



Open Access: challenges and opportunities for Low- and Middle-Income Countries and the potential impact of UK policy

Report of a consultation commissioned by the Foreign, Commonwealth and Development Office in collaboration with the National Institute for Health Research and UK Research and Innovation

Jon Harle and Verity Warne



HM Government

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1 Executive Summary

INASP was commissioned to undertake this consultation on behalf of the former Department for International Development (DFID), in cooperation with the National Institute for Health Research (NIHR), which is funded by the Department of Health and Social Care (DHSC), and UK Research and Innovation (UKRI), to understand the challenges and opportunities that open access (OA) presents to Low- and Middle-Income country (LMIC) stakeholders. The consultation was commissioned in the context of a significant increase in the UK's Official Development Assistance (ODA)-funded research spending, and a wish to understand the potential impact of UK OA policies on LMIC research, and how any unintended impacts can be mitigated.

In total we consulted 335 individuals representing 213 institutions in 52 countries. Their views are incorporated into the evidence presented in sections 4 to 10.

The implementation of and transition to OA modes of publishing involve a complex set of issues. This report is an attempt to provide a “read out” of the key issues for LMICs, based on consultations with stakeholders, rather than to provide a definitive map of all issues in all regions. The issues presented reflect a point in time, and it is acknowledged that the landscape of OA, open science and research more widely is changing. The principal aim of the consultation was to ensure that LMIC concerns were considered in UK OA policy development, and from this to derive a series of principles and building blocks to underpin UK OA policy, and to make recommendations to funders. This report is a contribution to the wider evidence base which will in turn inform the design of UK government OA policy. Understanding some of these issues in greater depth is likely to require further work. Open data was specifically beyond scope and is only considered briefly as a result.

Key findings

OA is seen to be of significant benefit to LMICs but there is uncertainty and confusion about what OA entails and tensions in the ways in which OA interacts with prestige, impact and recognition.

- LMIC stakeholders believe they do and will benefit from OA, particularly insofar as it enables greater access to research.
- OA is often conflated with issues related to broader research processes, and the obstacles researchers encounter when trying to get their work published.
- In part this is related to confusion about the publishing process itself, and particularly research norms set in the Global North.
- Publishing in a recognised, “international” journal is particularly important, and is part of “playing the game” of scholarly publishing and scientific recognition. At the same time there is a wish to see stronger LMIC publishing outlets and platforms which better meet the needs of their countries and regions.

There is convergence in the ambitions of LMIC and Northern stakeholders but divergence in their approaches to achieving this. Northern policy needs to be more flexible, and LMIC agencies need to be able to determine their own policy and regulatory tools.

- LMIC stakeholders are often pushed towards the pursuit of models or systems determined in the North. Changes are needed to policy and regulatory tools in the North to ensure the benefits of OA can be realised by LMIC stakeholders.
- National and regional science councils and research agencies in LMICs have an important role to play in helping their governments to create the appropriate policy and regulatory tools and to invest national resources to enable their growth.
- OA increasingly needs to be considered within the context of open science, particularly where infrastructure and systems for sharing and using data are growing in importance.

LMIC-led and managed journals and other publishing platforms are critical parts of national and regional research systems.

- Researchers typically want to publish nationally and regionally, as well as internationally, but hesitate because of concerns about the impact this has on their recognition.
- The availability of sophisticated open source platforms and systems and of growing LMIC capacity means that it is increasingly possible for technically sophisticated platforms to be developed in and by LMICs at relatively low cost.

- This requires investment not simply in researchers and research, but also in the professionals who support this process.
- Efforts are needed to progressively shift perceptions of OA publishing, and of LMIC journals and platforms, targeted particularly at decision makers and gatekeepers in both the LMIC research community and in the North.

Northern-published journals are important for LMIC researchers but the costs of publishing in them are unaffordable.

- LMIC researchers and research institutions face a dual barrier: their access to research papers is limited, where subscription costs are unaffordable, and they struggle to afford the costs of APCs to publish in Gold or hybrid OA journals.
- Well known Northern-published journals, or those which are part of recognised publisher brands, are important publishing outlets for LMIC researchers to reach peers internationally, and because they carry specific prestige. While it is not inevitable that this must continue, it represents an important concern for LMIC researchers for the foreseeable future.
- Fee waivers can only ever be a short-term solution for LMICs, acting as a temporary fix to enable LMIC researchers to access Northern driven publishing systems, which do not work for LMIC research economies.
- Making publishing affordable is likely to require a combination of more rapid transition towards free readership in LMICs, and a more accessible and comprehensive system to provide APC funding grants and fee waivers.

