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A state of play of Open Science within Universities in Latin America and the Caribbean and in the context the Covid 19 pandemic

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The need for open access to scientific information and open research data has been amplified and strengthened in the context of the Covid-19 pandemic and is back to the top of the agendas of governments and universities worldwide. It is expected to contribute openly and publicly available vaccines, medical treatments against the virus and adequate preventive health and social measures. From an educational and research perspective, there is a need to expand information and communication technologies to facilitate teaching, learning and training in contexts of isolation or restrictions in academic mobility, as well as to promote new forms of international collaboration [1]. At this point, both public and institutional policies and scientific and academic communities' engagement are decisive to move on to a transition to open science. In general terms, the principles of open science include open access, open research data, open peer review and open science policies, which are complemented by other more specific components such as open research practices, reproducible research, open source software, open licenses and open educational resources [2]. Given its situated nature, there is no single way to carry out open science. However, the previous principles propose constructing more inclusive orientations and experiences of science in the context of sustainable development. One of the most relevant proposals of progress is the public consultation process for the drafting of the UNESCO Recommendation on Open Science, where the representation of Latin America and the Caribbean has prepared and agreed on a large first draft that strengthens the position in favour of open access and public, common knowledge managed by the academic community as a commons, where non-profit good stands out [3]. However, despite the fact that Latin America and the Caribbean is the most advanced territory in adopting open access for scientific and academic publications, these publications are not widely incorporated into the research assessment processes of institutions, science councils and science funding agencies in the region. In this regard, the Declaration of Principles of the Latin American Forum for Scientific Evaluation (FOLEC) of CLACSO-FOLEC [4] – in line with the Declaration on Research Assessment (DORA) [5] – proposes the review of research assessment policies and practices based on incentives for publishing in journals with an Impact Factor because these practices of research assessment affect the local autonomy of the research agendas, while discouraging quality open access practices and open research processes in interaction with society. A recent report prepared by the Latin American Forum for Research Assessment (FOLEC- CLACSO) and the Carolina Foundation [6] indicates that in the region, university publishing presses and university journals and repositories and, in a comprehensive way, the centrality of academic editorial management, favors a set of actions linked to open access and open evaluation. As long as

researchers publish outside of and within the region, the aim is then to complement the current evaluation indicators provided by international commercial services – where the wealth of knowledge published in the region is depreciated – with new indicators from the region. One of the greatest challenges is to be able to advance in the interoperability of the metadata and indicators of these portals to allow an integrated interoperable access to metadata and to make visible the wide and rich spectrum of publications and their indicators. Another strong instrument in terms of open access policies has been the development of Iberoamerican portals of scientific journals, which provide open access and indicators to scientific and academic journals published mainly by universities in the region. Among them, the following stand out: LATINDEX, Redalyc, SciELO, Dialnet, AmeliCA, CLACSO and REDIB. One of the greatest challenges is to be able to advance in the interoperability of the metadata and indicators of these portals to allow an integrated interoperable access to metadata and to make visible the wide and rich spectrum of publications and their indicators. On the other hand, the digital university repositories, which form part of the national systems of science repositories, that in turn contribute to the network of repositories of Iberoamerican countries "La Referencia", have been the response from the universities to the policies and legislations requiring that publications with research outputs from publicly-funded research be available in open access repositories, along with research data. University repositories offer mainly open access to full-text publications from each university, and collections of university journals. More recently, the process of offering open access to research data has begun, moving towards the FAIR principles for data (Findable, Accessible, Interoperable and Reusable). One of the greatest challenges is to transform scientific production and research assessment cultures and practices. In addition, linking financial support to ensure the necessary opening of publications and research data and the infrastructure and training of human resources to advance the open science processes. Coordinated and collaborative action among different institutions, especially teaching and research institutions, and those dedicated to the promotion and execution of scientific and technological activity, is a key contribution for guaranteeing and expanding the right to education in our societies and to face, from the production and open/collaborative circulation of knowledge, the challenges of recovering from the pandemic, reversing structural and other emerging inequalities, and addressing the critical socio-economic and environmental problems underway in our societies.