

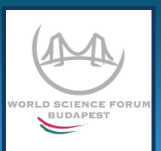
# **WORLD SCIENCE FORUM**

BUDAPEST

17-19 NOVEMBER, 2011

## **THE CHANGING LANDSCAPE OF SCIENCE: CHALLENGES AND OPPORTUNITIES**

PRELIMINARY AGENDA



## ANNOUNCEMENT



It is my honour and pleasure to announce the fifth **World Science Forum** to be held in **Budapest** from **17 to 19 November 2011**. The Forum, which - I hope - will put Hungary in the vanguard of international science again, will be organized by the Hungarian Academy of Sciences in partnership with UNESCO, ICSU, and AAAS.

Encouraged by the success of the 1999 World Conference on Science and in the spirit of the Declaration issued by WCS, the Hungarian Academy of Sciences, in partnership with UNESCO and ICSU, initiated a series of events called World Science Forum taking place biannually in Budapest.

In 2001 UNESCO assigned the day of the 10<sup>th</sup> of November to serve as "World Science Day", a day dedicated to science and scientists. Since then World Science Fora have taken place in Budapest on and around the World Science Days of every second year focusing on "Knowledge and Society" (2003), "Knowledge, Ethics and Responsibility" (2005), "Investing in Knowledge: Investing in the Future" (2007), and "Knowledge and Future" (2009).

Now, following the convention of the renewed Steering Committee of World Science Forum, I am proudly announcing that the main theme of the 2011 Forum will be **"The Changing Landscape of Science"**. With the contribution of world leading scientists we are going to present geographical, thematic, and social aspects of this subject focusing on the burning issues of science and global society. Among other relevant topics our invited speakers will outline their views on the future of human population, new challenges caused by, and solutions to remedy global diseases, novel ways of food production and food security, new material technologies, and the recent advancements in brain research and cognitive sciences. True to our traditions we will present these themes from the perspectives of both developed and developing countries with the clear intention of giving a balanced view of major global disputes and to demonstrate our determination to narrow the knowledge divide. The Forum will stress the role of young scientists with an eye on their growing responsibility for finding solutions to the existing and arising challenges facing humankind. Last but not least, we will promote the interaction between stakeholders of knowledge including scientists and science policy makers, and the general public: people who can enjoy the benefits of scientific advancements, whose quality of life can be improved by finding knowledge-based solutions to global challenges and by a spirited interaction with the global scientific community as another guarantee for the future.

There has been another development in the life of World Science Forum, one that will surely contribute to the success of this event. In order to distribute the achievements of this enterprise and to make it a true world event, the Hungarian Academy of Sciences with the consent of UNESCO, ICSU, and AAAS has proposed to change the format of WSF so that it is organised on every second occasion in a partner country. What with the welcome offer of the Brazilian Academy of Sciences it has been decided that the 2013 World Science Forum will be organized in Rio de Janeiro. Beyond their valuable contribution, among others, the European Academies Science Advisory Council (EASAC) and the German Academy of Sciences Leopoldina will contribute to this ambitious enterprise.

I am inviting all stakeholders of knowledge, including my fellow scientists and science policy decision makers, leaders of industrial and technological development, academics and science communicators, to participate in this intellectual endeavour. I am confident that the Forum will be rewarding both academically and socially for all, and will contribute to a better understanding and appreciation of the role of science in the global society of the 21<sup>st</sup> century.

**József Pálinkás**

President of the Hungarian Academy of Sciences  
President of World Science Forum

OPENING DAY WEDNESDAY, NOVEMBER 16, 2011

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Venue: Hungarian Academy of Sciences

19:00- OPENING RECEPTION AND CONCERT

Given by: Irina Bokova, Director-General, UNESCO (confirmed)  
József Pálincás, President, HAS; President, WSF (confirmed)  
Concert by: Kristóf Baráti

Day 1

THURSDAY, NOVEMBER 17, 2011 9:00-21:00

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Venue: Hungarian Academy of Sciences

09:00-09:40 OPENING ADDRESSES

József Pálincás, President, HAS; President, WSF (confirmed)  
Viktor Orbán, Prime Minister of Hungary (confirmed)  
Irina Bokova, Director-General, UNESCO (confirmed)  
Yuan Tseh Lee, President, ICSU (confirmed)  
Alan I. Leshner, Chief Executive Officer, AAAS (confirmed)  
representative of the European Commission  
Aloizio Mercadante, Minister of Science and Technology, Brazil (confirmed)  
Greetings from the International Space Station