The ways in which research is evaluated significantly shape OA perceptions and behaviour.

- Many of the challenges noted by LMIC researchers are related to the need to achieve visibility, recognition, and credibility within the global research system.
- Researchers in LMICs are significantly disadvantaged by the currently prevailing metrics in global research. Efforts to increase the positive impact of OA policy and practices are closely related to on-going work to establish more appropriate metrics for research and publishing. Licensing is unfamiliar to many LMIC stakeholders and they are wary of existing disadvantage being amplified by open licenses.
- Efforts are needed to build understanding and confidence amongst LMIC research communities in the advantages offered by open licenses, and the protections that they afford for intellectual property, if they are to be widely accepted.

Principles and building blocks of a more equitable OA environment for LMICs

We have identified a series of principles which we believe any new policy should aim to satisfy in order to meet the needs of LMIC stakeholders. From these principles, we have derived a series of building blocks describing different choices and paths which could be followed, in order to achieve an improved OA environment. There will be tensions to resolve between these, and they are not mutually exclusive options. Risks are explored in more detail in section 15 Recommendations.



Figure 1: Principles and building blocks for more equitable OA

Recommendations for OA policy and supporting actions

Agenda setting and policy formulation by LMICs	Supporting actions	Funder OA policy lever or action ¹	Alignment with principles
<p>Aims: LMIC stakeholders play a stronger role in formulating global OA and open science agendas and can drive policy and lead decision-making in their own regions.</p> <p>Risk: Without sufficient opportunities to organise, discuss and formulate regional positions, LMICs will continue to be disadvantaged relative to Northern countries in their ability to drive OA agendas and policy responses.</p>	<p>Continue to work with LMIC regional and national science agencies to enable the greater involvement of LMICs in international research forums. <i>[Evidence: good]</i></p>	<p>Collaboration and alignment with national and international partners</p>	<p>✓ Design for sustainability ✓ Equity and inclusion</p>
	<p>Encourage and support the development of regional, national and organisational OA and open science policies. <i>[Evidence: good]</i></p>	<p>Collaboration and alignment with national and international partners</p> <p>Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Design for sustainability ✓ Equity and inclusion</p>
	<p>Support LMICs to formulate and to collectively peer review their own policies and guidelines. <i>[Evidence: good]</i></p>	<p>Collaboration and alignment with national and international partners</p> <p>Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Design for sustainability ✓ Equity and inclusion ✓ Enable innovation</p>
	<p>In collaboration with other funders, support the involvement of LMIC science councils and research agencies in the formulation of cross-funder and cross-country policy agendas, and be willing to consider alternative proposals from LMIC research coalitions. <i>[Evidence: good]</i></p>	<p>Collaboration and alignment with national and international partners</p>	<p>✓ Design for sustainability ✓ Equity and inclusion</p>
	<p>Increase understanding of OA provisions, approaches and options for both LMIC and UK researchers, through guidance and training. <i>[Evidence: good]</i></p>	<p>Communication of policy and purpose and further support</p> <p>Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Design for sustainability ✓ Equity and inclusion ✓ Enable innovation</p>
	<p>Supporting LMIC infrastructure and systems</p> <p>Aims: A diverse research and publishing ecosystem is enabled in and for LMICs, which meets the distinct and varied needs of LMICs at costs that they can afford and sustain.</p>	<p>Policy options</p>	<p>Funder OA policy lever or action</p>
<p>Enable LMIC researchers to publish or deposit their work in an appropriate LMIC institutional, national, or regional platform or repository, irrespective of route to access, to support LMIC ownership. Where an appropriate LMIC platform does not exist, encourage deposit in a relevant disciplinary or other repository. <i>[Evidence: good]</i></p>		<p>Compliant routes to access</p> <p>Policy divergence to address specific needs of LMIC stakeholders</p>	<p>✓ Design for sustainability ✓ Equity and inclusion ✓ Enable innovation</p>
		<p>In-scope outputs</p>	<p>✓ Equity and inclusion</p>

¹ Supporting actions include those directly related to OA policy as well as wider supporting actions funders could take

