



EXECUTIVE SUMMARY

REPORT ON THE ENVIRONMENTAL ECONOMY 2009

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The Report on the Environmental Economy, presented here by the Federal Environment Ministry and the Federal Environment Agency, provides an overview of the structure and relevance of the environmental economy and the diverse aspects which characterise the interaction of environment, environmental policy and economy. The report is based on numerous research projects conducted over the past few years, and also draws on data and figures compiled by research institutes and statistical offices. Thus all the information is brought together for the first time in a clear and up-to-date report.

THE MARKETS OF THE FUTURE ARE "GREEN"

Green lead markets are characterised by high growth

Energy efficiency, sustainable water management, sustainable mobility, energy generation, resource and materials efficiency, waste and closed cycle management are all key green markets of the future. In 2005 they already represented a global market volume of nearly 1000 billion euro. Estimates indicate that turnover from these environmental industries will more than double by 2020, to 2,200 billion euro. The largest absolute increase in market volume for the period 2005-2020 can be expected in the fields of energy efficiency (+450 billion euro) and sustainable water management (+290 billion euro).

Driving forces behind these developments are global trends such as population growth, the rapid industrialisation of newly industrialising and developing countries, and the emergence in these countries of a middle class with buying power. These factors lead to increased demand for consumer goods and scarce environmental resources, putting more pressure on all industrial sectors to make greater use of environmental and efficiency technologies, and to develop them further.

On the green lead markets, German companies have global market shares of between 5 and 30 percent

Germany's environmental industry is booming. From 2004 to 2006, 4 out of 10 companies in the environmental sector increased their turnover by more than 10 percent annually. In future, the German environmental industry will profit considerably from the dynamic growth of green lead markets worldwide, since it is very well positioned in international competition on many of these markets. Germany shows particular strength in sustainable energy generation and in waste and closed cycle management. German companies in these sectors account for more than a quarter of the global market.

Environmental protection is gaining in economic importance

In 2007, environmental goods accounted for over 5 percent of industrial goods production in Germany. Between 2005 and 2007 alone the value of production increased by 27 percent. Renewable energies, process measuring and control technology products and electronic goods saw the highest increases.

SMEs are a major feature of the environmental economy. Around 60 percent of turnover in environmental goods is generated by companies employing less than 250 people. About half of the companies are in the services industry. Thus, not only industrial production, but also services are important for the environmental economy.

Rapid growth also has a positive impact on the employment market

Between 2004 and 2006, the number of jobs in companies which are active on green lead markets rose by 15 percent per year. Companies expect a 13 percent increase in personnel between 2007 and 2009. These remarkable growth rates confirm the role of environmental technologies as an engine for employment in Germany.

Businesses expect further growth in the environmental economy

Surveys indicate that companies in the environmental economy anticipate high growth in turnover over the coming years – especially in the emerging branches of renewable energies and regenerative raw materials. Rising turnover means that in the medium term environmental technologies will outstrip traditional industries such as machine engineering and vehicle manufacture.

German companies are world leaders in trade with environmental goods

With a share of global trade of over 16 percent, Germany has recently extended its lead further. The environmental economy makes a major and increasingly important contribution to Germany's overall strong position in global trade. Progressive environmental legislation plays an essential role in this increased importance: state incentives and regulations create demand for environmentally friendly products and technologies, and are a vital force behind environmental innovations.

In the environmental economy research is exceptionally frequent, intensive and continuous

In the environmental economy, more than 5 percent of the turnover was invested in research and development in 2004, a significantly higher share than the 3 percent earmarked for R&D in overall industrial production. Nearly 80 percent of production in the environmental sector is particularly research- and knowledge-intensive. Machine engineering, process measuring and control technology, electrical engineering, electronics and the chemicals, plastics and rubber industry are among the most important branches of this market. Qualification requirements for employees in the environmental economy are correspondingly high. 30 percent are graduates, compared to 20 percent in other sectors.

Nearly 1.8 million people work in the environmental economy – a new high

In 2006 around 4.5 percent of Germany's entire workforce owed their jobs to environmental protection, compared with less than 4 percent two years earlier. This is equivalent to 300,000 additional green jobs.

The true figure is even higher, since reliable data is still not available for many new fields such as ecotourism, environment-related insurance and integrated environmental protection.

Environmental protection is becoming increasingly important for the employment market. Key factors are the growth of renewable energies, rising exports of environmental goods and the boom in environmental services. In contrast, traditional environmental sectors such as waste disposal, water body protection, noise control and air quality control are playing a less significant role. Environmental protection looks set to remain an engine for employment in the years to come – as long as there is a progressive environmental policy which is geared towards innovation.

Germany spends a total of around 1.5 percent of its gross domestic product on environmental protection

The largest share of the nearly 35 billion euro is spent by the state and privatised public water and waste management companies. The manufacturing industry contributes only nearly 20 percent. From the mid-1990s, expenditures by the manufacturing industry for environmental protection (waste management, noise control, water body protection, air quality control) were in decline, but since 2000 they have stabilised at a lower level. Compared internationally, German trade and industry's share in environmental protection expenditure is rather low. On the other hand, Germany leads the way with regard to the share of GDP spent on environmental protection by the state.

Environmental protection is economically viable

The public debate often gives the impression that environmental protection is solely a cost factor. However, this is a short-sighted view. In the first place, on balance, investments in integrated environmental protection technologies often lead to substantial savings in operational costs, for instance through lower energy and materials consumption or reduced waste management costs. Secondly, environmental protection leads to lower costs arising for society as a result of environmental damage. The Renewable Energy Sources Act also makes this clear: savings from avoided environmental damage are already equal to the additional costs arising from the Act. In 2020, such savings are expected to be twice as high as the additional costs.

