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OSI Underserved Populations and Information Underload Workgroup

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Introduction

This Open Scholarship Initiative workgroup is a new one, partly as a follow up from the second section of the Information Overload and Underload workgroup in the OSI 2016 conference. The 2017 Underserved workgroup members celebrated the creation of a workgroup dedicated to exploring, and hopefully improving, the challenges and opportunities in the journey towards greater openness of scholarship for Lower and Middle Income Countries (LMICs). (This workgroup's membership also overlapped substantially with the Journal Editor Stakeholder Group, and some discussion points and recommendations of the two groups overlap.)

The OSI2016 Information Overload and Underload workgroup report defined information underload as "the condition of the under delivery of meaningful information caused by barriers of both access to and entrance into scholarly dialogue."

This document focuses primarily on Open Access in formal scholarly publishing, rather than other areas of openness, such as open data, open monographs, open educational resources, and national policies, etc. We recommend that these aspects be explored further by additional workgroups being added to OSI 2018 to more optimally and fully address LMIC openness and related development issues, and to improve representation globally in the OSI.

Findings

The 2017 group first discussed the challenges researchers from LMICs have in gaining "researcher as reader" access to Northern research content, and difficulties of "researcher as author" in getting content published by High Income Countries' (HICs) journals. These two factors together are often considered the primary challenge for Southern scholars. While researchers from LMICs need access to HIC-published research content (Research4Life is notably doing excellent work in this regard), this should not imply that researchers and publishers in LMICs should necessarily try to exactly emulate the system of highly-commercialized research journal publishing that characterizes scholarly communication in the developed world (open or subscription-based), when a different and arguably more appropriate model is already evident in LMICs. There is often an implicit assumption that the Northern publisher system is the only correct one, and that Southern scholars and journals need to assimilate into and replicate the Northern system. This group agreed to articulate research publishing's substantial systemic differences in most

LMICs as compared to that of HICs, and then explore and analyze challenges and opportunities and recommendations for increased openness from developing country regions' norms and perspectives.

Significant time was spent critiquing the challenges and flaws of the Northern system of scholarly publishing, for researchers in both the Global North and South. The fact that publishing is heavily commercialized in the North, dominated by a handful of giant companies that receive content and peer review for free (albeit coordinated by publishing company staff) and subsequently sell very expensive publications to the institutions whose research staff created the content, demonstrates a peculiar business model. Commercial publishers obviously add some value in layout editing and proof-reading, plagiarism detection, content tagging, metadata generation, DOI registration, generation of a variety of impact metrics, depositing content and data into key repositories like PubMed Central, reference linking, hosting and archiving, but it is noted that there are ways that this can be done much more affordably. Many HIC publishers that provide Open Access (OA) journals or "hybrid" options charge astonishingly-expensive Article Processing Charges (APCs) to maintain their high profit margins. APC's are usually paid for out of research funding, often from public funds, as are subscription fees (or "big deals") paid for via public university library budgets. The extremely high profit margins attained by the HIC giant commercial publishers are largely derived from public sector (taxpayer) revenue. This group suggests that a more efficient use of public sector funds for research publishing could be developed by the North American and European governments that are ultimately funding the research and paying for content, before or after publication.

Clarivate Analytics' (formerly Thompson Reuters') Science Citation Index (SCI), also known as Web of Science (WoS), and its Impact Factor (IF), have well-documented shortcomings as the primary de facto measure of journal quality in the North, but it is actively detrimental to developing country research ecosystems. The IF has been historically biased against inclusion of developing country research journals, and has entrenched a condescending, false dichotomy between so-called "international" or "mainstream" journals (usually those published in the HICs), and "local" or "peripheral" journals (often meaning those published in LMICs). Quoting a passage from page 8 of the article "*Open Access and the divide between 'mainstream' and 'peripheral' science*" by Jean-Claude Guédon (http://eprints.rclis.org/10778/):

> *In 1982, a meeting was held at the Institute for Scientific Information (ISI), the home of SCI, where the issue of the presence, representation, and impact of "peripheral" or "Third-World" countries was debated. Some statements illustrate clearly the way in which the issues were cast. For example, D. J. Frame was described as approaching the issue in the following manner:*
>
> > *If the purpose of the bibliometric indicators is to help in the building of a national scientific inventory, telling us what kind of research is being performed at different institutions, then coverage of local as well as mainstream publications would seem important. On the other hand, if one is primarily interested in investigating Third World contributions to world science, then publication counts taken from a restrictive journal set would seem most appropriate.*