<p>Risks: Adopting a “business model neutral” position is likely to mean a continued reliance on Northern infrastructure (commercial or otherwise). Over the short to medium term an APC-funded route contributes to sustaining the cost of Northern publishing platforms but reduces the ability of LMICs to invest in local research infrastructure. This is likely to continue to create serious problems of affordability and sustainability for LMICs. Relaxing the requirements for LMIC platforms to comply with UK funder technical standards in the short term could increase divergence between Northern and LMIC systems.</p>	<p>Recognise the importance of diverse research outputs to LMICs, beyond peer-reviewed papers and monographs. Encourage deposit of all outputs generated by research in an appropriate repository. <i>[Evidence: good]</i></p>	<p>Influence wider research culture and environment, including around responsible research assessment</p>	<p>✓ Enable innovation</p>
	<p>Consider relaxing the requirement for LMIC publishing platforms and systems to be immediately compliant with UK technical standards, enabling a transition period of 2-3 years. Also consider whether these standards should be adapted to be more inclusive of LMIC needs. <i>[Evidence: medium – some tensions]</i></p>	<p>Policy divergence to address specific needs of LMIC stakeholders, including timing of policy implementation</p>	<p>✓ Equity and inclusion ⚠ Ensure technical standards</p>
	<p>Supporting actions</p>	<p>Funder OA policy lever or action</p>	<p>Alignment with principles</p>
	<p>Consider investing directly in academic-led or public OA infrastructure in LMICs to support greater diversity and innovation in OA publishing and to meet the distinct publishing needs of LMICs. In doing so, enable the necessary technical and quality improvements to be made too. Also support LMICs to develop appropriate business models to sustain this infrastructure. <i>[Evidence: good]</i></p>	<p>Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Design for sustainability ✓ Ensure technical standards ✓ Equity and inclusion ✓ Enable innovation ✓ Ensure affordability</p>
	<p>Consider allowing membership costs for LMIC journal publishing platforms to be included within research grants. <i>[Evidence: good]</i></p>	<p>Terms and conditions of funding to support OA policies</p>	<p>✓ Design for sustainability ✓ Equity and inclusion ✓ Enable innovation ✓ Ensure affordability</p>
	<p>Support LMICs to develop and lead capacity development interventions which aim to develop the knowledge and skills to operate, maintain and develop high quality publishing platforms. <i>[Evidence: good]</i></p>	<p>Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Design for sustainability ✓ Ensure technical standards ✓ Equity and inclusion ✓ Enable innovation</p>
	<p>Consider expressing explicit support for academic-led and public OA models and platforms, especially as this applies to LMICs, to recognise the advantages that they offer and the opportunity for LMICs to do develop different publishing systems and models to those established in the North. <i>[Evidence: good]</i></p>	<p>Influence wider research culture and environment Collaboration and alignment with national and international partners</p>	<p>✓ Design for sustainability ✓ Ensure technical standards ✓ Equity and inclusion ✓ Enable innovation</p>

