**Introduction**

Toward the realization of inclusive Knowledge Societies, Open Educational Resources (OER) support quality education that is equitable, inclusive, open and participatory. OER are teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions. Open licensing is built within the framework of intellectual property rights as defined by relevant international conventions to respect the authorship of work. OER are a strategic opportunity to improve knowledge sharing, capacity building and universal access to quality learning and teaching resources.

The 2nd World OER Congress is organized by UNESCO and the Government of Slovenia, with the generous support of the Government of Slovenia and the William and Flora Hewlett Foundation. The objectives of the 2nd World OER Congress are to:

- examine solutions to meet the challenges of mainstreaming OER content and practices into education systems worldwide;
- showcase the world's best practices in OER policies, initiatives and experts, and;
- identify recommendations that are demonstrably best practices for the mainstreaming of OER.

The theme of the 2nd World OER Congress – “OER for Inclusive and Equitable Quality Education: from Commitment to Action” – reflects the pivotal role OER can play toward achieving the 2030 Agenda for Sustainable Development, and above all Sustainable Development Goal 4 on Quality Education.

In preparation for the 2nd World OER Congress, six Regional Consultations and a survey on OER have been organized by the Commonwealth of Learning (COL) in close cooperation with UNESCO and the Government of Slovenia, with the generous support of the William and Flora Hewlett Foundation and the national authorities in the six host countries: Brazil, Malaysia, Malta, Mauritius, New Zealand and Qatar.  

The regional consultations and the survey have raised awareness on the objectives of the 2nd World OER Congress and identified the status of national and regional implementation of the 2012 Paris OER Declaration.

The “Ljubljana OER Action Plan 2017” is the outcome document of the 2nd World OER Congress and is based on the outputs of the Regional Consultations, a global online consultation of the document in the months leading up to the Congress, and the deliberations of the 2nd World OER Congress. This Action Plan identifies concrete actions to mainstream OER to achieve SDG 4 on Quality Education.

**Context**

The Ljubljana OER Action Plan 2017 contributes to all relevant United Nations frameworks. The Universal Declaration of Human Rights states that all people have rights and fundamental freedoms that include the right to receive and impart information and ideas through any media and regardless of frontiers (Article 19), as well as the right to education (Article 26). The Action Plan also supports the objectives of the 2003 UNESCO Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace. It reaffirms the 2005 UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expression, which states that: “Equitable access to a rich and diversified range of cultural expressions from all over the world and access of cultures to the means of expressions and dissemination constitute important elements for enhancing cultural diversity and encouraging mutual understanding”; and the 2006 Convention on the Rights of People with Disabilities (Article 24), which recognizes the rights of persons with disabilities to education.

In 2015, the United Nations adopted the 2030 Sustainable Development Agenda with 17 goals (SDGs). Goal 4 calls on the international community to “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. UNESCO is responsible for pursuing this goal based on the Incheon Declaration and Framework for Action (2015), through a mandate to lead and coordinate work on SDG4. The

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1 The six sessions were held in: Kuala Lumpur, Malaysia (Asia Regional Consultation, 1-2 December 2016); Valletta, Malta (Europe Regional Consultation, 27-28 February 2017); Doha, Qatar (Arab States Regional Consultation, 27-28 February 2017); Port Louis, Mauritius (Africa Regional Consultation, 2-3 March 2017); Sao Paulo, Brazil (Americas Regional Consultation, 3 – 4 April 2017); and Auckland, New Zealand (Pacific Regional Consultation 29 – 30 May 2017).
Organization has an important role in helping to promote OER at all levels of education: from early childhood, primary and secondary education, to technical and vocational education and training, to higher education, encompassing non-formal and informal educational contexts.

OER’s transformative potential going forward – reinforced by the expansion of ICT and broadband infrastructure – broadens horizons for knowledge sharing and collaboration among educators, institutions and countries. If used effectively and supported by sound pedagogical practices, OER allow for the possibility to dramatically increase access to education through ICT, opening up opportunities to create and share a wider array of educational resources to accommodate a greater diversity of educator and learner needs. Increased online access to OER further promotes individualized study, which, when coupled with social networking and collaborative learning, fosters opportunities for pedagogical innovation and knowledge creation. The importance of digital literacy including issues related to the security and safety in the development and use of OER content should be underscored. These opportunities can have a direct impact on improving access to and the quality of education, if other pre-conditions for quality education are put in place: including well–resourced education institutions, with empowered, adequately recruited and remunerated, well-trained, qualified and motivated staff.

**Recommendations for Mainstreaming OER in support of SDG 4**

In order for OER to reach its full transformative potential for supporting the realization of SDG 4, OER needs to be more integrally a part of educational policies and practices from early childhood education to post-secondary and higher education and lifelong learning. Mainstreaming OER-based content will depend upon a commitment to openness and access of OER educational content by learners, educators, institutions and governments, and also requires that other pre-conditions to quality education are in place.

