



Federal Ministry
of Education
and Research



FONA

Research for Sustainable
Development

BMBF

Research for Sustainable Development

**Framework Programme of the German Federal Ministry
of Education and Research (BMBF) at a Glance**



RESEARCH

Igniting ideas!

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Preface



The United Nations Climate Change Conference held in Copenhagen in 2009 showed how difficult it is to achieve specific and binding international agreements on climate protection. Germany is setting a good example. Climate protection has top priority on our international political agenda.

With the research programme “Research for Sustainable Development”, we send a strong signal: We take our responsibility seriously and provide funding of more than 2 billion euros for this purpose. The programme focuses on internationally groundbreaking research in the fields of climate, energy and resources.

As one of our top priorities, we are searching for cooperations – and therefore, collaborations with Third World countries, which are suffering most from the effects of climate change. But also collaborations with so-called newly industrialized countries like China, Brazil, India, and South Africa are to be intensified. It is the countries that in Copenhagen did not want to, or were not able to adopt the binding climate goals, that we want to become our partners in sustainability research.

Research in this field has a long tradition in Germany, with excellent scientists and an outstanding research infrastructure. Based on scientific collaborations, we want to work out joint opportunities for development as well as to enable participation in prosperity and effective climate protection.

Research and innovation are needed more than ever to identify new development approaches and to enable technological leaps. To this end, we start an unprecedented number of new funding initiatives and projects. In doing so, we will also enable the bridging between application-oriented and basic-oriented research – in response to the High-Tech Strategy of the Federal Government. Investments in research and development are always investments in new workplaces.

In order to achieve this, we consistently count on research- and knowledge-intensive areas with pronounced growth potential, such as climate protection and adaptation to climate change, sustainable water management, and resource and energy efficiency.

No other policy area depends so much on intensive topically focused basic research, efficient systems research and the transfer of research results into industry and society as environmental policy does. The post-Copenhagen process, the international year of biodiversity 2010 and the entire Rio-process, which will be assessed in 2012, are showing and will show this clearly, now and in the years to come. Thus, the new Framework Programme makes an important contribution to a responsible and forward-looking sustainability policy.



Prof. Dr. Annette Schavan, MP
Federal Minister of Education and Research

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Our goal:

Sustainable livelihood for us and our children



Mankind is confronted with a challenge of an unprecedented extent. The next 10 to 20 years will determine whether and how we cope with the global challenges posed by climate change and water shortage, the loss of biodiversity, soil degradation and shortage of resources and energy. If the quality of life shall be maintained in industrialized countries and improved in emerging and newly industrialized countries, this can only be achieved by taking a growth path that provides more prosperity with a fraction of the current consumption of resources and the related emissions.

The goals

- Achievement of the ambitious national climate protection goals and development of concepts for the adaptation to climate change. The Federal Government offers to cut greenhouse gas emissions by 40 percent below the level of 1990 by the year 2020 as the German contribution to an international climate protection convention after 2012.
- Energy supply must become sustainable and future-oriented. Until 2020, the percentage of renewable energies in the total energy supply is to rise to 20 percent and energy productivity is to be doubled compared to 1990.
- The productivity of resources is to be doubled by 2020, the current rate of land consumption of 130 hectares per day is to be reduced to 30 hectares per day. The worldwide loss of biodiversity must be stemmed and ecosystem functions preserved.
- Understanding and shaping social change in terms of sustainable development.

To achieve these goals, we must engage in international cooperation and develop globally viable solutions in cooperation with the affected and dynamically growing regions in the world.

At the same time, the goal of global sustainable development is a unique opportunity for industry. Climate protection, resource efficiency and future-oriented energy supply are the lead markets of the future. We should take advantage of this opportunity now. Germany as an exporting nation and technological leader is in an excellent position to do so.

Our strategy:

Improvement of the knowledge base, development of technologies, opening up options for action



The current challenges are so enormous that we cannot meet them with existing technologies and concepts. We must undertake massive investments in research and innovation. We therefore need an integrated conceptual research approach which includes all important aspects – economic, ecological and social ones – together in order to prevent solving one problem at the expense of another.

Research for sustainability offers an integrated system-oriented approach that develops innovative concepts and solutions for these challenges. It is meant to be the basis for decision making for future-oriented acting. For this purpose, we integrate the entire research process from the basis to the application.

Research for sustainability

- **improves our system understanding through basic research,**
- **develops innovative technologies, applications and concepts on the basis of these insights and**
- **assesses sustainable options for action for politics, economy and society.**

With the new Framework Programme we consistently implement the National Sustainability Strategy and High-Tech Strategy in the field of climate protection, resource protection, and energy. We want Germany to maintain and expand its position as technological leader in the fields of

- **climate protection and adaptation to climate change,**
- **sustainable resource management as well as**
- **innovative environmental and energy technologies.**

Our way forward:

Innovations for global sustainable development



With the new Framework Programme, the BMBF will consistently implement the entire research process from the basis to the application in five fields of action supplemented by cross-sectional issues. Running until 2015, it is a learning programme, which takes up and supplements new challenges, if required, in the form of innovative cross-sectional issues.