	Consider a collective funder effort to develop and maintain a list of LMIC platforms which meet the standards required by UK funders or to develop a badge or kite mark which would enable LMIC platforms to demonstrate they have been assessed as "compatible" with UK funder requirements. <i>[Evidence: partial, further work]</i>	Communication of policy and purpose and further support	<ul style="list-style-type: none"> ✓ Ensure technical standards ✓ Equity and inclusion
<p>Affordable access by LMICs to the Northern for-profit and non-profit scholarly publishing system</p> <p>Aims: LMIC researchers are not prevented from publishing in their journal or platform of choice due to unaffordability of APCs.</p> <p>Risks: A system which involves APC waivers that require significant effort to request them is likely to reduce the number of researchers securing these. Requiring publishers to provide APC fee waivers may create further bias against LMIC authors. Addressing LMIC OA needs through APC payments and fee waivers risks transferring funder resources to for-profit publishing companies limiting funds for investment in LMICs. Additional compliance requirements may add a further burden to LMIC researchers.</p>	<p>Supporting actions</p> <p>As a transitional arrangement, consider a collective fund to allow LMIC researchers to apply for additional funding, during the life of their grant and beyond the close of the grant.² <i>[Evidence: partial, further work].³</i></p>	<p>Funder OA policy lever or action</p> <p>Mode of funding to support OA policies</p>	<p>Alignment with principles</p> <ul style="list-style-type: none"> ✓ Equity and inclusion ✓ Ensure affordability
	<p>Undertake further work to investigate the costs of APCs, the balance between publication costs and profit, and the value for money for UK funders of supporting APCs through grant funding relative to investments in LMIC infrastructure. <i>[Evidence: good]</i></p>	Funding to support OA policies	<ul style="list-style-type: none"> ✓ Ensure affordability
	<p>For a journal to be eligible to receive an APC payment from a UK-funded grant it should provide clear and prominent statements about the APC fee waiver offered for LMICs, and where possible should apply these automatically. <i>[Evidence: medium, some tensions]</i></p>	Terms and conditions of funding to support OA policies	<ul style="list-style-type: none"> ⚠ Design for sustainability ✓ Equity and inclusion ✓ Ensure affordability
	<p>Work with other international research funders, and particularly those with an ODA or development research portfolio, to support LMIC stakeholders to directly advocate for their own needs in meetings and discussions with Northern publishers. <i>[Evidence: good]</i></p>	Collaboration and alignment with national and international partners	<ul style="list-style-type: none"> ✓ Equity and inclusion ✓ Ensure affordability
	<p>Provide support and advice to ensure that LMIC researchers can successfully navigate the Northern publishing system, though the training elements included within grant programmes. Work to ensure compliance is made as straightforward as possible for LMIC researchers. <i>[Evidence: good]</i></p>	Communication of policy and purpose and further support	<ul style="list-style-type: none"> ✓ Equity and inclusion ✓ Ensure affordability
	<p>Consider supporting the costs of language editing and translation services to enable LMIC authors to publish their work, and particularly for authors from non-Anglophone countries who wish to publish in Anglophone journals. <i>[Evidence: partial, further work]</i></p>	Direct funding to LMIC stakeholders to build capacity (people and infrastructure)	<ul style="list-style-type: none"> ✓ Equity and inclusion

² Considering the operational implications of a collective fund would require more detailed further work by funders, but there could be opportunities to learn from others, including IDRC.

³ For FCDO, this aligns with the recommendations of the Research Consulting review.

<p>Developing, adapting and adopting appropriate research metrics and evaluation criteria</p> <p>Aims: To empower researchers to choose publication venues that meet their needs and are fit for purpose and to encourage research behaviour which is aligned better to realising the social and economic benefits of research.</p> <p>Risks: If the metrics for research assessment are not rethought, LMIC researchers and LMIC citizens will continue to be disadvantaged by a system which favours prestige publication over local relevance and accessibility.</p>	Supporting actions	Funder OA policy lever or action	Alignment with principles
	<p>Consider more explicit inclusion of outputs beyond peer reviewed papers and monographs when assessing research projects at grant stage, or during project progress reviews. <i>[Evidence: good]</i></p>	<p>Influence wider research culture and environment, including around responsible research assessment</p>	<p>✓ Appropriate metrics ✓ Equity and inclusion ✓ Enable innovation</p>
	<p>Consider how prospective grantees who demonstrate a publication strategy designed to increase LMIC accessibility and impact might be positively scored during assessment of grant applications, and include this in rubrics and guidance to reviewers. <i>[Evidence: good]</i></p>	<p>Influence wider research culture and environment, including reward and recognition for open science practices and contributions to the global ecosystem</p>	<p>✓ Appropriate metrics ✓ Equity and inclusion ✓ Enable innovation</p>
	<p>Ensure that appropriate metrics for assessing the strength of a research application are clearly indicated in the rubrics and guidance provided to grant reviewers. <i>[Evidence: partial, further work]</i></p>	<p>Influence wider research culture and environment, including around responsible research assessment</p>	<p>✓ Appropriate metrics ✓ Equity and inclusion</p>
	<p>Support LMICs and LMIC publishing platforms to develop their own indicators and metrics of quality, or to implement established metrics, to enable them to demonstrate their quality to prospective authors and readers. <i>[Evidence: good]</i></p>	<p>Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Appropriate metrics ✓ Equity and inclusion ✓ Enable innovation</p>
	<p>Investigate new approaches to research assessment, particularly for ODA-funded research, and consider investing in new methods and tools where sufficient methods and tools do not yet exist.⁴ <i>[Evidence: partial, further work]</i></p>	<p>Influence wider research culture and environment Collaboration and alignment with national and international partners</p>	<p>✓ Appropriate metrics ✓ Enable innovation</p>
	<p>Commit to and advocate for the use of new and more appropriate metrics to assess and evaluate the quality of research and researchers. Consider endorsing and putting into practice the principles of the San Francisco Declaration on Research Assessment (DORA) to demonstrate a strong collective UK funder view.⁵ <i>[Evidence: good]</i></p>	<p>Influence wider research culture and environment Collaboration and alignment with national and international partners</p>	<p>✓ Appropriate metrics ✓ Equity and inclusion ✓ Enable innovation</p>

⁴ Funders could consider adapting the Research Quality Plus framework, designed by the International Development Research Centre (IDRC Ofir et al., 'Research Quality Plus: A Holistic Approach to Evaluating Research'.

