Global Science Forum

STATUS REPORT

Submitted to the 93rd Session of the Committee for Scientific and Technological Policy

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JT03253038

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General

1. The Global Science Forum (GSF) is a working party of the Committee for Scientific and Technological Policy. It is a Part II activity, funded by voluntary contributions from all OECD member countries with the exception of Iceland and Luxembourg. The GSF began as the Megascience Forum in 1992 and acquired its present name and mandate in 1999. Formal evaluations were carried out in 1998, 2003 and 2008.

2. The Global Science Forum is chaired by Dr. Hermann-Friedrich Wagner (Germany). The Vice-Chairs are: Prof. Alessandro Bettini (Italy), Dr. Dominique Goutte (France), Prof. Jørgen Kjems (Denmark), Dr. Leo Leduc (The Netherlands), Prof. Hiroshi Nagano (Japan), Dr. Sharon Hays (United States), and Dr. Paul Williams (United Kingdom). Secretariat functions are provided by the Advisory Unit on Multi-Disciplinary Issues in the office of the OECD Secretary-General. The secretariat staff are: Alysia Ritter, Frédéric Sgard, Stefan Michalowski, and Katsuyuki Kudo (supported by a grant from the Japanese Ministry of Education, Culture, Sports, Science and Technology).

3. The Global Science Forum meets twice each year. At these meetings, in addition to substantive discussions, selected subsidiary activities are reviewed and, if appropriate, approved based on proposals from delegations. The activities may take the form of surveys and studies, working groups, task forces, and workshops. The normal duration of an activity is one or two years, and a public policy-level report is always issued. A list of the subsidiary activities during the most recent mandate period is being provided to CSTP delegates as part of a separate document, DSTI/STP/MS(2008)2. The reports are available at www.oecd.org/sti/gsf.

Evaluation of the GSF, and renewal of its mandate

4. The current five-year mandate expires on 31 January 2009. A formal evaluation exercise was conducted during the summer of 2008, using a questionnaire - DSTI/STP/MS(2008)2 - that was distributed to the delegations. The responses were analysed, and further information was sought, by a panel whose members were Enric Banda (Chairman) of Spain, Kazuo Shimomura of Japan, and David Stonner of the United States. Their written report - DSTI/STP/MS(2008)3 - was distributed to the delegates of the nineteenth meeting of the Global Science Forum which was held in Rome on 9-10 October 2008. At that meeting, delegates agreed to request a five-year extension of the mandate, with minor revisions of the mandate text, intended to correct certain anachronisms that date back to 1999, when the text was first approved by CSTP. This proposed mandate is being distributed as DSTI/STP/MS(2008)5.

Ongoing or recently completed activities

5. The Workshop on Complexity Science and Public Policy was held on 5-7 October 2008 at the Ettore Majorana Foundation and Centre for Scientific Culture in Erice, Sicily. It was devoted to exploring the intriguing proposition that the frontier field of complexity science can produce insights and techniques that can, even today, be of real value to policymakers in areas such as public health, disaster management, and regulation of financial institutions. A mature draft of the report from the workshop will be presented.
to the GSF in March 2009. The workshop was proposed by the Delegation of the United States and was co-chaired by Dr. Raima Larter and Dr. Jacqueline Meszaros.

6. The **Workshop on Improving the Dialogue with Society on Scientific Issues** was held in Paris on 17-18 September 2008, under the chairmanship of Jean-Pierre Alix of CNRS (France). The preparations were directed by an international steering committee that was appointed by GSF delegations. A consultant prepared a discussion paper for the workshop, based on an extensive series of interviews with persons responsible for organising dialogues with society on issues that have a significant scientific content. A mature draft of the report from the workshop will be presented to the GSF in March 2009.

7. The activity on **Policy Issues Related to Scientific Research Collections** took place in Washington on 17-19 July 2008, hosted by the Smithsonian Institution and the US Department of Agriculture. The conclusions of this workshop are being integrated into a final report that will be finalised before the end of 2008. It will call for the creation of an international coordinating mechanism of scientific collections in the form of a member-based consortium. Detailed implementation and business plans are currently being finalised. In addition, a series of consultations between scientific collections and the user community may be set up in coordination with the European Science Foundation (ESF). This activity is being led by the United States and is chaired by Dr. Phyllis Johnson.

8. The **Co-ordinating Committee for Facilitating International Research Misconduct Investigations** is in the final stage of its work. It met in Paris on 21-22 April 2008, with a final meeting in Vienna on 11-12 September 2008. It has focused on two issues: the creation of an international network of officials and other responsible persons who can be contacted in case of a problem during an international research collaboration, and drafting recommendations and guidelines that could be used when setting up an international research collaboration. For the first item, discussions are underway (they include UNESCO and the European Science Foundation, which are already active in this area). Regarding the second objective, draft documents were reviewed and modified at the Vienna meeting. These will all be finalised in early 2009. This will conclude the GSF’s work on research misconduct – the first truly international consultation on this difficult and sensitive subject. The GSF’s 2007 “Report on Best Practices for Ensuring Scientific Integrity and Preventing Misconduct” is currently the widely acknowledged reference for all efforts to establish effective rules and mechanisms for dealing with falsification, fabrication and plagiarism in basic research.