In brief, two very different tasks that apply to developing nations are contrasted here: a national inventory of scientific activities on the one hand, and their "contributions to world science" on the other. The first task, clearly related to issues of national policy, is ultimately dismissed, presumably as a provincial exercise of no interest to the rest of the world. Without justification or analysis, a distinction is then drawn between "local publications" and "mainstream" or "world science," as if it were an evidence. Publications are either "local" or "mainstream" and there is a definite gap between the two sets. The restricted set of "mainstream publications" is also brought forward without question: it is used to investigate "Third World contributions" to "world science" and is thus "most appropriate." The simplistic nature of the argument is clear. Indeed, what is "world science"? If it is indeed the science publications selected by SCI, it is not difficult to point to the bootstrapping move that allows SCI to claim it is doing just the right thing. 1

According to anecdotal evidence provided by one of the workgroup members, some developing country-published journals that have actually been included in the Web of Science, and assigned IFs, have experienced different and biased treatment compared to those from developed countries.

The prevailing nomenclature distinguishing HIC journals (as international / mainstream / world science) from LMICs journals (as local / peripheral) should not remain in common use for three main reasons:

- This terminology reinforces misguided assumptions that journals published in developing countries contain poor quality or unimportant research while developed country journals publish high quality, high impact research
- It ignores the fact that systems of publishing in the developing world are different from that in the developed world, ascribing differences to journal quality instead of to diversity in systems of journal publishing
- It is overly simplistic, ignoring the fact that there is a continuum of journal quality in every part of the world, and the importance and impact of research depend on the community, conditions, and circumstances to which it applies

Another negative consequence of the IF and other Northern indexes excluding most journals from developing countries is that the statistics on the number of journals and articles published by developing countries quoted in the literature are usually drawn from these exclusionary Northern indexes, and thus developing country research volumes are systematically underestimated.

However, the most pernicious effect of establishing journal prestige via commercially-owned WoS, which favors journals published in Europe and North America, is that university tenure and promotion criteria in developing country universities have emulated those in the developed countries, heavily rewarding "researchers as authors" from developing countries for having their research articles published by IF journals in the North. The result is brain-drain of intellectual property and research outputs from the LMICs research ecosystems to

1 Guédon, Jean-Claude "*Open Access and the divide between "mainstream" and "peripheral" science*" http://eprints.rclis.org/10778/1/Brazil-final.pdf accessed 7 July 2017

those of HICs, further exacerbating inequalities. Another unintended consequence is that developing country researchers are rewarded for choosing research questions that are of interest to the commercial HIC publishers, in the hopes that their articles will be accepted for publication there; this incentive skews research globally towards developed country topics and away from developing country issues. This exacerbates rather than improves regional inequality and inequity of power over the global research agenda and visibility. These unintended consequences of reliance by developing country institutions on the IF undermines research into ways to mitigate the disease burden, poverty, and other challenges that are more prevalent in or in some cases specific to developing countries.

Those working to increase open scholarship to benefit global scholarly communication and particularly to promote the more equitable role of research and journals in developing countries should also acknowledge and constructively address the skewed incentives produced by the prevailing Northern publishing system and the primary use of the Impact Factor as a proxy for prestige and quality of journals.

An unfortunate unintended consequence of charging APCs for Gold OA journals has been the emergence of fake journals (journals that claim to peer review content and adhere to journal standards, but do not) that scam unsuspecting researchers as authors. There is a widespread and often incorrect perception that these so-called "predatory" journals are generally published in LMICs. The net of the now-defunct Beall's list was cast too wide and incorporated new or stand-alone journals that are striving to publish legitimately. Legitimate OA journals need to be incentivized to improve, rather than blacklisted. Blacklists have included as criteria some publishing practices that are a function of the developing country publishing milieu, rather than from an intent to scam. For example, Beall's former "Possibly and Probably Predatory Journals" list included as a criteria authors and editorial board members listing Gmail, Yahoo or Hotmail email addresses for their contact information. Yet it is standard practice for authors in developing countries to use these types of email addresses professionally, because IT support for institutional email addresses is sometimes inadequate at LMIC universities and institutional servers may be unreliable. In addition, authors may find a personal email address facilitates a publishing track record, especially if job changes result in multiple moves from one university or research institute to others over time.