09:40-10:00 UNESCO PRIZE CEREMONY

Presented by: Irina Bokova, Director-General, UNESCO (confirmed) and  
Madiha Ahmed Al Shaibani, Minister of Education, Oman; Chairperson, The Oman  
National Commission for Education, Culture and Science (confirmed)  
Singer: Márta Sebestyén, UNESCO Artist for Peace Laureate (confirmed)

10:00-11:40 PLenary SESSION I: "THE CHANGING LANDSCAPE OF SCIENCE: CHALLENGES AND OPPORTUNITIES"

Chaired by József Pálincás (confirmed)  
Gretchen Kalonji, Assistant Director-General for Natural Sciences, UNESCO on UNESCO Science Report (confirmed)  
Sir Chris Llewellyn Smith FRS, Chair, the Royal Society Advisory Group on Global Science Report (confirmed)  
Johan Rockström, Member, ICSU Scientific Overview Committee (confirmed)  
Sergio Machado Rezende, Former Minister of Science and Technology, Brazil (confirmed)  
William Colglazier, Science and Technology Adviser to US Secretary of State Hillary Clinton (confirmed)

11:40-12:00 COFFEE BREAK

- 12:00-13:30**      **PLENARY SESSION II: “THE CHANGING LANDSCAPE OF SCIENCE: EMERGING POWERHOUSES IN SCIENCE AND TECHNOLOGY” (GEOGRAPHICAL APPROACH)**
- Chair: Jacob Palis, President, Brazilian Academy of Sciences
- Gebisa Ejeta, 2009 World Food Prize Laureate, Science Envoy of President Barack Obama (confirmed)
- HRH Princess Sumaya bint El Hassan, President of El Hassan Science City and the Royal Scientific Society, Jordan: Capacity building in a country with no natural resources (confirmed)
- Kari Raivio, Vice-President for Scientific Planning and Review, ICSU: Capacity building in education - the Finnish example (confirmed)
- Romain Murenzi, Executive Director, TWAS (confirmed)
- Abdulaziz Othman Altwajri, Director General, Islamic Educational, Scientific and Cultural Organization (ISESCO) (confirmed)
- Naledi Pandor, Minister of Science and Technology, South Africa
- M. S. Swaminathan, Chairman, MS Swaminathan Research Foundation: “Green revolution”
- Daniel Hershkowitz, Minister of Science, Israel (confirmed)
- 13:30-14:30**      **LUNCH BREAK**
- 14:30-16:30**      **PLENARY SESSION III.: “THE CHANGING LANDSCAPE OF SCIENCE: “EMERGING FIELDS OF SCIENCE” (THEMATIC APPROACH)**
- Chair: Werner Arber, Nobel Laureate
- Leroy Hood, Director, Institute for Systems Biology: Systems biology - From cell to personalized medicine (confirmed)
- H. Jeff Kimble, Professor, California Institute of Technology: Quantum computing, Quantum information science (confirmed)
- Richard A. Mathies, College of Chemistry, University of California, Berkeley (confirmed)  
Green technologies, Green chemistry, Environment conscious education
- Peter A. Singer, Grand Challenges Canada: “Grand Challenges in Global Health” (confirmed)
- Vijay Chandru, Chairman, CEO Strand Life Sciences
- Stanislas Dehaene, Professor, Collège de France: Brain and cognitive sciences (confirmed)
- Sir Brian Hoskins, Director, Grantham Institute at Imperial College London (confirmed)
- 16:30-17:00**      **COFFEE BREAK**
- 17:00-19:00**      **PARALLEL THEMATIC SESSIONS I. (UNESCO, LEOPOLDINA – SEE ANNEX)**
- 19:30-**              **RECEPTION**

Day 2

FRIDAY, NOVEMBER 18, 2011 9:00-21:00

Venue: Hungarian Academy of Sciences

09:00-11:00      **PLENARY SESSION IV.: "THE CHANGING LANDSCAPE OF SCIENCE: POLICY IMPLICATIONS AND DRIVERS"** (Roundtable)

Moderated by: Sir Brian Heap, President of European Academies Science Advisory Council and former Foreign Secretary of the Royal Society (confirmed)

