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## High-level Political Forum on Sustainable Development

## UNESCO Ministerial Round Table Breakfast on Science for Sustainable Development

**Tuesday, 8 July 2014**
**8:15 am to 9:45 a.m., UNHQ**

**Keynote by Professor Joerg Hacker**
**President of the German National Academy of Sciences Leopoldina**

***[Check against delivery!]***

Excellencies,
Her Excellency Mrs. Molewa,
Director-General Bokova,
Distinguished delegates,
Ladies and Gentlemen,

Thank you for inviting me to this ministerial round table. It is a great pleasure and also an honor for me to be here today.

With the post-2015 process, we find ourselves in the extraordinary position to promote a sustainable development towards a world in which poverty no longer exists. In my speech, I would like to emphasize that science – understood here as science, technology innovation – plays a crucial role in implementing this vision.

Let me shortly introduce myself: My name is Joerg Hacker. I am a microbiologist, and am President of the German National Academy of Sciences Leopoldina. In this function, it is one of my tasks to provide scientific advice to the German government on topics of high political and social relevance.

I am also a member of the UN Secretary General's Scientific Advisory Board. This board is composed of twenty-six internationally leading scientists, and is tasked with providing advice particularly in areas relevant to sustainable development.

In our inaugural meeting in January this year, we decided that one focus of our work should be the role of science for the Sustainable Development Goals. Laurence Tubiana and I are chairing this SAB-work stream. A proposal for the Sustainable Development Goals is currently being elaborated by the "Open Working Group" (OWG) of the United Nations. In the recent months, we have closely followed the discussions of the Open Working Group. Based on the OWG's work, the SAB has drafted a statement to the UN Secretary-General. Drawing on this SAB-recommendation, I, on behalf of the Board, will now try to illustrate, why science should be anchored prominently in the Post-2015 Agenda:

**[1. The crucial role of science for sustainable development]**

First of all, science is **crucial for achieving a sustainable development**. Science has already contributed significantly to meeting challenges in our globalized world, but there is still a lot do. Let me give you an example:

As a microbiologist, I have worked extensively on the topic of infectious diseases. Modern medical sciences have done a tremendous job in controlling infections by developing vaccinations and antibiotics, and thus saved thousands of lives. However, in recent years, we have faced a rise in pathogens which are resistant to antimicrobial drugs. In addition, new forms of pathogens have been identified, and already known ones have appeared with new properties. Research on both the origin of antibiotic resistance as well as the development of new antibiotics and alternative treatments are of critical importance in furthering human health and well-being. Therefore, a sustainable medical system needs to be established and further developed.

**[2. Request for a broad understanding of science]**

Second, to achieve a sustainable development, a **broad understanding of science is required**, including all disciplines from the natural sciences and engineering, to social sciences and the humanities.

A conspicuous example for this is the Ebola epidemic which is currently affecting large parts of Western Africa: Scientific research has enabled us to better understand the life cycle of this virus. It is essential that infected patients are kept in strict isolation in order to contain this virus and prevent its rapid and often fatal spread. I hear from colleagues, though, that many people do not solicit help. Instead, patients are kept at home, thus speeding up the epidemic. What are the reasons for this? Is it missing information, or are there reasons rooted deeply in culture and tradition? The answers to these questions call for an expertise beyond medical sciences.

Ladies and gentlemen, if we want to enable everyone in this world to lead a good life in decent health, it is not enough to provide appropriate medical care. In order to address the questions raised above, we also need to take social, cultural and political issues into account. The social sciences and the humanities are important, as they identify and analyze underlying reasons behind decisions and thus contribute to a better understanding of human behavior.

**[3. The inter-relatedness of focus areas]**

As these examples also show, the challenges we are facing are highly complex. Therefore, - and this is the third point I would like to make - if you want the post-2015 development agenda to be truly transformative, you need to keep in mind the inter-relatedness of the focal areas addressed in the SDGs.

For example, there is a strong interrelation among nutrition, agriculture, environmental protection, health, gender equality and education. It is impossible to be healthy without adequate nutrition. Producing nutritious food brings us to agriculture. Agriculture in turn affects the environment: it is estimated to be the main driver for deforestation. Women are at the nexus of health, nutrition and agriculture: In rural areas, they are responsible for the daily food production and the childcare. Due to a lack of access to education and a resultant lack of knowledge, they are not familiar with the inter-linkages portrayed above. Moreover, in their native cultures they are often considered second-class human beings whose well-being is of minor importance. Promoting gender equality and empowering rural women is of decisive importance for further improvements in all these areas.

I understand that when devising a new set of development goals, the artificial division into focus areas may be necessary for effective communication and resource mobilization. However, I strongly advise you to acknowledge the cross-cutting nature of the issues at stake. This should be mirrored in the targets and indicators. Moreover, the SDGs should be grounded in an integrated scientific approach, based on the collaboration of all fields of science.

**[4. The importance of basic science]**

Fourth, I ask you to acknowledge that science is more than a means of implementation.

In the current discussions on the SDGs, the role of science is limited to quickly finding practical solutions for pressing social needs. This is a rather utilitarian line of thought, very often closely linked to the wish for economic success. Be assured, that there is nothing wrong with demanding that science, technology, and innovation (STI) directly contribute to a sustainable world. There is nothing wrong either with a knowledge-based economy.

But the so called “applied science” is just one side of the coin. The other side is “basic science”, which unfortunately is often ignored. However, just like the two sides of a coin, basic and applied science are interdependent. There is no applied science without basic science – or as Max Planck said: “knowledge must precede application”.

Basic research is driven by curiosity about the unknown, it means “thinking out of the box”. This form of research requires time and long-term investments, but it is the prerequisite for major breakthroughs and the “big leaps forward” for mankind: It leads to radically new knowledge and new approaches and thus is the basis of innovation and the fuel for progress.

Every year, the Nobel Prize offers examples of such new ideas. An up-to-date example is accelerator-based particle physics: Initially a purely basic science endeavor, nowadays, many major medical centers use accelerators for the diagnosis and treatment of diseases such as cancer, thus helping restore the health of millions of patients.

**[5. Science is a value in itself]**

Last but not least, science not only brings about change on the road towards sustainable development. It is also a value in itself.

Science, like music, is universal. It is a language that we can share and that helps us communicate better, leaving national and cultural borders behind. CERN is a very good example for this, where more than 10.000 people from more than 60 countries work together, inspired by the same passion and the same goals.

Science also possesses a strong educational component. The critical thinking that comes with science education is vital in training the mind, understanding the world, making choices and solving problems. Regardless of disciplines, science is a common way of thinking, which is helpful not only in the academic world, but also in everyday life.

Moreover, science, technology and innovation form the basis for economic success.

Therefore, I call on all countries to promote science literacy. Very often, investments in science seem to be of minor priority compared to other fields. The benefits of science and its positive effects are not acknowledged. However, particularly in low and middle income countries, this way of thinking further enforces dependence on countries that are scientifically more literate and innovative.

**[6. Conclusion]**

Ladies and Gentlemen, in my speech, I tried to illustrate that science is essential for achieving sustainable development. Moreover, science in its own right needs to be an integral part of the post-2015 development agenda.

Therefore, the SAB strongly recommends anchoring science prominently: It should be addressed in the preamble to the SDGs, ideally a stand-alone goal on science should be formulated. But at least, it should find explicit consideration in the targets under each individual SDG.

Moreover, considering the *per se* value of science, we strongly advocate raising the spending on research and development, and urge governments to reserve a fixed minimum percentage of the gross national product (GDP) for this purpose, including special allotments for basic research, for science education and for the promotion of science literacy.

Thank you very much for your attention.