Towards a UNESCO Recommendation on Open Science
4th meeting of the UNESCO Open Science Advisory Committee
1 February 2021

Background and Objectives

In line with the Resolution 40 C/Resolution 24 of the UNESCO General Conference and to guide the consultative process towards developing the UNESCO Open Science Recommendation, an international Advisory Committee on Open Science was established by the Director-General of UNESCO in June 2020.

The first draft of the Recommendation on Open Science was developed with the guidance of the Advisory Committee and shared with Member States by the UNESCO Director General in September 2020. UNESCO Member States were invited to forward their comments and observations on this text to the UNESCO Secretariat by 31 December 2020.

The fourth meeting of the Advisory Committee was held on 1 February 2021. The main objectives of the meeting were to present and discuss the comments received from Member States on the first draft of the UNESCO Open Science Recommendation.

The meeting was chaired by the Chair of the Advisory Committee, Prof Fernanda Beigel from Argentina.

Report

Dr Peggy Oti-Boateng, director Division of Science Policy and Capacity building, UNESCO, opened the meeting. She welcomed the members of the Advisory Committee, recalled the background and the context for the meeting and noted that its main objective was to consider the comments received from Member States on the first draft of the UNESCO Open Science Recommendation.

Prof Fernanda Beigel, Chair of the Advisory Committee, then adopted the agenda.

Presentation of the comments received from Member States on the first draft of the UNESCO Open Science Recommendation

Dr Ana Persic, Chief of section a.i. Science Policy and Partnership, UNESCO, presented an overview of the comments received on the first draft of the UNESCO Open Science Recommendation.

Dr Persic expressed UNESCO's gratitude to the 39 Member States and 31 partners that provided feedback on the first draft of the Recommendation. Additionally, the UNESCO Secretariat collected feedback on the first draft text from the African region during a virtual session jointly organized by UNESCO, the African Union, and the South African Department of Science and Innovation. This meeting took place on the 15th of December 2020 and the report is available here. Furthermore, during an online consultation, the first draft of the Recommendation was discussed with representatives of indigenous peoples on the 15th of January 2021. The report of this meeting can be found here.

The first draft of the Recommendation on Open Science was well received by Member States and other partners. Member States provided general observations and/or specific comments on the first draft of the Recommendation. Dr Persic grouped the main comments by the Member States into seven categories:

1. Maintaining research quality. In this regard, the comments pointed to the need for quality as a primary objective in Open Science. In particular, the motivation for Open Science should be to improve the integrity, efficiency and effectiveness of research. Attention should be paid to integrity protocols and to the establishment of standards and verification of open data. As the basis for upholding high quality research lies in the peer review system, it is important to distinguish peer-reviewed publications from preprints, and to preserve validation mechanisms distinguishing science from pseudo-science. For similar reasons, open evaluation may be premature to impose across disciplines.
2. Intellectual property rights. Comments concentrated around the need to reconcile the legal aspects of the international framework of Intellectual Property Rights (IPR) with Open Science. More specifically, the Recommendation should refer to issues related to the retention of IP by authors, the capacities of appropriation, distribution and use of data, information and resources generated within the framework of Open Science.
3. Role of the private sector. Member States commented that in the first draft text the role of the private sector is unclear and that the scope of the Recommendation needs clarification: whether it is limited to publicly funded research, or whether it also pertains to other forms of knowledge development, e.g. public-private partnerships. Guidance is asked about how to work with commercial suppliers, which operate globally. International cooperation is required to influence fairness and openness in market operation. Also, the risks associated with the exploitation of data by advanced technologies should be formulated better.
4. Definition of Open Science. Regarding the definition section of the first draft text, comments pointed out that it is unclear whether the elements in the first draft define Open Science or whether they are tools to operationalize Open Science. In defining Open Science, protecting academic freedom and scientific excellence needs to be axiomatic. Also, some Member States pointed that science communication should be a pillar to Open Science, together with openness to societal actors and a dialogue with other knowledge systems.
5. Capacity building. Comments from Member States indicated capacity building as a crucial element for the advancement of Open Science. In addition to the importance and necessity of building technical expertise, capacity building should go beyond technical capacities for data management to include a global comprehension of Open Science.
6. International solidarity. Comments emphasized that international solidarity is key to the success of Open Science. Member States noted that it was important to enhance opportunities for international cooperation to allocate funding, share infrastructure, encourage capacity building for data management and administration, and share best practices and lessons learned. The Recommendation should balance global diversity in the operationalization of Open Science, whilst providing enough standardization to allow for shared aims. Financial support is needed for countries that have difficulties in making their research and scientific papers available to the global community.
7. Reward and career evaluation system. According to the comments, researchers need to be encouraged to adopt Open Science via a revised reward and career evaluation system. Especially an evaluation system that value research activities in connection with society, such as the transfer of knowledge and technologies or contributions to public policies, is encouraged.