9. The **“Global Earthquake Model” (GEM)**, a major public/private research initiative, is on schedule for a launch at the beginning of 2009. GEM will be the first global, open source model for seismic risk assessment at a national and regional scale, and aims at achieving broad scientific participation and independence. GEM will create a common framework for reducing earthquake risk, by building on the latest advances in seismic knowledge and improved international cooperation in research and practice. GEM is the natural continuation of the Global Seismic Hazards Assessment Project (GSHAP, 1992-1999), as it harmonizes methodologies and extends to earthquake risk. GEM will be the critical instrument to support decisions and actions that reduce earthquake losses worldwide. GEM will integrate developments on the forefront of scientific and engineering knowledge of earthquakes, in three modules: hazard, risk, and socio-economic impact. The hazard module calculates harmonized probabilities of earthquake occurrence and resulting shaking at any given location. The risk module calculates damage, fatalities, and injuries based on shaking, population, building vulnerability and inventory. GEM will further develop remote-sensing techniques to classify, monitor and regularly update building inventory and thus regional vulnerability. The socio-economic impact module of GEM estimates monetary losses as a consequence of earthquakes. It will also provide tools to calculate financial losses and carry out scenarios which can enable cost/benefit analysis of mitigating actions, such as systematic building strengthening, and facilitate insurance and alternative risk transfer. All developments will be carried out in a common open computer infrastructure, using compatible, validated open software. The steering committee, working with the GSF
secretariat, has prepared the necessary documents for joining the project (the “Memorandum of Understanding”) and hosting the GEM secretariat (the “Request for proposals to host the secretariat of the Global Earthquake Model”). The Terms of Reference and Business Plan document has been updated. These documents have been distributed to all GSF delegations, and to officials and scientists in a number of non-OECD countries. A strategic planning meeting took place on 14-18 June 2008 in Zurich, where 70 international experts met to validate and consolidate the GEM rationale and work programme. A detailed “GEM Implementation Plan” document is being prepared. The GSF secretariat has been asked to manage the evaluation procedure to select the future GEM secretariat host (which should be finalized by mid-November), and to collect signed MOUs. More recently, UNESCO has indicated its interest in the project, and will be invited to participate and help develop contacts with developing countries. This activity has been led by the Delegation of Germany and chaired by Prof. Jochen Zschau.

10. The report of the Working Group on Nuclear Physics was finalised in March 2008. It makes the point that, to maintain strong nuclear physics programmes, funding agency officials face difficult decisions about the best use of existing facilities (and their associated instruments), new facilities under construction, and new facilities in the planning and R&D phases. Progress in nuclear physics should be a globally coherent response to recognized scientific challenges, using an optimal set of national and regional projects. To achieve this goal, senior funding agency programme managers, laboratory officials, representatives of national advisory bodies, and members of the organized scientific community met under the aegis of the GSF to discuss the future of the field, with emphasis on the role of large programs and projects. The working group report contains a description of the major scientific challenges in the field, and introduces a global-scale consensus roadmap of major national and regional facilities that reflect an optimal strategy for realising the scientific goals. Specific recommendations for concerted follow-on actions are addressed to the funding agencies and to the International Union of Pure and Applied Physics.

11. The report from the Workshop on Mathematics in Industry was finalised in July 2008. It is based on the premise that, given the increasingly intimate connection between science, innovation, and mathematics, it is natural to enquire whether the interface between these three domains is functioning in an optimal way. The 2007 GSF workshop brought together mathematicians, representatives of industry, and officials of science funding agencies. The objectives were (1) to survey the relationship between the mathematical sciences and industry in the participating countries; (2) to identify the most important trends in mathematics research and in industry affecting the relationship between the two communities; (3) to identify and analyse major challenges and opportunities for mutually beneficial partnerships. The report contains analyses and findings in these areas, emphasising the significant (and largely unrealised) potential of applying advanced mathematics to modern industrial problems. It recommends that national administrations, academic institutions, and high-technology companies give serious consideration to implementing concrete programmes and mechanisms that are described in the report. At its 19th meeting in October 2008, the GSF approved a one-year follow-on project, proposed by the Delegation of the United States, which would compile useful information about the most effective programmes and mechanisms.

12. A report on Roadmapping of Large Research Infrastructures exists as a near-final draft and will be completed soon. It summarises the discussions at the GSF “Workshop on Enhancing the Utility and Policy Relevance of Roadmaps of Large Research Infrastructures”, held in Bologna on 10-11 June 2008 and chaired by Dr. Hermann-Friedrich Wagner. The report incorporates the preparatory material for the workshop, notably a study by Dr. Stefano Fontana (acting as a consultant to the European Commission) and a detailed annotated agenda from the OECD secretariat. Without being prescriptive, the document is intended to be a handbook/checklist for any institution or scientific body that undertakes a long-term, strategic planning exercise for large research infrastructures.
New activities, and next meetings

13. Contingent on the extension of the mandate by the CSTP, the following new activities were approved at the 19th GSF meeting on 9-10 October: (1) A **Working Group on Astroparticle Physics**; (2) A follow-on compilation of information about useful mechanisms for promoting **industrial mathematics**; (3) An analysis of legislative, managerial and administrative structures for **large international infrastructures**; (4) A scoping effort for a possible activity on lessons learned from **basic research collaborations with developing countries**.

14. If the mandate of the GSF is extended, the 20th meeting will be held on 2-3 April 2009, in Paris. The 21st meeting will be held in Kraków, Poland, on 5-6 October 2009.