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Sustainable Solutions
Science for Sustainability

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**“Dialogue for Sustainability (D4S)”
Sustainable Solutions – Science for Sustainability Germany-Brazil”
Workshop on Science for Sustainability: The potential for German-Brazilian
cooperation on sustainability-oriented research and innovation**

**São Paulo, Brazil
March 13th 2009**

Outcome

DRAFT

Introduction

The German-Brazilian Workshop on Science for Sustainability: The potential for German-Brazilian cooperation on sustainability-oriented research and innovation took place on 13th March 2009 in Sao Paulo. The German Federal Ministry of Education and Research (BMBF) proposed the workshop to the Brazilian Ministry of Science and Technology (MCT) in preparation for a German-Brazilian Dialogue for Sustainability (D4S). The BMBF conducts this dialogue with a number of emerging economies, namely Brazil, Russia, India, China, and South Africa. The objectives of the Dialogue for Sustainability (D4S) include:

- to intensify bilateral cooperation in research in the area of sustainability directing it to future themes.
- to develop jointly with Brazil a long-term and strategic agenda of research cooperation centred on sustainability,
- to develop joint contributions to a global (multilateral) agenda of research in the field of sustainability;
- to contribute to the implementation of research results and dissemination of high-tech-products for sustainability

The expected outcome of the first joint workshop on Dialogue for Sustainability (D4S) with Brazil was to identify possible priorities for future joint research policy activities to be suggested to the two Governments. The BMBF expressed its willingness and delight to cooperate with MCT. According to BMBF, the workshop was considered a pioneer activity. Experts from different disciplines attended the workshop in order to: i) exchange their experiences and points of view, that subsequently will guide bilateral as well as national research projects; ii) identify and discuss opportunities and challenges for German-Brazilian cooperation on research for sustainability; iii) elaborate possible future common research priorities. The results of the workshop were to serve as input to the Joint Working Group on Science for Sustainability under the leadership of BMBF and MCT to coordinate priorities and activities for a long term sustainability research dialogue between Germany and Brazil later on.

The MCT stressed the productive relation between the two governments. It considers a privilege to carry on the long-term bilateral relation with Germany. A joint declaration on the sustainability dialogue was signed on 12th March 2009 by Minister Annette Schavan (BMBF) and Minister Sergio Resende (MCT) and will be the base for the new dialogue and future agreements.

Following from that, the German-Brazilian Workshop addressed the following issues: i) the Brazilian and German joint or independent efforts and experiences in relation to the application of scientific research to address sustainability objectives; ii) the present challenges that Germany and Brazil face regarding sustainability and the questions these raise for scientific research and technological development; and iii) the suggested future priorities for the German-Brazilian cooperation in science for sustainability. The results and recommendations of the workshop may be summarised as follows.

Science for Sustainability: Brazilian and German Experiences

Research in Germany is embedded in research at the European level. Germany is highly specialized in this regard and research programmes explicitly aiming at sustainability exist. In the past several research projects in this field were carried out in cooperation with Brazil. For instance, the University of Stuttgart has been active in this sector for more than ten years. The main focal areas are water and climate protection. In 2001 there was a Summer School in Brazil, dealing with topics closely related to sustainability. The programme turned out to be a success, so a degree programme was established.

In addition, the Helmholtz Centre for Environmental Research focuses on research on sustainability from an economic point of view. The Helmholtz Centre for Environmental Research works on applied research with scientists from different disciplines and conducts projects in cooperation with Brazil, e.g. the Mata Atlantica Project, research on water management (in Brasilia), and bioenergy (in the Northeast of Brazil).

As for Brazil, it has independently increased knowledge in the field of sustainability and related technologies. This is reflected in a growing number of patents. A co-evolution of scientific and traditional knowledge has taken place and Brazil is engaged in exports in the technology sector. MCT and the Brazilian government are also engaged in actions related to sustainability in the Amazon: in agriculture, planning and education. The MCT invested about R\$ 1.3 billion in the past 6 years, extracted from funds and national and foreign grants. A fact that is often neglected is that the Amazon region has 22 million inhabitants, living in urban rather than rural areas. The human influence on the Amazon is in general larger than commonly assumed. Apart from the Amazon region, there are also initiatives related to other regions such as the Cerrado, the Pantanal and the Mata Atlantica (PROBIO2).

