

Recommendation on Open Science



1. Ministry of Education & Higher Education:

- **Higher Education Sector remarks on the initiative:** it's great that the UNESCO is taking the initiative to have an open access science platform to promote global science and enhance collaboration between scientists. The world is facing a great challenges and world-wide collaboration is desperately needed to find solutions.
- **Notes on the initiative:**
 1. Languages used are English, French and Spanish are not very inclusive. They need incorporate more languages to remove barrier from open science and have it globally accessible to everyone.
 2. Establishing real time data sharing from scientific research institution to solve global issues In a fast and beyond bureaucratic regulations and laws that hinder science.
 3. Advise regional and global strategic initiatives for each country that incorporate open science concept.
 4. Allow international medical and scientific researchers access to hospital data and medical records in order to learn and collaborate, and to deal more efficiently with the world pandemic covid 19.
 5. Establishing an international fund for open science and collaboration tp promote science on a global scale.
 6. Help regional and countries to develop laws and legislative to promote the open science concept and encourages full engagement and participations.
 7. Need corporate and federal governments to work together locally and internationally to allocate the funds to insure sustainability and effectiveness of the initiative.

2. Qatar University

Sciences and Applied Sciences Cluster (SASC) Report on UNESCO's Recommendation on Open Science

As ordered by the SASC Associate Dean, a task force made of four members from different departments within the cluster was convened to review and comment on the recommendations set by the UNESCO's General Conference. The task force also reviewed the report by Chan et al. (2020) on Open Science Beyond Open Access: For and with Communities, which was discussed during the webinar that took place on October 28th, 2020 from 5:00 pm - 7:00 pm, and which also addressed the importance of UNESCO' General Conference Recommendation on Open Science.



Task Force Committee Members:

Prof. Said Sif, Chair
Prof. Samir Jaoua
Prof. Ahmad Ayesh
Prof. Kenzu Abdella

Members of the SASC Task Force Committee met on November 29, 2020 to discuss the Draft Recommendation, and agreed to prepare the report, which is composed of three sections that include a summary of the First Draft of the Recommendation on Open Science, comments and observations on the UNESCO's Recommendation on Open Science, and conclusion. The report was reviewed and approved by all Task Force Committee Members.

1. Summary of the Preliminary Report on the First Draft of the Recommendation on Open Science.

Realizing the existence of many disparities in environmental, social and economic challenges for the people on our planet, and understanding the importance played by science, technology and innovation in addressing these challenges, the UNESCO General Conference, in line with the terms of Article IV (paragraph 4) of its Constitution, has launched the process of developing the draft Recommendation on Open Science, which has been facilitated by an internal multi-sectoral UNESCO Open Science Team steered by an Open Science Advisory Committee.

With the global dimension of the COVID-19 pandemic, it has become abundantly clear that access to scientific information, sharing of scientific knowledge, data and information, and international collaboration to respond to this emergency are of utmost importance. Furthermore, the need for all countries around the globe to act in unison to fight this pandemic has made work on the topic of Open Science more relevant than ever and justifies as well as rationalizes the need for a UNESCO's Recommendation on Open Science. The key results in the process of developing the draft Recommendations led to:

- i) The establishment of communication channels (UNESCO Open Science website) that provide regularly updated relevant information, resources and contacts, and publication of a brochure entitled "Towards a UNESCO recommendation on Open Science", which was broadcasted throughout the globe in a series of presentations, seminars, and webinars by the Secretariat at different scientific regional and international meetings.
- ii) The establishment and mobilization of the Open Science Partnership, which includes more than 50 international and regional scientific organizations and unions, academies and research institutes, university associations, libraries and library associations, Open Science Publishing Coalitions citizen and community science entities, research funders, data organizations and repositories, and intergovernmental organizations.



iii) Multi-stakeholder consultations on Open Science, which were designed to take into account the opinion and input of different regions across the globe on Open Science.

The results from a worldwide survey about the meaning and definition of Open Science revealed that over 2900 participants from 133 countries contributed to the global consultation with Europe, Latin America and the Caribbean having the highest number of respondents. While most considered Open Science as an increase in access to scientific outputs (Scholarly publications and Access to data), there was a clear interest in moving beyond that and applying open access to the entire cycle of scientific research.

While the needs for implementation of Open Science by different regions of the globe differed, some challenges were identified as prerequisites for a fair and just transition. The following points were considered essentially important to include in the UNESCO Open Science Recommendation:

- Defining principles of Open Science
- Raising Awareness about Open Science
- Investing in Open Science and developing sustainable Open Science business models.
- Harmonizing legal frameworks for IP rights, copyrights and patents.
- Supporting Open Creative Common licenses.
- Coordinating global Open Science efforts.
- Reviewing research and career evaluation and award systems
- Promoting a new generation of innovative international scientific collaborations
- Fighting misinformation and scientific misconduct.
- Building institutional and individual capacities and investing in shared infrastructures.
- Promoting innovative public-private partnerships.
- Engaging with the broader society, including through citizen science and interactions with indigenous knowledge systems.
- Building a culture of Open Science.