⁵ DORA, 'San Francisco Declaration on Research Assessment'.

<p>Licensing terms which meet LMIC needs and reflect LMIC concerns Aims: To maximise the re-use of UK-funded research, while recognising that exceptions for a transitional period may be needed to allow LMICs to build domestic funding initiatives and understanding of licensing terms. Risks: If licensing provisions are not well understood it is likely to perpetuate a perception of extractive behaviour by the Northern research community and could undermine efforts to secure local investment in research and infrastructure.</p>	<p>Policy options</p>	<p>Funder OA policy lever or action</p>	<p>Alignment with principles</p>
	<p>Consider further work to understand whether there is a case to allow LMIC journals, platforms and researchers publishing within them to opt for a CC BY-NC license for a transitional period . <i>[Evidence: partial, further work]</i></p>	<p>Requirements around licensing, copyright and rights retention in OA policies policy divergence to address specific needs of LMIC stakeholders</p>	<p>✓ Equity and inclusion ? Ensure technical standards</p>
	<p>Consider undertaking further work to better understand the impact of licensing on LMIC researchers. <i>[Evidence: good]</i></p>	<p>Requirements around licensing, copyright and rights retention in OA policies Harmonisation and divergence in OA policy to address specific needs of LMIC stakeholders</p>	<p>✓ Equity and inclusion</p>
	<p>Supporting actions</p>	<p>Funder OA policy lever or action</p>	<p>Alignment with principles</p>
	<p>Support initiatives which aim to help LMIC researchers to understand copyright and licensing provisions to enable them to make informed decisions when publishing. <i>[Evidence: good]</i></p>	<p>Communication of policy and purpose and further support Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Equity and inclusion</p>
	<p>Support LMIC publishing platforms to adopt copyright and licensing provisions which ensure that authors retain copyright and that outputs are published under a standard machine-readable license. <i>[Evidence: good]</i></p>	<p>Communication of policy and purpose and further support Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Ensure technical standards</p>

2 Introduction

INASP was commissioned to undertake this consultation on behalf of the former Department for International Development (DFID), in cooperation with the National Institute for Health Research (NIHR), which is funded by the Department of Health and Social Care (DHSC), and UK Research and Innovation (UKRI), to understand: the challenges and opportunities that open access (OA) presents to low- and middle-income country (LMIC) stakeholders; the implications of these for development research funders; the impact of UK funders' OA policies on LMIC research; and how any unintended impacts could be mitigated.

The consultation ran from October 2019 through March 2020. Representatives of former DFID, NIHR and UKRI sat on a Steering Group, and interim findings were shared with the group throughout the consultation process and were discussed during a workshop held with in January 2020. This final report is a synthesis of all the evidence gathered through the consultation. It proposes a series of principles and building blocks for UK OA policies and outlines key recommendations to help guide funder policies and programmes towards greater equity for LMIC research systems and LMIC research. This report is not indicative of UK government policy but is published as a contribution to the evidence to support the design of government policy.

2.1 Aims and Scope

The stated aim of this consultation is to ensure that “new UK government funders’ Open Access policies are fit for purpose for ODA-funded research in low- and middle-income countries (LMICs)”.

Since 2016, the UK government has expanded its portfolio of ODA-funded research programmes, which are focused on tackling global challenges and delivering sustainable development through partnerships between UK and LMIC researchers. As a result of this expansion in funding, and particularly funding intended to support work undertaken by LMIC researchers, it is particularly important that the needs and interests of these researchers are well represented in UK policy development.

Former DFID, NIHR and UKRI have all initiated reviews of OA policies. This consultation was commissioned to ensure that the interests of LMIC researchers are represented in policy development.

Through this consultation former DFID, NIHR and UKRI, sought to:

- Understand OA challenges and opportunities in the context of LMIC countries
- Use the evidence generated through this consultation to inform their OA policy development.