Also worth highlighting are the efforts in ecological zoning, which are conducted in the state of Sao Paulo, to characterize the biodiversity of the region. For eight years satellites have been employed in order to map agricultural activity and identify priority areas for conservation. The Secretary of Environment of the state of Sao Paulo as well as 500 researchers from other states and outside the country are engaged in the project.

Science for Sustainability: Challenges

Participants of this session stressed the necessity to think of research for sustainability not in an isolated way, but integrated in a system. It is essential to take into consideration the role of environmental services and economic and socio-cultural factors, such as education. In order to achieve sustainable development, societal structures have to be modified and adapted. Research for sustainability can only be effective, if it is integrative considering simultaneously ecology, technology and socio-economic factors, instead of just focusing on each of them in isolation. Considering the global challenges, cooperation on a global level is essential for successful research policy.

Policy making should include and have direct contact with stakeholders. An important step in gaining efficiency is the integration of decision-takers from industry, society and science and technology. It is essential to consider not only technological aspects but also social and

ecological aspects. Socio-scientific research in sustainability encompasses: i) understanding of socioeconomic drivers; and ii) designing policy and incentive-structures.

A similarity between Brazil and Germany in terms of challenges are the significant regional disparities, which have to be overcome in order to form one economic nation. The decentralization of administration is important as a measure to make politics more effective: “think global, act local”. Thus, it is also important to think about what kind of innovation leads to development in a specific regional context.

One main topic on the agenda is research related to the Amazon region. The Amazon region does not consist only of rainforest, but has also a human population (22 million). Therefore the development of the population has to be taken into consideration as well. The economic development of the region is a pre-condition to sustainable preservation of the environment. In the course of the preservation of the Amazon region one of the most important undertakings is to raise financial resources for strategic regions.

Suggestions for future priorities for the German-Brazilian cooperation in Science for sustainability

The general discussion on sustainability is characterized by the idea of a systemic character, which should be an important aspect for the dialogue. Consideration of such systemic character of environmental innovation is essential in order to understand the dynamics of the cooperation between Brazil and Germany and to analyse how policies in research are to be conceived. Further, it leads to an understanding of how two different systems (or more) can co-act and be interconnected.

The participants emphasised the following **pre-conditions** for successful research collaboration on science for sustainability:

- indicators to assess sustainability should be developed;
- goals have to be defined;
- monitoring mechanisms for sustainability should be deployed;
- Brazilians and German scientists need to engage in international activities;
- Interdisciplinary and transdisciplinary should be taken into consideration;
- stakeholders are to be involved in the research process from the beginning;
- engagement in multilateral cooperation should be included to apply the results of German-Brazilian cooperation to third countries, e.g. in the agricultural or energy segment;
- incentive strategies should be designed and implemented;
- actions to be carried out are required to be cost-effective, sustainable, local.

Priority **topics** of relevance suggested by the participants for the German-Brazilian cooperation on science for sustainability were highlighted during the discussion and include:

- renewable energy;
- land use;
- water and waste management;
- biodiversity;
- transportation and logistics;
- sustainability in buildings, especially governmental buildings and industrial plants;
- climate (discussed less intensively);
- environmental technologies.

Conclusions

BMBF informed the participants of the workshop on the next steps to be taken within the German-Brazilian dialogue:

1. a meeting on governmental level in Brasilia was going to take place during the week 16 to 20 March as a follow up to the signing of the Joint Declaration for the D4S;
2. after this event operational aspects have to be tackled and the project has to be carried out concretely;
3. the BMBF agrees to Brazil's demand to discuss at eye-level, and suggests that this does relate to topics and proposals, but also to financial resources;
4. formation of a joint working group, that will coordinate the dialogue activities;
5. various programme-owners should be included in the joint working group and addressed directly regarding funding of R&D projects;
6. an agenda has to be elaborated until the end of 2009 in order to then take decisions concerning specific measures;
7. This agenda could become the highlight of the "German-Brazilian Year of Science" which is scheduled for 2010/2011.