement would be its swift adoption and legally-binding character. Private-sector activities are also an important condition for the success of global forest protection. The efforts to promote sustainable forestry through certification should be supported as positive examples.

Maintain the diversity of cultivated plants

Conservation of biological diversity is of crucial importance to global food security. The Council therefore recommends the promotion of agricultural production in the most diverse and multi-functional form possible. Endangered cultivated plants should be placed in a Red List because many traditional varieties are in danger of disappearing forever. Worldwide a considerable portion of the *ex-situ* collections of rare plant species („genebanks“) is considered endangered. They must therefore be safeguarded, supplemented and made part of a global network.

Seize the opportunities of bioprospecting

The development of international standards for access to genetic resources, their sustainable use and the fair and equitable sharing of benefits should be pushed forward swiftly in the context of the Biodiversity Convention. This provides opportunities not only for the conservation of biological diversity, but also for the industry using natural products. One important precondition for cooperation with the countries of origin is, however, their appropriate participation in the research results and support for national capacity building. The rights of indigenous peoples must be guaranteed. For companies using natural products, a focal point at the GTZ would make sense, both for contacts and development of participatory strategies. The Council would also like to propose examining together with the trade associations the possibility of an internationally applicable labelling system for sustainably produced pharmaceuticals.

Apply „bioregional management“

In light of the links to climate and soil protection, any successful international „biosphere policy“ would reach beyond the more traditional biodiversity policy. Since the state alone cannot fulfill all that has to be done, as many players and institutions as possible should be included. The primary aim must be to see the protection of genetic, species and ecosystem diversity as inseparable from its sustainable use. The Council recommends increased application of the strategy of „bioregional management“ for land use according to the categories „Protection against use“, „Protection through use“ and „Protection despite use“ and incorporating all of the major players. This concept is particularly well suited to development cooperation; but additionally the extent to which this

approach could be reconciled more effectively with Germany's planning system should be appraised.

Step up bilateral and multilateral cooperation

One cannot emphasise enough the importance of development cooperation in the context of biosphere protection since it offers opportunities for the necessary crisis management in the field. Germany has been a committed advocate for international biosphere protection and is the third largest contributor to the Global Environment Facility (GEF). In terms of debt-for-nature swaps, Germany is one of the leaders in the field. The Council expressly welcomes the German Government's initiative to waive the debts of the highly indebted poor countries (Cologne Debt Initiative) as it gives the countries involved greater scope in terms of conservation measures. However, a larger financial commitment from the industrial countries is essential. The Council notes with great concern that Germany is farther away than ever from reaching the 0.7% goal.