While advances in OER continue, awareness of OER by stakeholders has spread faster than its effective use to date. In this regard five Challenges that hinder the mainstreaming of OER have been identified: 1) the capacity of users to find, re-use, create, and share OER; 2) language and cultural issues; 3) ensuring inclusive and equitable access to quality OER; 4) changing sustainability models; 5) developing supportive policy environments. Addressing these OER challenges should not be delayed, in view of the urgency for action to achieve SDG 4 ‘Quality Education’.

The growing and diverse number of actors in OER knowledge creation demonstrate that all educational stakeholders have an active, synergistic role to play. The Ljubljana OER Action Plan focuses on actions – what needs to be done – with the understanding that certain actions will be more relevant to certain stakeholders than others.

The stakeholders addressed in this document are educators, teacher trainers, librarians, learners, parents, educational policy makers (at both the governmental and institutional level), teacher and other professional associations, student associations, teacher and student unions as well as other members of civil society, and intergovernmental organizations and funding bodies. Support of decision makers at governmental and institutional levels is essential for the realization of the Ljubljana OER Action Plan. Multiple stakeholder’s support for the actions is also crucial for the implementation of the proposed actions. Specific stakeholders are identified in the possible actions proposed.

Possible actions that address the OER challenges are as below.

**1. Building the capacity of users to find, re-use, create and share OER**

To effectively use OER, educators, learners and librarians need the capacity to find, re-use, modify and share materials created under an open license. Furthermore, user-friendly tools to locate and retrieve OER need to be mainstreamed. Support and action in particular from Governments, educational institutions, especially teacher and librarian training institutions as well as professional associations; are necessary for the realization of the suggested actions in this area.

The suggested actions are:

**Building awareness and skills to use OER**

- **a)** Provide capacity building for teachers, teacher trainers, learners, parents, educational policy makers, librarians and other stakeholders as needed to raise awareness on how OER can increase access to effective educational resources, improve learner outcomes and significantly reduce costs, and empower learners to become co-creators of knowledge. This includes advocacy around the terms for describing OER in other languages where applicable;

- **b)** Provide systematic and continuous capacity building (in-service and pre-service) on how to find, modify, create, maintain and share OER as an integral part of teacher and librarian training programmes at all levels of education. This would include capacity building on open
licensing, copyright-related issues, as well as digital literacy including issues related to security and safety of OER in the development and use of OER content;

c) Disseminate the findings of research on OER to support models of good practice with a focus on cost-effectiveness, sustainability, exploration of new tools and technologies for the creation and sharing of OER;

Sharing OER

d) Develop or update legal frameworks for educational institutions and other relevant stakeholders to secure legally admissible use and contribution of quality OER by educators and learners;

e) Create and support easily accessible resource centres that provide advice to users on copyright and licensing of educational material;

f) Support the creation and maintenance of effective peer networks of educational providers that share OER based on areas such as subject matter, language, institutions, regions, level of education etc. at local, regional and global levels;

g) Modify professional assessment frameworks for educators and other educational stakeholders to include recognition and reward for using, modifying, creating and/or sharing OER that supports good educational practice, and staying active in OER networks;

h) Introduce modalities to allow OER creators to inform users on updates as well as users to suggest updates and modifications of OER;

Finding OER

i) Index OER resources to support the identification of existing OER. This would include improving search and discovery of OER by supporting the sharing of OER meta-data (subject matter, licensing, language, institution, region, level of education, etc.) among OER content providers and search tools;

j) Develop and maintain sustainable measures for the interoperability of platforms for sharing OER that support usage and are sustainable.

2. Language & Cultural issues

OER should be available in diverse languages, particularly those that are less used, under-resourced or endangered, including indigenous languages. It should also be adapted to the related cultural context where it is used for uptake in local contexts within a Human Rights framework. Furthermore, for OER to be used widely, sharing and use of knowledge from different sources needs to be accepted by educational stakeholders. Support and action in particular from governments, educational institutions – especially teacher and librarian training institutions as well as professional associations, including those responsible for language harmonization – are particularly important for the realization of these actions.

The suggested actions are:

a) Empower educators and learners to develop gender-sensitive, culturally and linguistically relevant OER appropriate to local cultures and to create local language OER, particularly languages which are less used, under-resourced and endangered as well as indigenous languages. This would include ensuring that those involved are given the support and training needed;

b) Harness technologies that overcome language barriers;

c) Encourage and promote the development and adaptation of culturally-sensitive and linguistically accurate OER locally, both in practice and policy;

d) Encourage and promote collaborative development and community engagement to boost OER uptake in different languages, including languages which are less used, under-resourced and in danger as well as indigenous languages;

e) Provide support for the collaborative development of OER, which would facilitate stakeholders joining efforts for the production of digital collections at multiple educational institutions located in different communities, cities or countries around the world;

f) Support strategies for overcoming cultural barriers to ensure sharing of knowledge.