AnnaLee Saxenian, Dean, Berkeley School of Information: Brain or human circulation (confirmed)

Dominique Ristori, Director-General, Joint Research Centre, European Commission (confirmed)

Ibrahim Assane Mayaki, CEO, New Partnership for African Development (NEPAD)

Jun Xia, Director, Director, Center for Water Resources Research, Chinese Academy of Sciences and President, International Water Resources Association

Ricardo Hausmann, Director, Center for International Development, Harvard University (confirmed)

Robert-Jan Smits, Director-General, Directorate-General for Research and Innovation, European Commission (confirmed)

Ruth Arnon, Wolf Prize Laureate, President, Israel Academy of Sciences (confirmed)

Volker ter Meulen, Former President, Leopoldina (confirmed)

11:00-11:30      **COFFEE BREAK**

11:30-13:30      **PARALLEL THEMATIC SESSIONS II. (HUNGARIAN ACADEMY OF SCIENCES, AAAS – SEE ANNEX)**

13:30-14:30      **LUNCH BREAK**

14:30-16:30      **PLENARY SESSION V.: "FORUM OF GLOBAL FORA"**

Chaired by: Dong-Pil Min, Chairman Seoul S&T Forum (confirmed)

Mr Mohammed Abdullah Al-Roumihi, Chairman, Organizing committee for Doha Forum (confirmed)

Alan I. Leshner, CEO, AAAS (confirmed)

Joshua Mandell, World Bank, STI Global Forum (confirmed)

Stefan Michalowski, OECD Global Science Forum (confirmed)

Richard O'Kennedy, President, London International Youth Science Forum (LIYSF) (confirmed)

Tomihiko Taniguchi, Japan STS forum (confirmed)

Peter Tindemans and Raphaela Kitson-Pantano, ESOF (European Science Open Forum) (confirmed)

16:30-17:00      **COFFEE BREAK**

17:00-19:00      **PARALLEL THEMATIC SESSIONS III. (ICSU, BRAZIL – SEE ANNEX)**

19:30-      **RECEPTION**

Venue: Museum of Fine Arts

Concert of Muzsikás Folk Ensemble and Thiago Bertoldi

Day 3

SATURDAY, NOVEMBER 19, 2011 9:30-14:30

Venue: The House of Parliament

09:30-11:00      **PLENARY SESSION VI: "PARLIAMENTARY SESSION"**

Highest representatives of parliamentary scientific councils

Aloizio Mercadante, Minister of Science and Technology, Brazil (confirmed)

Andrew Miller, Chairman, Science and Technology Committee, House of Commons UK (confirmed)

Patrick Amuriat Oboi, Member of Parliament, Uganda (confirmed)

Paul Rübig, Chairman, STOA (Science and Technology Options Assessment - European Parliament)

Rémi Barré, Conservatoire National des Arts et Métiers Recherche (CNAM), France (confirmed)

Ulla Burchardt, Chair, Committee on Education, Research and Technology Assessment, Bundestag, Germany (confirmed)

11.00-11.15      **PRESENTATION AND ENDORSEMENT OF THE DECLARATION**

Declaration presented by:

József Pálinskás, President, Hungarian Academy of Sciences (confirmed)

Gretchen Kalonji, Assistant Director-General for Natural Sciences, UNESCO (confirmed)

Yuan Tseh Lee, President, ICSU

11:15-11:45      **COFFEE BREAK**

11:45-12:45      **CLOSING PLENARY LECTURES**

Pál Schmitt, President of Hungary (confirmed)

Katalin Bogyay, President, General Conference, UNESCO (confirmed)

Ahmed Zewail, Nobel Laureate, California Institute of Technology (confirmed)

József Pálinskás, President, Hungarian Academy of Sciences (confirmed)

12:45-14.30      **RECEPTION**

Annex

PARALLEL THEMATIC SESSIONS

In line with the "WSF tradition", these sessions will be organized by the main partners of the WSF:

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17:00-19:00 17 NOV THEMATIC SESSION I.

**UNESCO: "The Changing Landscape of Science: Higher Education's Perspectives, Dynamics and Implications"**

Chaired by: Lidia Brito

The session will discuss how the new geography of global science will call for a challenging role of higher education in terms of knowledge creation and sharing as well as in terms of reshaping the world's human resources in S&T.