To more constructively address the problem of fake journals, this workgroup agreed that more appropriate, equitable methodologies of establishing trust in journal quality need to be developed. It was noted that work has long been underway to handle this imperative with objective standards and validation. Examples include INASP and AJOL's Journal Publishing Practices & Standards (JPPS) framework www.journalquality.info, SciELO's indexing systems, South Africa's journal lists, and Latin American countries' journal ranking systems, as well as DOAJ and other open access indexing systems.

Publishing in LMICs compared to HICs has several fundamental differences. Rather than large commercial and professional publishing companies with tens or hundreds of journals in their "stables,"

journal publishing in the developing world is characterized mainly by stand-alone journals, often owned and run by scholarly societies or published by faculty collaborations between universities or by university departments (see, for example: https://www.ajol.info/public/Scholarly-Journal-Publishing-in-Africa-Report-Final-v04c.pdf; page 26). Such journals may have difficulty finding the resources to meet technical publishing standards established by publishers in developed countries. A solution to this in several LMIC regions has been the development of regional journal hosting platforms that apply economies of scale to reduce costs for developing country journals, while establishing standards that journals must meet to use their services. Examples include SciELO, a platform for Latin America open access journals, and books, based in Brazil; and African Journals Online (AJOL), based in South Africa. These platforms are based on free, open source software, placing the services that usually require the proprietary platforms of commercial publishers within financial reach of journals in developing countries. They also provide various "meta-publishing" services to the journals accepted to the regional platforms for free or at a low cost, including software and software maintenance, search engine optimization and higher online visibility due to aggregation, online hosting and back-ups, Digital Object Identifiers (DOIs), article usage metrics, peer-to-peer training facilitation, etc. By providing these hosting and online publishing solutions using affordable solutions, negotiating discounts, and absorbing various costs, these regional platforms help significantly to make quality OA based on a combination of international and regional publishing standards a viable option for stand-alone journals from their regions.

This workgroup recognized that many issues and challenges of publishing and openness are shared globally, but some are unique to LMIC regions and will require different approaches. Challenges specific to the developing world include:

- extreme resource scarcity and resulting ills, including unpaid editors, few or no staff, often inadequate journal infrastructure, and inadequate funds to pay for costly journal standards
- the existence of research fields that don't exist in HICs
- loose legislative and policy environments and infrastructure
- absence of OA and science policies at a country level in many countries in the developing world
- disconnected and sometimes weak institutions
- a need for extensive support and mentoring of authors and reviewers by Editors of journals publishing in developing country contexts.

While there is no doubt that these challenges can and do impact the quality and extent of research and research publishing in developing countries, robust research of global import is being conducted and published in LMICs, contrary to stereotypes and bias. Ever higher volumes of research on contextually and regionally important topics relevant to developing countries is conducted and published by LMIC journals, with real world impact in-country and regionally.

However, the Global South is not homogenous, within and between countries and regions; in fact, heterogeneity is the norm. Considerations include the need for multiple publishing languages for different readerships (simultaneous accessibility of indigenous language research outputs, and a

need for articles in major international languages for the sake of global sharing)—in Brazil for example, 40% of medical articles are published in more than one language (as Abel Packer commented during the meeting).

Progress towards OA in the Global South is being made. An important step has been the Dakar Declaration on Open Access in the Global South in 2015 (http://wiki.lib.sun.ac.za/images/5/50/Dakar-declaration-2016.pdf), which now needs implementation. The Indian Citation Index (http://www.indiancitationindex.com/) and the new African Citation Index by CODESRIA (https://www.codesria.org/spip.php?article2669&lang=en) are significant advances. The nascent formation of SPARCAfrica, to advocate for Open Access throughout the African continent, including OA student advocacy movements, is a positive step forward. Also, many OA journals publishing from the developing world do not charge APCs, and operate on a cashless basis, made possible primarily by expert volunteerism and assisted by regional platforms. Donors are beginning to mandate OA for research conducted in developing countries, just as they are elsewhere in the world.