3. Ensuring inclusive and equitable access to quality OER

OER should be accessible to all learners who are both, in formal and non-formal education contexts irrespective of age, physical ability, socio-economic status, as well as those who live in remote areas (including nomadic populations), internally displaced and refugees, in all instances under a framework that ensures gender equality. In addition, infrastructure such as electricity and connectivity and suitable devices / media to access OER remain challenges in many parts of the world, including within national contexts. For this reason, it is important that OER can be created, found, used, modified and shared in diverse contexts and media. Furthermore, in order for OER to be used with confidence by the educational community, mechanisms to ensure the quality of resources should be developed. Given the heterogeneity of OER usage – from regulated contexts like public schooling, sensitive issues like health and life sciences to informal lifelong learning – mechanisms for quality assurance should stretch from formal accreditation to open and collaborative peer reviews, user statistics and informal feedback. Support and action in particular from governments, educational institutions – especially teacher and librarian training institutions, as well as entities responsible
for quality assurance and professional associations – are particularly important for the realization of these actions. OER development should be embedded with the ideals of social justice.

The suggested actions are:

**Supporting accessible inclusive OER use and development**

a) Ensure access to OER in media that most suitably meet both the needs and material circumstances of target learners and the educational objectives of the courses or subjects for which they are being provided. This would include offline modalities for accessing resources where applicable;

b) Provide OER in accessible formats that support its effective use by all, including persons with disabilities, by using existing international guidelines for accessibility;

c) Ensure that OER accessed through different media, including mobile devices, are available and accessible in formats which allow for its use, adaptation, combination and sharing;

d) Support for public investments in bandwidth infrastructure to provide increased access to mobile learning, particularly for rural and remote communities;

e) Ensure that OER is available in formal, non-formal, distance and blended learning environments;

f) Ensure that the principle of gender equality and inclusiveness is reflected in the processes for accessing, creating and sharing OER throughout the global OER community. This could include dedicated programmes for using, modifying, and sharing OER in order to facilitate access to and participation in the learning process for all including women and girls, and the socially and economically disadvantaged, forcibly displaced people, refugees, nomadic populations and learners who have disabilities.

**Supporting quality assurance mechanisms for OER**

g) Ensure systems for peer-review quality control when creating or revising OER. This could include, systems for collaborative open reviews, social ratings and comments by users (e.g. learners) and by producers of content (e.g. educators);

h) Make OER subject to regular quality assurance mechanisms, external and institutional, that are used for all educational resources of an institution. This includes improving the capacity of quality assurance professionals to understand OER and its integration in teaching and learning;

i) Develop national and institutional standards, benchmarks and related quality assurance criteria for the quality assurance of OER.

4. **Developing sustainability models**

OER are affecting traditional and stimulating new sustainability models associated with the creation and use of educational resources. OER also create opportunities for new providers to enter the education space with innovative models designed from the start to be open. There is a need to identify the full spectrum of possibilities for innovative sustainability models and the benefits they provide government, institutions, educators, librarians and learners. There is also a need to also develop innovative solutions and new sustainable value-added models to ensure that learners have access to high quality educational experiences and the resources and tools needed to support these experiences. To bring OER into the mainstream, Member States will need to analyse their goals and needs in education to support the development, adoption, maintenance, distribution, and evaluation of OER. This may include mechanisms to support that work financially and revisiting structures for mainstreaming OER, possibly including adjusting procurement models or the way teachers are incentivised to work on OER. Support and action in particular from governments and educational institutions, is important for the realization of these actions.

The suggested actions are:

a) Analyse the strategic opportunities OER bring to governments and institutions to provide higher quality education while at the same time maximizing access and equitable affordability. This could include research to breakdown the basic components of an OER sustainability model, (e.g. costs of sharing, adopting, adapting, assembling and creating OER, and training of trainers...);

b) Analyse the ways in which OER change the processes associated with creation and use of quality educational resources, by exploring multiple strategies and models to support OER practices for effective educational outcomes. This includes: collaborative development of OER, reuse and continuous improvement of OER by educators and learners, and open pedagogy approaches where learners engage in learning practices generating OER that provide a public good;

c) Define value added models using OER by building community across institutions and countries where the focus is on participation, co-creation, generating value collectively, spurring innovation, and bringing people together for a common cause. This could include encouraging and facilitating peer collaboration for OER development;
monitoring and evaluation mechanisms are in place to support these action areas. Wherever OER is well planned and executed, it can provide vast opportunities to improve learning outcomes, teaching quality and effective knowledge sharing. OER also provides opportunities to strengthen the democratization of knowledge by making learning and teaching materials available to learners and educators at a larger scale.