Prof. Ellen Hazelkorn (Director of Research and Enterprise, and Dean of the Graduate Research School, Dublin Institute of Technology; Head of Higher Education Policy Research Unit)

Prof. Teboho Moja (Clinical Professor of Higher Education, School of Education, Department of Administration, Leadership, and Technology at New York University, USA)

Prof. Adnan Badran (former Prime Minister of Jordan, President of Petra University, Senator and Chair of Senate Committee on Science, Education and Culture)

Prof. Atta-ur-Rahman, FRS (Coordinator General COMSTECH, former Minister of Science & Technology Pakistan and President Pakistan Academy of Sciences)

Prof. Francois Taddei (Research Scientist and Founder of Center for Research and Interdisciplinarity, France)

**Leopoldina: „Emerging and re-emerging infections"**

Chaired by: Volker ter Meulen

Infectious Diseases are still major burden of the society. 30 % of death cases are due to infections. This is especially true for tropical countries, where Malaria and other parasites play an important role. Furthermore, HIV, respiratory pathogens and tubercle bacilli are important pathogens worldwide. In industrialized countries nosocomial infections play a major role. During the session of the World Science Forum experts from different fields in Medical Microbiology and virology will present different topics concerning the understanding of pathogenesis as well as the fight against microbial pathogens.

S.H.E. Kaufmann (Max-Planck-Institute for Infection Biology, Department of Immunology)

„Tuberculosis – a re-emerging, still neglected disease"

Hans D. Klenk (Institute for Virology, University of Marburg)

„Influenza viruses en route from animals to man"

Hans-Georg Kräusslich (Department of Infectious Diseases, Virology, University Hospital Heidelberg)

„HIV/AIDS – unsolved problems"

Peter F. Zipfel (Department of Infection Biology, University of Jena)

„Fungal infections - a threat to health"

**11:00-13:00 18 NOV THEMATIC SESSION II.**

**Hungarian Academy of Sciences: "Networks"**

Chaired by: E. Sylvester Vizi (Hungarian Academy of Sciences)

Recent scientific progress in the understanding of highly complex systems, in the development of a global world economy, in world-wide communication and information exchange (e.g. internet), and in countless technological advances that affect our daily lives have caused scientists to more closely investigate and analyse networks.

The networks and dynamic interactions of more than 200 billion neurons form the basis of human brain activity, the most complex and sophisticated system known in the universe. Additionally, networks of radio senders and receivers, fiberoptic and electric cables, satellites and ground stations, servers of personal computers, and millions of related devices form the basis of a massive global information network through which people and machines can exchange information and affect each other's activities (e.g. commercial airline reservation system, Wikipedia, the free encyclopedia that anyone can edit, computer networking etc.). Sophisticated and intricate social networks form the basis of political and social interactions within and among countries and peoples. Thus, networks are essential and fundamental parts of our everyday lives and mirror those found in nature.

The present thematic session will focus on the various scientific approaches recently developed in network research, and the speakers will survey cutting-edge research on the mathematics of information and communication networks, the physics of natural network-based phenomena, the biology of the human brain's networking activities, and the social aspects of human network formation.

László Acsády, Institute of Experimental Medicine, Hungarian Academy of Sciences (confirmed)

Albert-László Barabási, Notre Dame University and Harvard University (confirmed)

Tamás Vicsek, Eötvös Loránd University Budapest

"Hierarchical networks" (confirmed)

Eörs Szathmáry, Eötvös Loránd University Budapest

"Chemical networks and the origins and nature of life" (confirmed)

Kimmo Kaski, Helsinki University

Guido Caldarelli, University "Sapienza" Roma

**AAAS: "Developing a coherent and compatible science enterprise"**

Chaired by: Vaughan Turekian

This session will focus on identifying issues, policies and mechanisms for building more coherence into global science cooperation. Such issues as talent development and mobility, funding and priority setting, and norms standards and ethics of science will be discussed. The objective will be to identify specific ideas for how the science and science policy communities might better develop an international system that has greater coherence and compatibility to address the large numbers of international challenges where science plays a central role

Alan I. Leshner (CEO, AAAS, introductory speaker)

"Building a Global Science Community"

Bud Rock (CEO, Association of Science and Technology Centers)

Royal Society representative, UK

Tateo Arimoto (JST)

Patrick Cunningham (Chief Science Adviser to the Irish Government)

Cathleen A. Campbell (CRDF)

Tom Wang (reporter to session)

17:00-19:00 18 NOV THEMATIC SESSION III.