Dr Persic also presented the results of the consultation with the African countries. In this meeting, participants pointed out that in some countries, reliable, affordable and widespread internet access cannot be guaranteed. Thus, it is necessary to explore how communities without such infrastructure can still benefit from Open Science. Low investment in R&D, funding of Open Science infrastructures and capacity building were raised as major challenges. Also, affordable access to, and publishing in, scientific journals to both authors and readers is a critical issue for all developing countries. Furthermore, there is a need for an Africa-based open data repository that standardizes policies and practices around data storage, compatibility, access, licensing, rights, etc.

Presenting the results of the consultation with indigenous peoples, dr Persic noted that participants addressed issues concerning indigenous knowledge and the needs of indigenous peoples regarding Open Science and the Recommendation. Knowledge of indigenous communities, that has been the base of indigenous peoples living in harmony with nature for millennia, is not always taken on board in the cutting-edge science system. Indigenous peoples face challenges in recording, documenting, and sharing their knowledge in a respectful way. Therefore, there is a need for support for the intergenerational transmission of indigenous knowledge to prevent its loss. The recognition and strengthening of indigenous educational systems can be of assistance in this regard. According to the participants of the consultation with indigenous peoples, the most important aspect of Open Science concerning indigenous knowledge is to rebuild trust, despite the historical expropriation, violence, and discrimination against indigenous peoples and their knowledge. The Open Science framework should respect the authority of indigenous peoples over the production and dissemination of their traditional knowledge, and it should provide incentives for establishing and strengthening the links between indigenous and scientific knowledge systems.

Discussion of the integration of the comments received from Member States in the second draft of the UNESCO Open Science Recommendation

This session was moderated by prof Fernanda Beigel. Members of the Advisory Committee were invited to share their views on the comments received by the Member States on the first draft of the Recommendation. Below is the summary of inputs from the Advisory Committee members.

The members of the Advisory Committee discussed whether to keep or abandon references to the global COVID-19 health crisis in the preamble of the Recommendation. Dr Simon Hodson, prof Sarah de Rijcke and dr Carolina Botero argued that the principles asserted in the Recommendation have been reinforced by the coronavirus pandemic. Dr Delfim F. Leão and dr Henri Tonnang were in favor of referring to the COVID-19 health crisis as an example of what should be done, and what not to do. According to Prof Essam Khamis Ibrahim Al-Hanash, beside COVID-19 there are other urgent issues related to Open Science that need to be addressed. For example, closing the Science, Innovation and Technology gaps for the benefit of people and sustainability of the planet should be highlighted.

With regard to the reference to marginalized groups in the draft text of the Recommendation, Dr Leão argued that in addition to traditional groups, there are also ‘new’ groups being marginalized. Therefore, he suggested the phrasing 'marginalized groups and marginalized knowledge' would be more embracing.

In the definition section of the Recommendation, dr Botero and dr Hodson observed confusion between Open Access and Open Science. Open Access is but one of the elements of Open Science, which receives most attention from Member States because it is most developed and well-known. Other components of Open Science, each with different considerations, need to be specifically noted as well. Additionally, a distinction is needed between the key elements constituting Open Science, and other tools to operationalize Open Science. Prof Gregory Randall stressed that Open Science must promote a respectful dialogue between the different knowledge systems.