The outputs of this consultation have fed into UKRI’s on-going review on OA as well as the National Institute for Health Research (NIHR)’s OA policy development.

For the purposes of this consultation, we understood OA to mean the free and irrevocable access to full-text outputs arising from research, to any user worldwide. The Steering Group indicated that access to data was beyond scope, and while it was raised as a topic for discussion by some stakeholders, is only considered briefly as a result. The Steering Group were principally concerned with peer-reviewed research articles, though recognise the value of other types of publication outputs (including preprints and monographs) and were interested in evidence collected on these.

The basic principles of OA to research publications appear straightforward, but the implementation of and transition to OA modes of publishing involve a complex set of issues. There are different histories and drivers for OA in different regions and countries, and the transition has different effects in different regions and countries. This report is an attempt to provide a “read out” of the key issues for LMICs, based on consultations with stakeholders, rather than to provide a definitive map of all issues in all regions. Understanding some of these issues in greater depth is likely to require further work.

3 Consultation methodology

3.1 Key project phases

The consultation involved a series of phases which are described below. The need to fit data collection to existing events and travel meant that there was some overlap between phases. Some flexibility was required to take into account the direction of travel of the OA policy reviews being undertaken by UK government departments, and it was also necessary to adapt the approach as a result of the UK general election and the restrictions created by the introduction of “purdah” during November 2019.

Project initiation	An initial meeting with a Steering Group comprised of former DFID, NIHR/DHSC and UKRI representatives was held and a series of inception documents were prepared.	October & November
Desk review of the existing evidence base and of funder policies	Two desk-based reviews were undertaken: one of the existing evidence and one of UK government funder policies and statements (covering former DFID, NIHR and UKRI), as well as those of selected international development research funders (IDRC, Gates, Wellcome).	November
Interviews	Interviews were held with representatives of former DFID, NIHR and UKRI, as well as with IDRC, Gates and Wellcome to further understand funder policy directions. A series of online and face to face interviews were held with LMIC stakeholders to explore issues and identify questions for subsequent phases.	November
Focus group discussions	Focus group discussions were held with stakeholders in Tanzania, Uganda and Bangladesh.	November & December
First survey	A survey to explore the issues identified from interviews and focus groups was sent to a sample of LMIC stakeholders.	December
Review with Steering Group	A workshop was held with representatives of former DFID, NIHR and UKRI to review emerging findings and policy options, and to identify outstanding questions and areas for further work.	January
Second survey	A follow-up survey was produced to explore issues of research and publishing culture and behaviours in more depth.	March

Desk review

In order to assess the existing evidence base, and to identify issues to be explored through subsequent stages of the consultation, we undertook a rapid review of the published literature in English on the impact of OA on LMICs.

This literature review was part of a wider desk review that had two guiding questions:

- To what extent does current funder OA policy respond to the needs and contexts of LMIC research & development needs/priorities?
- What do the LMIC models of OA indicate would need to be changed or modified in Northern funder policy, so that it better supports and enables the emergence and/or growth of OA and related research infrastructure and practice in the South?

The purpose of this phase was to identify the strength of, or gaps in, the evidence base in relation to specific themes, broad disciplinary areas (science, technology and medicine; humanities and social sciences) and geography (i.e. whether evidence is weighted to particular countries and regions).

Within these guiding questions, an analytical framework of further questions with which to read the literature was identified by the INASP team, based on prior work and knowledge of OA. These questions were clustered under broad themes to ensure analysis covered different types of stakeholder (policy making and university administration, as well as research), geography (South and North) and scale (individual, organisational and national).

Using Google Scholar and agreed keywords and phrases,⁶ as well as some key documents already known to the team, 157 papers or documents were identified for review (annex 6). These references were rapidly scanned for relevance, scope and credibility of the source. Reflecting the fact that significant discussion of OA has taken place outside of peer-reviewed journals, these also included conference papers, public statements, expert commentaries and commissioned reports, blog posts and newspaper interviews. This review was necessarily of limited scope and ambition, but former DFID's guidance on Assessing the Strength of Evidence⁷ was used to guide the process.

The significance of these papers and other sources were rated low, medium or high. Only references rated as high or medium and which represent a range of relevant issues, voices and geographical spread of authorship, publication platform and content are integrated within this report.

