Open access availability patterns of Indian research publications during the last two decades

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In the current era of knowledge-based economies and societies, access to knowledge and scientific advances is a key requirement for the scientific, technological and economic development of a country. Scientific research outcomes are often considered by many as a public good and hence it is often advocated that they should be openly and freely accessible to the scientific community and the wider society. To fulfil such aspirations, there have been several initiatives towards open access (OA), both globally and at national levels, including many important declarations and policies. India has also taken several initiatives over the last two decades to promote OA to scientific research outcomes, including putting in place mandates that require that all public funded research should be openly accessible. This article presents a quantitative analysis to understand how much of Indian research output from 2001 to 2020 is openly accessible, which in turn presents a reflection on the effectiveness of the various OA initiatives. The major OA routes adopted by Indian researchers and the subject-specific OA availability patterns are identified. Finally, the OA availability levels for funded and non-funded Indian research publications are determined. The results indicate growth in OA availability of Indian research papers, with green and gold OA routes being the preferred ones. A higher OA availability is observed in case of funded research publications. The article concludes with a brief discussion on the major patterns observed and their policy implications.

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inequalities in science and accelerating development towards realizing the United Nations sustainable development goals (SDGs). It is noted that at least 10 out of the 17 SDGs require constant scientific input, which in turn suggests an absolute need to remove restrictions on access to scientific knowledge. UNESCO recommendations suggest that 'open access (OA) has a fundamental role to support the SDGs' and that 'UNESCO is committed to making OA one of the central supporting agendas to achieve the SDGs'. In this regard, 'open access' calls for 'free availability of publications' with 'permission to read, download, copy, distribute, print, share or link', 'full text of articles', for multiple purposes.

Although UNESCO recommendations strongly highlight the need and benefits of OA, the concept of OA is not entirely new as there have been global efforts towards it since the last 30 years. The advent of world wide web is often considered to have truly facilitated global access to scientific information. The first online electronic preprint repository arXiv[2] was set up by Paul Ginsparg (1991), at the Los Alamos National Laboratory (LANL) and started the open science narrative. The Open Society Institute Meeting[3] (2001), Budapest Open Access Initiative[4] in 2002, Bethesda Statement[5] in 2003, Berlin Declaration[6] in 2003, UNESCO 2012 Paris Open Educational Resources Declaration[7] and Amsterdam Call for action on OA[8] have been some subsequent steps that promoted the cause of open access movement. There have also been regional and national initiatives to promote OA culture, for instance, Research4Life[9] and Plan S[10].

Based on levels and types of OA, articles can be classi-