

# Foreword

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Ever since mankind pursued wealth, nature was supposed to support this pursuit. Today's focus is still on the creation of goods and services that satisfy human needs, but our view of the environment has changed dramatically. Most societies have become increasingly conscious of the manifold environmental problems caused by human impact. Not long ago, environmental policies mainly consisted of reducing the damages environmental pollution had already caused. Policies focused on problems related to the deposition of garbage, not on the reduction on the garbage-producing side.

With the Earth Summits in Rio de Janeiro (1992) and Johannesburg (2002), people became aware of the necessity to tackle these environmental issues at their roots. While many of the industrialized countries meanwhile were able to overcome their traditional 'end-of-pipe' environmental problems, there is still need to further promote 'front-of-pipe' solutions. Environmental policies are no longer regarded as contradicting economic growth, but are to be brought into harmony with economic goals. Sustainable development means that future generations can benefit from natural resources in the same way as society does today. It has to be the motto for all fields of future policies.

Though the term 'sustainable development' is nowadays being used in many fields, it has yet to be implemented in practical action schemes and valuable methods of measurement. Concrete policies are necessary to turn ecological consciousness into effective ecology-oriented action that ultimately may lead to a wealth-creating recycling-oriented society with lowered resource use.

Germany and Japan share like experiences in the field of economic growth and related environmental issues. The enormous postwar economic growth in the 1950s, 1960s and 1970s brought with it heavy burdens for both countries' environments. It was not before confronting a broad range of environmental concerns (air pollution, deposition of waste, acid rain and so on) that both countries became aware of the environment's fragility. Questions of sustained energy supply arose, and societies realized the scarcity of natural resources. Here and there, the implementation of laws on the protection of environment, as well as other supporting legislations and governmental institutions, came into play fairly soon. Beginning in the 1970s and 1980s, respectively, Japan

and Germany steadily established themselves as forerunners in the field of environmental protection. Before long, a legislative framework was built up in both countries in response to increased environmental pressures and a growing public consciousness of related concerns.

With a suffering global economy that is now putting heavy pressure on Germany and Japan, people certainly have become more aware of the instability of wealth. These issues are undoubtedly important future tasks, but they should also be regarded as an opportunity for fostering environmental policies, which do not necessarily contradict further environmental growth. On the contrary, Wuppertal Institute believes in the compatibility of creating real wealth and easing environmental pressure. Here, the concept of eco-efficiency comes into play. This concept addresses the challenge of achieving a sustainable development with benefits on behalf of the ecology as well as the economy. Since it allows environmental protection measures from a market-oriented point of view, it can also mean a gain for enterprises. Eco-efficiency, standing for a better management of the economy with less environmental pressure, therefore represents a promising sustainability approach. It is tested with good success in many firms and products.

In this context, concepts like 'Factor Four' and 'Factor Ten' integrate the normative dimension into eco-efficiency concepts. Having been awarded the prestigious Takeda World Environment Award in 2001 for the 'Factor 4/10' concepts, along with the underlying concept regarding material flows, Wuppertal Institute feels honoured and confirmed even more in the appropriateness of its policy approach and will continue to make every effort to develop further policy concepts.

While eco-efficiency is regarded in Europe as a quite ambitious concept, Japanese pioneers have begun to challenge their European counterparts. Numerous researchers, such as Ryoichi Yamamoto and Hiroshi Komiyama, are developing fascinating visions of the future. Taking into account Germany's and Japan's shared experiences in the fields of economic growth and connected environmental concerns, they should, as two of the world's leading industrialized countries, continue to spearhead the process of ecological modernization.

Many issues, mostly caused by the different sociocultural backgrounds involved, justify in-depth research on sustainability-related policies. Questions include the conditions for technology dissemination and ecological modernization, as well as the role of the state government enabling business and society while safeguarding a frame for stabilization. In this connection, Wuppertal Institute regards the study also as a means of scientific communication, with possible merits both for Germany and for Japan, as well as other nations with an interest in eco-efficiency concepts. Being aware of the difficulties that go along with Europe-based scenarios and their applicability to Japanese sustainability

policies, we believe that, by communicating these issues at an international level, we take a useful step towards fostering the horizontal diffusion of different policy concepts, even though their individual approaches might remain imperfect.

It is an honour for Wuppertal Institute to be enabled by the Japanese government to disseminate its findings on environmental policy concepts, not only to European researchers, but to Japan and a wider international audience as well. In this context, the Millennium Collaboration Projects offer an outstanding opportunity to extend the international collaboration on environmental issues and questions related to sustainable development. Germany and Japan have so far been at the forefront of formulating environmental policies: the collaboration projects raise these discussions to a new level that will surely benefit from the synergies provided by the exchange of researchers and opinions across national borders.