Use of environmental resources has been decoupled from economic growth, but the positive trend needs to continue

Environmental resources are indispensable for the economy. But reserves of energy, raw materials, water and land, as well as the environment's capacity to absorb pollutants, are limited. How we deal with this scarcity is a key question of sustainable management. In Germany, consumption of nearly all resources – with the exception of land use for human settlement and transport – has fallen in the past decade. Energy and raw materials productivity are moving in the right direction, but substantial improvements are still needed. Land use for settlement and transport continues to increase, although the rate has slowed somewhat in recent years. Air pollution, on the other hand, has fallen steadily since 1990. Germany has nearly met its climate protection commitment under the Kyoto Protocol. Further efforts must be made, however, to achieve the German government's more ambitious target of a 40 percent reduction in emissions by 2020.

More efficient management of environmental resources pays off for industry

Generally, the premise "more goods with less resources" must apply. Businesses benefit from taking material and energy costs into account. In the manufacturing industry, average material consumption costs are as high as 40 percent of gross production value, whereas wage costs only account for around 25 percent. While efficiency in production has certainly improved, considerable potential remains: in the long term, labour productivity has increased far more than energy and materials productivity.

Developments of energy consumption, CO₂ emissions and materials consumption in the production sectors paint a varied picture. In terms of energy consumption, energy-intensive sectors were particularly successful in improving efficiency – one of the reasons

why energy-intensive goods production was not moved abroad. CO₂ emissions from production fell due to greater energy efficiency and increased use of renewables. Furthermore, the structural transformation taking place in Germany, in particular the above-average growth in service industries, has eased the burden on the environment.

Social responsibility and environmental protection have become strategic factors of good corporate management

Today companies are facing new challenges: rapid economic globalisation, mega trends such as climate change, scarcity and rising costs of resources, and a growing pressure to justify their activities to the public. Companies which adapt early on to these mega trends and the expectations of society can be more successful: they have “first mover” competitive advantages, can reduce risks, raise social acceptance of their activities and secure the continued existence of their company. At the same time, these factors present major economic opportunities. A corporate strategy geared towards sustainability offers win-win-win solutions for the environment, society and economic success.

There are already a range of principles and guidelines aimed at promoting corporate social responsibility, for example the ten universal principles of the United Nations Global Compact, or the OECD Guidelines for Multinational Enterprises. A credible policy of sustainable management considers all areas and functions of business. Within their key business processes, companies need to develop innovative, economically viable and precautionary solutions for improving environmental protection and working conditions, and they must take society’s interests into account. A systematic environmental management as a core element of a comprehensive sustainability strategy in companies is useful here. The European Eco-Management and Audit Scheme (EMAS) is particularly suitable for this.

Ecology will be the economy of the 21st century

Environmental policy makes the economy sustainable. In addition to innovation aspects, environmental policy also includes elements of industrial location, investment and employment policy. In the face of global economic, social and ecological challenges, ecology and economy are becoming more and more interlinked.

Environmental issues can no longer be separated from economic concerns. Traditional environmental policy, which only deals with problems after they occur, cannot overcome these challenges. Neither is it enough to rely on the market mechanism. For government also has an important task: to ensure that prices reflect the ecological truth and to create, with

a mix of supply and demand policies, framework conditions which foster the development and dissemination of environmental innovations.

Modern environmental policy is characterised by precautionary action. Only this enables it to trigger technology leaps and push through innovations and sustainability. Such a policy provides incentives for modernisation and thus strengthens German industry’s international competitiveness. At the same time it also considerably boosts investment and secures and creates jobs.

KEY TOPIC: CLIMATE PROTECTION

Climate change is the key challenge of this century

Like the growing scarcity of raw materials and fluctuating energy prices, climate change makes it necessary to develop a much more efficient and low-emission economic management. This can only be achieved if investments are steered in an ecological direction worldwide.

With its Integrated Energy and Climate Programme (IECP), adopted in Meseberg in 2007, the German government launched the most ambitious and comprehensive climate protection project in the history of the Federal Republic. The decisions will help to reduce greenhouse gas emissions by around 34 percent by 2020 compared to 1990 levels. A number of other measures make it possible – at moderate avoidance costs – to achieve the German government’s 40 percent reduction target.

The Integrated Energy and Climate Programme (IECP) steers investments in an ecological direction

Through the Integrated Energy and Climate Programme, the Meseberg decisions will facilitate a rise in net investments of over 30 billion euro per year from the middle of the next decade. The package of 29 individual measures will create at least 500,000 new jobs by 2020 and raise gross domestic product by at least 70 billion euro per year.

The Meseberg Programme is an important basis for the ecological restructuring of capital assets in Germany. In the light of globally increasing demand for clean and efficient technologies, the long-term rise in primary energy prices, Germany’s need to catch up on investment, and the economic recession, the time is now right for an offensive to promote investments and steer them in an ecological direction.

Climate protection pays off

Most investments for the efficient use of energy already pay off in microeconomic terms. Moreover, they are worthwhile because they help prevent fol-

low-up costs of global climate warming. Climate protection measures also ensure that German industry specialises at an early stage in innovative technologies, thus strengthening its excellent competitive position on the global market. Foreign trade can therefore be expected to further boost demand for German climate protection technologies. This export momentum could generate around 200,000 additional jobs between 2015 and 2030.