Dr Botero argued that the knowledge of indigenous peoples should be protected and acknowledged. Indigenous peoples are afraid of assimilation to the Western science system in the transfer of their knowledge and its evaluation. Prof Randall and dr Iryna Kuchma noted that Open Science should promote a dialogue between different knowledge systems, rather than considering indigenous knowledge system as another way of producing the same type of information in the same way to be validated as the Western scientific system.

The reconciliation of Intellectual Property Rights with the Open Science framework was also discussed. Dr Kuchma and Dr Botero argued that current the IPR framework provides enough flexibility to practice Open Science, for example by using Creative Commons licenses. However, while using the IPR tools, its objectives are reframed by Open Science; instead of protecting the appropriation of knowledge, in Open Science licenses are used to provide permission for sharing. Prof Randall was concerned whether the current IPR instruments can guarantee to protect all types of Open Science, and whether it can avoid the unlawful appropriation of knowledge. Dr Kazuhiro Hayashi noted that Open Science ultimately transforms the system of IP and the system of scholarly communication. It is beyond patent and journal publication.

In response to the question of Dr Ahmed Ali Murad asked what Open Infrastructures are it was noted that in the Recommendation, Open Science infrastructures are defined as digital infrastructures needed to support Open Science and serve the need of different communities. Many Member States suggested going beyond digital infrastructures, and including other infrastructures and the Advisory Committee agreed. The members of the Advisory Committee discussed whether Open Infrastructures should be by definition not for-profit. According to Dr Hodson, for-profit players are possible as long as profit is not extracted at the expense of openness, and the infrastructures are strongly regulated and community-governed. Prof De Rijcke agreed that for-profit organizations can play a role in an open knowledge base, as long as they commit to the Open Science principles.

Regarding capacity building, Dr Hodson warned against attenuating the importance of technical capacity building in response to the Member States' comments. Higher levels of technical data management skills are crucial to make use of Open Infrastructures. The members of the Advisory Committee agreed that the section on capacity building in the Recommendation should be extended with comments from the Member States, rather than replaced.

Next Steps

The members of the Advisory Committee agreed to draft the paragraphs on IPR and the definition of Open Science in smaller groups for integration into the final revised draft text of the Recommendation.

Dr Persic informed the members of the Advisory Committee about the timeline and the next steps in the process of the development of the UNESCO Recommendation on Open Science as presented below.

- 17 February 2021: Meeting of the Advisory Committee to discuss and agree on the revised draft of the UNESCO Recommendation on Open Science
- By 30 March 2021: revised draft of the UNESCO Recommendation on Open Science will be sent to Member States
- 10-12 May 2021: Intergovernmental meeting of experts to negotiate the UNESCO Recommendation on Open Science
- If necessary, additional intergovernmental meeting is foreseen in July 2021 (5-7 July 2021)
- The final text will be presented to the 41st session of the General Conference in November 2021 for consideration and adoption

Closing remarks

In her closing remarks, Dr Peggy Oti-Boateng, director Division of Science Policy and Capacity building, UNESCO, thanked the members of the Advisory Committee for a very fruitful, dynamic and forward-looking discussion. The members expressed their enthusiasm in contributing to the incorporation of the comments by the Member States into the second draft of the Recommendation on Open Science.

Annex – List of participants

A. Members of The Open Science Advisory committee

1. Ms Hanne Monclair, Policy Director, Department for Higher Education, Research and International Affairs, Ministry of Education and Research, Oslo, Norway
2. Mr Delfim F. Leão, Vice-rector for Culture and Open Science, Coimbra University, Portugal
3. Ms Ausra Gribauskiene, Chief Officer, Division of Science, Ministry of Education, Science and Sport, Vilnius, Lithuania
4. Mr Jakub Szprot, Head of the Open Science Platform, Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw, Poland
5. Ms Fernanda Beigel, Researcher at CONICET and professor at the Faculty of Political and Social Sciences, National University of Cuyo, Mendoza-Argentina
6. Mr Luiz Fernando Fauth, Advisor to the Vice-Minister, Ministry of Science, Technology, Innovations and Communications (MCTIC), Brazil
7. Mr Gregory Randall, Professor, Institute of the Electronic Engineering, University of Republic, Uruguay
8. Ms Grisel Romero Hiller, President of the National Observatory of Science, Technology and Innovation, Venezuela
9. Mr Juncai Ma, Director, Institute of Microbiology and the Information Centre, Chinese Academy of Sciences, China