A study of journals in the DOAJ suggests that 65% of Open Access journals globally do not charge authors for publication (see: https://sustainingknowledgecommons.org/2017/02/22/oa-journals-study-2016-65-free-to-publish/). This information should be more widely shared and the means of operating successfully without charges of any kind detailed and publicized.

Recommendations for future progress

A member of this underserved communities workgroup suggested as a global resource a large-scale project that details all author charges of all kinds by all journals (including Subscription, Embargo, Hybrid, and various forms of OA)—an endeavor that would not be trivial, but which could prove very useful for understanding and shifting the entire global system of formal research output exchange.

This workgroup underscored that public sector policy change for openness is of critical importance. One major difference between regional journal hosting platforms is that SciELO in Latin America has been supported by Latin America's government policies on Open Access and government funding to cover the costs of the journals and the hosting platforms supporting them (SciELO, Latindex, and a network of repositories). This is the case more recently in South Africa as well. In many other developing countries, governments are not prioritizing higher education and research itself, let alone funding journals, platforms, and OA policies; as a result there is a need for an upward advocacy in Africa and South East Asia for OA policy and allocation of public funding. This is one such example of the identification of best practices in developing country regions for others to advocate for and emulate.

Universities in developing countries need to create incentives to increase faculty research publishing in developing country-based OA journals, in order to strengthen Southern rather than Northern research ecosystems.

Donor mandates could support OA regional publication of developing country research to maximize regional change and impact, and support the proposed university policy shift. This would usefully include strongly voiced and financial support by UNESCO, World Bank, WHO, etc., to encourage developing country governments to prioritize and fund the strengthening of developing country journals, research networks, and journal platforms.

For LMIC governments, there is a need to link OA with their scientific knowledge agendas that stemmed from the SDG processes and which were reiterated at WSIS review in 2017 (See: https://www.itu.int/net4/wsis/forum/2017/#outcomes). Lack of policy frameworks (or desire to have one) as well as a lack of appreciation for OA publishing in LMIC governments at the highest levels were noted by this workgroup as being major concerns for openness in the Global South. It is suggested that LMIC governments develop appropriate mechanisms to support internal policy development and initiate actions for capacity development at various levels. It is noted that UNESCO offers financial support for OA national policy development (announced in 2015 in Nairobi), but only a few LMICs have come forward requesting this support from UNESCO, so this availability of funding support might need reiteration and wider dissemination.

LMIC regional aggregator platforms ideally should expand to include more developing country journals, to give stand-alone journals an advocacy voice, a cost-saving means of attaining technical requirements, and increased discoverability. Increasing numbers of journals in these regional platforms may help develop a viable model to increase openness, strengthen developing countries' research ecosystems, and permit research agendas to be defined more by needs and researcher interests of developing countries and regions than by the currently dominant publishing priorities of the North.

Southern librarians, science academies, scholarly societies, research institutions, and universities need to work together intentionally (including changing promotion and tenure criteria!) to increase connections and networking between institutions and researchers, for a robust, open, research-sharing network, within regions as well as South-to-South networking.

A mechanism to enhance Southern collaborative research is needed to increase Southern researcher connectedness, rather than current North-South research collaborations that currently almost invariably lead to publication in HICs.

Development of visible displays of verified, appropriate, and objective standards is needed to showcase excellent journals from developing countries and mentor young emerging ones, dispelling stereotypes and excluding fake journals.

Our workgroup defined underserved communities in the context of the Global South. However, we also briefly discussed expanding our focus to address the impact of OA on women all over the world. Given additional discussion time in the future, it might be worth exploring this topic further.

We reiterate our recommendation that substantial efforts be made by the OSI to be more inclusive of LMIC participants going forward, and that additional workgroups be added to OSI 2018 to more optimally

and fully address LMIC openness and related development issues, and to improve representation globally in the OSI.

We close with a quote from Nelson Mandela: "The divide between the rich & the poor, the privileged and the deprived, the powerful and the marginalized has become marked primarily by a differentiation in access to knowledge and information. Those who have access to cutting-edge knowledge hold the advantage in all arenas of social, political, and economic life today."[2]

Underserved Populations and Information Underload Workgroup

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[2] Nelson Mandela's opening address of the 26th International Conference on Improving University Teaching; Johannesburg, South Africa, July 2001