The Ljubljana OER Action Plan 2017 addresses concrete action in five strategic areas to support the mainstreaming of OER around the SDG4 goal of quality, lifelong learning. The continuously growing OER global community provides a strong foundation to collaborate, share knowledge and take action at local, national, regional and international levels. Educational stakeholders should further ensure that a set of indicators, positions into existing policies have proven to gain more meaningful traction than stand-alone policy positions. Furthermore, OER policies taken at the governmental level will benefit and support OER policies taken at the institutional level. The purpose of OER policies is to address areas such as raising awareness on the benefits of OER, funding for evidence-based research, providing incentives for following good open education practices, and fostering of strategies and practices to support the use of OER. OER policy should encourage institutions and/or educators to use OER-based teaching materials as an integral rather than as a peripheral element of curriculum. It should prioritize knowledge exchange by establishing mechanisms for governments and other stakeholders to support SDG4 ‘Quality Education’. Such policies should be based on research that demonstrates the strategic advantages of OER to decrease costs while enhancing quality and access to education (for example research on savings, comparative analyses of costs and success in other contexts, and on the professional benefits of OER to educators and learners). OER policies should also build on familiar language and experiences to facilitate greater understanding and implementation outcomes. Action from governments and educational institutions are particularly important for the realization of these actions. Furthermore, the policy process should involve educators, education unions, teacher training institutions and libraries to ensure that OER policies are of high quality and relevant for practical implementation.

Conclusion
The Ljubljana OER Action Plan 2017 addresses concrete action in five strategic areas to support the mainstreaming of OER around the SDG4 goal of quality, lifelong learning. The continuously growing OER global community provides a strong foundation to collaborate, share knowledge and take action at local, national, regional and international levels. Educational stakeholders should further ensure that a set of indicators, monitoring and evaluation mechanisms are in place to support these action areas. Wherever OER is well planned and executed, it can provide vast opportunities to improve learning outcomes, teaching quality and effective knowledge sharing. OER also provides opportunities to strengthen the democratization of knowledge by making learning and teaching materials available to learners and educators at a larger scale while at the same time providing affordable educational options. If pre-conditions for quality education are in place, OER can fulfil its potential to support SDG 4 achievement by countries. The Ljubljana OER Action Plan embodies a collective will to convert OER commitment into concrete actions to help achieve SDG 4 through the key pillars of access, equity and inclusion.

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5. Developing supportive policy environments
Mainstreaming OER requires the creation, adoption, advocacy, and implementation of policies supportive of effective OER practices. In this regard, funding flows are more likely to follow from policy directives, and policies can be applied for both bottom-up and top-down approaches. The development of policy initiatives at governmental and institutional levels will facilitate OER mainstreaming. The incorporation of policy positions into existing policies have proven to gain more meaningful traction than stand-alone policy positions. Furthermore, OER policies taken at the governmental level will benefit and support OER policies taken at the institutional level. The purpose of OER policies is to address areas such as raising awareness on the benefits of OER, funding for evidence-based research, providing incentives for following good open education practices, and fostering of strategies and practices to support the use of OER. OER policy should encourage institutions and/or educators to use OER-based teaching materials as an integral rather than as a peripheral element of curriculum. It should prioritize knowledge exchange by establishing mechanisms for governments and other stakeholders to support SDG4 ‘Quality Education’. Such policies should be based on research that demonstrates the strategic advantages of OER to decrease costs while enhancing quality and access to education (for example research on savings, comparative analyses of costs and success in other contexts, and on the professional benefits of OER to educators and learners). OER policies should also build on familiar language and experiences to facilitate greater understanding and implementation outcomes. Action from governments and educational institutions are particularly important for the realization of these actions. Furthermore, the policy process should involve educators, education unions, teacher training institutions and libraries to ensure that OER policies are of high quality and relevant for practical implementation.

The suggested actions are:

a) Develop policy that requires publicly funded educational resources be openly licensed;
b) Ensure that sustainable financing models are in place to implement OER policies and practices, including increasing domestic financing for education;
c) Provide incentives to teaching staff to publish editable, accessible OER digital files in public repositories;
d) Include statements supporting OER in governmental and institutional vision and mission statements;
e) Demonstrate in policy how effective use of OER can support and benefit key development priorities, including the 2030 Agenda for Sustainable Development.
f) Use national and institutional policy as a tool to reinforce a holistic approach and coordinate actions from different stakeholders;
g) Encourage the establishment of links between OER policies and other open education policies such as those for Open Access as well as those for Open Government, Open Data, and Open Science more generally (with regard to the licensing of public resources).