**ICSU: “Foresight Scenarios: What will international science be like in 2031?”**

Chaired by: Deliang Chen

The purpose of this session is to present the result of an exercise exploring the potential development of international science over the next two decades in a changing economic, social, political, and environmental context. From an institutional perspective, it is designed to test the role and mission of ICSU and guide long-term strategic choices aimed at strengthening international science for the benefit of society. To this end, the conduct of the foresight exercise has been closely synchronized with the development the ICSU strategic plan 2012-2017 and it is expected to have a significant influence on the implementation of this plan. At the same time, it is hoped that this exercise will have wide applicability beyond ICSU and, for example, that it will be useful to WSF participants and partners in developing their own longer-term vision and strategic thinking. The process has been specifically designed to engage many stakeholders and the issues and various scenarios presented in this report are designed to be adapted and updated to suit the needs of multiple users.

Nebojsa Nakicenovic

John Marks

Francoise Caillods

Heide Hackman

Attila Havas

Michael Keenan

**Brazil: “Sustainable Food Production”**

Chaired by: Jacob Palis, Elibio Rech

Roger N. Beachy, Wolf Prize Laureate, Former Director, National Institute of Food and Agriculture, US

“Advancing Science and Technology to Enhance Production and Sustainability of Agriculture: a Global Challenge” (confirmed)

Paul Christou, University of Leida, Spain

“Transgenic crops and better nutrition and health in the developing world versus political expediency and protectionism” (confirmed)

Thorsten Storck, BASF Plant Science Company, Germany

“Precious Spuds – Tapping the Full Potential of Potatoes” (confirmed)

Dionne Shepherd, University of Cape Town, South Africa

“Importance of virus-resistant transgenic maize in Africa” (confirmed)

Elbio Rech, EMBRAPA Genetic Resources and Biotechnology, Brazil

“Recombinant DNA Technology and the Sustainable Use of Biodiversity” (confirmed)

John Ingram, Environmental Change Institute, Oxford University, UK (confirmed)

Robert Costanza, Director, Institute for Sustainable Solutions, US

## SPECIAL SESSIONS

These sessions are for selected audience only

### 16 NOVEMBER

16:00-17:00 EXECUTIVE BOARD MEETING OF AFRICAN PARLIAMENTARY FORUM ON SCIENCE AND TECHNOLOGY (Bolyai Room)

### 17 NOVEMBER

17:00-19:00 G77 MEETING (Library of the Hungarian Academy of Sciences)

#### **“South-South Cooperation in Science and Technology”**

Chaired by: Ambassador Jorge Argüello

### 18 NOVEMBER

11:30-13:30 YOUTH-WAYS SESSION (Reading Room)

#### **“Scientific collaboration in the changing landscape of science: new generation of science and researchers”**

The emergence of Science 2.0 has started to provide new ways to develop scientific collaboration, facilitate scientific discoveries, gain access to new forms of education and achieve political, ecological, and economic cooperation at an international scale. Science 2.0 innovations: Science 2.0 is a natural 21st century extension of the way modern science has always been working, the difference being that internet and open tools can now enlarge the circles of contributors endlessly. Although the web has made creative collaboration possible on an unprecedented scale (Wikipedia, Linux), there have been fewer examples of scientific knowledge generation being done by large online groups. Recently, however, major success stories have been reported from various fields of science. The first part will gather game changers to address the following questions: (1) What are the drivers of the current success stories, massive collaboration, crowd sourcing, citizen science? How can large-scale online experiments change the way science and education are performed? What are the future perspectives? How can this potential be harnessed by developing countries?

Dr Kevin Govender, Director, Global Office of Astronomy for Development, South Africa

Dr Linda Kamau, Ushahidi, Kenya

Prof. Humphrey Oborah, President, African Council of Gifted and Talented, Kenya

Prof. Francois Taddei, Research Scientist, INSERM, Paris, France

Dr Victor Henning, CEO and founder Mendeley Limited, London, UK

Ms Kaitlin Thaney, Manager: External Partnerships, Digital Science, London, UK

Prof. Peter Csermely, President, Hungarian National Talent Support Council

14:30-16:30 UNESCO PARALLEL PARLIAMENTARY SESSION (Reading Room)