The new Framework Programme will run until 2015. We will launch an unprecedented number of research initiatives. The project funding in connection with the institutional research funding will be given concrete form.

The new Research Framework Programme will focus on the following fields of action:

- **Global responsibility – International networking**
- **Earth system and geotechnologies**
- **Climate and energy**
- **Sustainable management and resources**
- **Social development**

These fields of action are supplemented by cross-sectional issues. Initially, land management, economy and sustainability as well as research infrastructures are addressed as central cross-sectional issues.

Current information on this is presented on www.fona.de.

Our instruments:

Networking of actors, tapping of economic potentials



For us, innovation policy means sustainability policy. We develop lead markets for sustainable growth and new workplaces. Because already today, technologies, products and services for climate protection that are “made in Germany“, are leading in many fields.

We support networking between science and economy. The participation of SME (small and medium-sized enterprises) in research is to be enhanced, the gap between research and utilization to be closed. By setting the appropriate framework conditions, efforts for a high participation of enterprises are made.

We boost international networking of research. Germany increases its cooperation with partners from developing and newly industrialized developing countries. We will further develop our research landscape and make it attractive for talents from all over the world.

We open up export potentials. Our funding policy is focused on fields that will open up future markets and further increase our exports. However, what and how much we are going to export will depend decisively on whether we react adequately to challenges such as climate change, resource scarcity or water supply.

We expand transdisciplinary and interdisciplinary research concepts. We want solutions for a sustainable society. In order for research to be fully effective, we integrate all relevant social groups. This is what transdisciplinarity means to us.

We strengthen the moderating role of the BMBF. The division of labor within the Federal Government provides the reliable basis for a coordinated approach and a complementary funding policy of the departments. In future, the BMBF will expand its moderating role in order to develop business-related relevance and industry-specific contributions. With the approaches and insights of sustainability research, the BMBF will provide contributions for the structuring of legislative processes.

Selected initiatives:

How we implement the new Framework Programme



The new Framework Programme implements the goals of the High-Tech Strategy in the fields of climate, energy, and resources and, thus, contributes decisively to the achievement of the strategic goals of the Federal Government. The following initiatives and measures are representative for the BMBF funding policy.

I Better understanding the system Earth

The **Climate Service Center** makes knowledge of decision makers on climate change available to users and thus shortens the distance from science to application. We modernize the **German Research Fleet**. With the new research vessels, German and international research teams can fall back on the most modern infrastructure. For this purpose, 650 million euros are earmarked. We expand the computing power of the **German Climate Computing Center**. The center is already one of the most efficient centers for climate modeling.

II Eye-level cooperation with Third World countries

We expand international cooperation with particularly affected regions. We therefore establish **Competence Centers** for climate change and adapted land management (Regional Science Service Centers), inter alia, in **Africa**. These centers develop particularly sustainable science and research structures in various regions of Africa.

III Research partnerships with newly developing countries in the field of climate protection

In the future, we will enable more **Research Cooperations with Newly Developing Countries**. This is linked to the hope that these countries will fall back on the jointly developed knowledge and, based on this, enhance their measures to combat climate change.

The networking of actors is boosted by suitable measures, as for example the BMBF Forum for Sustainability and the Internet platform www.fona.de.

First steps:

Examples for current and planned announcements

On the whole, the BMBF will invest about 2 billion euros in research for sustainability in the coming years.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
International Affairs										
Dialogues about Sustainability Research				3 Mio. €						
Era Net Eco-Innovaera				4 Mio. €						
Competence Centers Climate Change in Africa				95 Mio. €						
International Partnerships for Environmental and Climate Protection Technologies				60 Mio. €						
System Earth										
Programme Geotechnologies				30 Mio. €						
Subsoil Storage of CO ₂				67 Mio. €						
Key Regions System Earth				35 Mio. €						
Dynamic Earth System Modelling				6 Mio. €						
Climate and Energy										
Climate Economics				12 Mio. €						
Medium-Term Climate Prediction				20 Mio. €						
Sustainable Land Management A: Climate and Ecosystem Services				42 Mio. €						
Sustainable Management and Resources										
SME Innovative				ca. 16 Mio. € p.a.						
Chemical Processes and Material Use of CO ₂				100 Mio. €						
Sustainable Water Management				200 Mio. €						
Sustainable Land Management B: Innovative System Solutions				50 Mio. €						
Society										
Social Dimensions of Climate Protection and Climate Change				9 Mio. €						
Sustainable Consumption				10 Mio. €						
Scientific Networking of Non-Profit Environment Institutes				2 Mio. €						
Economics for Sustainability (WIN II)				9 Mio. €						
Junior Academic Groups Socio-Ecological Research				17 Mio. €						

Overview of the current BMBF announcements, source: BMBF, 2009.
Further information on announcements is available on www.fona.de.

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