10. Mr Kazuhiro Hayashi, Senior research fellow, National Institute of Science and Technology Policy, Japan
11. Ms Noorsaadah Abd. Rahman, Deputy Vice-Chancellor, Department of Chemistry, Faculty of Science, University of Malaya, Malaysia.
12. Ms Eun Jung Shin, Head of the Office of Institutional Innovation Research, Science and Technology Policy Institute (STEPI), Republic of Korea
13. Ms Vivian Etsiapa Boama, Senior lecturer at the Kwame Nkrumah University of Science and Technology (KNUST), Ghana
14. Ms. Jane Mubanga Chinkusu, Director of Science and Technology, Ministry of Higher Education, Zambia
15. Mr Essam Khamis Ibrahim Al-Hanash, Advisor to President of Alexandria University for International Ranking and Scientific Research, Egypt
16. Mr Mouïn Hamzé, Secretary General, National Council for Scientific Research, Lebanon
17. Mr Ahmed Ali Abdalla Murad, Acting Associate Provost for Research, United Arab Emirates University (UAEU), United Arab Emirates
18. Mr Simon Hodson (UK), Executive Director of CODATA (Committee on Data for Science and Technology)
19. Ms Iryna Kuchma (Ukraine), Open Access Programme Manager, Electronic Information for Libraries (EIFL)
20. Ms Carolina Botero (Colombia), Director of the Karisma Foundation
21. Mr Henri Edouard Zefack Tonnang (Kenya), Researcher, Member of the Open Science Working Group, Global Young Academy
22. Mr Stanislav Stanislavovich Davydenko, Deputy Head of Department, Institute of Applied Physics, Russian Academy of Sciences, Russian Federation
23. Ms Sarah de Rijcke, Scientific Director, Centre for Science and Technology Studies, Leiden University, Leiden, the Netherlands.

B. Observers:

24. Mr Marc Vanholsbeeck (Belgium), Director of the Directorate of Scientific Research of the Ministry of the Wallonia-Brussels Federation
25. Mr Tommi Himberg (Finland), Counsellor of Education and Science in the permanent delegation of Finland to the OECD and UNESCO
26. Mr Santiago Martin Saint Pierre, Assistant to the Ambassador (delegation of Argentina)
27. Mr Mariem Achmed Louly, Second counsellor (delegation of Mauritania)
28. Ms Aichetou Hemed, Assistant manager (delegation of Mauritania)
29. Mr Ismael Madrigal, Attache of science (delegation of Mexico)
30. Ms Emma Rodriguez, Deputy Permanent Delegate (delegation of Mexico)
31. Ms Carolina Villarrubia Barreto, Minister Counsellor (delegation of Uruguay)
32. Ms Anna Chirkova, Attache (delegation of Russian federation)
33. Ms Valentina Velasquez Administrative assistant (delegation of Colombia)
34. Fabiola Gómez
35. Paola Castro
36. Mve Ondo

C. Secretariat:

37. Peggy Oti-boateng (DIR/SC/PCB)

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40. Annapaola Coppola (Project Officer SC/PCB/SPP)
41. Despoina Sousoni (Consultant SC/PCB/SPP)
42. Anne-Floor Scholvinck (Secondment SC/PCB/SPP)
43. Armelle WAFO GUEMGNE (Intern SC/PCB/SP)
44. Dinkov Martin (Conferences CLD/C/CCE)
45. Marco Zennaro (Research Officer, T-ICT4D, FU/ICT)
46. Jonathan BAKER (Regional Science Advisor - Head of Science Unit FU/VNI)
47. Cornelia Hauke (Programme Assistant SC/PCB/SPP)
48. Zeynep Varoglu (Programme Specialist CI/DIT)
49. Iulia Nechifor (Programme Specialist BSP/DPF/PMR)