With the exception of the first African regional consultation, several virtual regional online consultations were carried out to take stock of the different regional perspectives on Open Science. The main conclusions from these meetings were: i) To bring together scientists, policy makers and main stakeholders of Open Science in the different regions; ii) To identify the key aspects of Open Science that should be addressed by the UNESCO Recommendation; iii) To share the lessons learned from development and implementation of the regional Open Science strategies, policies and other



initiatives; iv) To identify the key challenges and required infrastructures for Open Science; and v) To identify areas of international collaboration and networking to advance Open Science globally.

- iv) Establishment and deliberations of the Open Science Advisory Committee, which was established by the Director-General of UNESCO in June 2020 to guide the process of Recommendation on Open Science by providing expert and strategic advice, ensuring delivery of key findings, and providing support and fundraising.
- v) First Draft of the UNESCO Recommendation on Open Science, which defines shared values and principles for Open Science, and identifies concrete actions to:
- Promote a common understanding of Open Science, and developing an enabling policy environment for Open Science.
 - Invest in Open Science infrastructures, services and capacity building for Open Science.
 - Transform scientific culture and aligning incentives for Open Science.
 - Promote innovative approaches for Open Science at different stages of the scientific process, and international cooperation on Open Science.
 - Facilitate a more transparent and democratic production, dissemination and uptake of scientific knowledge around the world.
 - Bring Science closer to society.
 - Close the gaps in science, technology and innovation existing between and within countries.
 - Reinforce the human right to science by making scientific knowledge, methods, data and evidence freely available and accessible for everyone.
 - Increase scientific collaborations and sharing information for the benefit of science and society, but keeping in check issues related to security, privacy and respect for subjects of study.
 - Open the process of scientific knowledge creation and circulation to societal actors beyond the scientific community.
 - Set in place mechanisms to measure effectiveness and efficiency of Open Science policies, which include a multi-stakeholder approach.

The General Conference of UNESCO, meeting in Paris in November 2021 will adopt the Recommendation on Open Science and recommends the following to the Member States:

- To apply the provisions of this Recommendation by taking appropriate steps, including whatever legislative or other measures may be required, in conformity with the constitutional practice and governing structures of each state, to give effect within their jurisdictions to the principles of the Recommendation.



- To bring the Recommendation to the attention of the authorities and bodies responsible for science, technology and innovation, and consult relevant actors concerned with Open Science.
- To report to it, at such dates and in such manner as shall be determined, on the action taken in pursuance of this Recommendation.

2. Comments and observations on UNESCO's Recommendation on Open Science.

The SASC task force has reviewed section II (Definition of Open Science) of the Draft Recommendation and noted that while most of the explanations provided in the text are commensurate with the determined key elements from 9i to 9viii, there are important points missing, which are summarized below:

- In the definition of key element 9ii (Open data): A recommendation on making reagents, software and methodologies accessible free of charge to faculty members and researchers from small academic institutions should be added. The reason for this is that research work published by faculty members sometimes leads to development of reagents, software and methodologies by companies, who have complete access to information available in the public domain. Currently, there is no regulation to ensure that companies give something back in return for their exploitation of public domain information. This is especially important when no patent is filed by faculty members due to the prohibitory costs associated with patent filing for most small academic institutions.
- In the definition of key element 9v (Open evaluation): A recommendation on opening the evaluation process of publications to other qualified scientists from countries around the globe, and not only from a select group of countries, whose scientists have dominated editorial boards of most of the high impact journals. This is in agreement with consideration 5 of the report by Chan et al. (2020).

The SASC task force has also reviewed section IV (Areas of Action) of the Draft Recommendation and determined the following:

- In (i) Promoting a common understanding of Open Science and diverse paths to Open Science: It would be helpful to provide examples for Member States on how to promote and support common understanding of Open Science, because often times, this is misconstrued by governmental agencies as an intrusion when a researcher at an institutional level asks for access to de-identified data.
- In (ii) Developing an enabling policy environment for Open Science: It is worth noting that the policy implemented by Qatar National Library (QNL) on open access to research publications for which QNL has set aside a fund to cover publication costs to a wide variety



of Journals and Publishers is an exemplary case that should be promoted nationally, regionally and internationally.

- In (iv) Investing in capacity building for Open Science: It is recommended that higher education institutions diversify their work force so as to include recruits from other geographical locations, especially those that are underrepresented.

3. Conclusion

The SASC task force considers that the UNESCO's initiatives about Open Science are essential for knowledge decolonization, promoting science, and removing existing barriers that hinder scientific research in indigenous communities and less advantaged countries in the global south. By providing the Recommendation on Open Science to Member States, UNESCO will be doing its part to equalize the playing field for everyone involved in conducting research, and will increase opportunities for collaborations across the globe to resolve some of the challenges facing mankind. After all, the current COVID-19 pandemic has taught us an important lesson, and that is, the importance to share information in a timely fashion in order to restrict spread of the virus and to develop cures and vaccines that can help immunize humans against the virus.

The State of Qatar has already begun implementing support to Open-access to Science as mentioned above in the case of Qatar National Library, and while this is very encouraging, it needs to be more widespread to other sectors involved in scientific research. Furthermore, the State of Qatar is among the leading countries in terms of work force diversity in every sector of both private and governmental agencies. A good example of this is embodied by Qatar University, which has more than 80% of its work force made of international staff originating from different countries including the global south.

The recommendations proposed by the SASC task force complement the suggestions proposed by Chan et al., (2020), and are worth considering at the next UNESCO General Conference meeting, which will take place in November 2021 in Paris.