The review identified areas for further exploration through the consultation including:

- The influence of OA approaches taken in middle-income or emerging countries on OA approaches in low-income countries
- Existing and/or emerging organisational approaches to managing OA publishing within LMIC research institutions
- Levels of awareness amongst stakeholders of OA policies and approaches, such as Plan S,⁸ and the potential impact of these policies and approaches
- The impact of increased visibility of Northern research as a result of OA mandates on the visibility of LMIC research
- The existence of funding mechanisms for LMIC OA research publication, including who controls the funding and what impact that has on how research is shared
- The potential impact of Plan S approaches on LMIC researcher OA behaviour, and on emerging LMIC OA models and infrastructure
- The perceptions of LMIC stakeholders on data sharing within the OA research context and the extent to which this is a barrier or catalyst/enabler for OA research publishing.

Defining our stakeholders

We identified a series of stakeholder categories with which we wished to engage through the consultation:

- Research institutes and centres, including public and private universities, government and independent think tanks and specialist research institutes
- National funding and regulatory agencies for research and higher education
- Academies of science, learned and scientific societies
- National library consortia
- National and regional journals
- National and regional research publishing initiatives.

INASP has worked with partners across Africa, Asia and Latin America for the last 28 years. In order to derive a representative sample for the consultation we worked from our extensive network of contacts, and reviewed these for regional coverage, and by stakeholder type. INASP's list of contacts included the AuthorAID network of early to mid-career researchers, a community of journal editors from LMICs, a network of information professionals and librarians in 20 LMICs, research leaders at national science councils, and university research leaders and managers. This list was augmented with additional contacts identified from the websites of relevant organisations, including members of the African Research Universities Alliance and the Southern Voice think tank network, and the UKRI's Peer Review College.

In building our stakeholder list we deliberately aimed to go beyond those who were already in receipt of, or had previously received, UK grant funding. By doing so, we sought to ensure that results were not biased towards those who, through UK partnerships and funding, might be better able to mitigate the unintended impacts of OA. We also sought to include individuals holding various roles, from active researchers to research managers to senior leadership.

⁶ "open access" AND policy AND "global south"; "open access" AND policy AND "LMIC"; "open access" AND policy AND "developing country"; +Africa ; +Asia; +Latin America; "open access" AND funder AND "global south"; "open access" AND funder AND "LMIC"; +developing country; + APCs; "open access mandate"; 2015 or more recent

⁷ Department for International Development, 'Assessing the Strength of Evidence: DFID How to Note'.

⁸ An initiative for Open Access publishing that requires that, from 2021, scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms. www.coalition-s.org

Sampling key stakeholders

A stratified random sample was selected from our stakeholder list and used to identify an initial series of interviewees. The sample was stratified across:

- Different types of organisation involved in research and publishing (i.e. Research institution, government agency, NGO etc)
- Roles within the research system (i.e. Researcher, research manager, librarian, senior leadership) and officials within the national research and higher education commissions
- Country and region
- Gender.

Definition of OA

As agreed with the Steering Group in the data collection protocol for the study, during our interviews and focus groups we defined OA as meaning the free and irrevocable access to research such that it can be read and used by other researchers, policy makers and the public. We took 'use' to mean full-use rights such that researchers can read and build on the findings of others without restriction and including text and data mining. We took "research" to refer to not just journal articles but also reports, data and other forms of evidence generated.

Stakeholders consulted

We spoke directly or in groups, to 58 individuals, from Africa, Asia and (to a lesser extent) Latin America. This included:

- Interviews with 17 individuals from 17 organisations in 11 countries
- Interviews with eight anglophone councils (one regional) and three francophone councils during the Science Granting Councils Initiative meeting in Dar es Salaam
- Two focus groups involving 12 participants from 12 organisations in Dhaka
- A focus group involving seven participants from five countries and institutions in Dar es Salaam (during an Organisation for Women in Science in the Developing World (OWSD) meeting)
- A focus group of seven participants from six Ugandan universities (held at Muni University, Arua).

In addition, we received survey responses from:

- 225 researchers and research managers, from 204 institutions across Africa (56%), Asia (30%) and Latin America (6%), to our first survey
- 82 researchers and managers from 44 institutions to our second survey, predominantly from Africa (51%) and Asia (38%).⁹ 48 had responded to our first survey and 34 were new respondents.

In total we consulted 335 individuals representing 213 institutions in 52 countries.

Interviews

A series of semi-structured online interviews were undertaken, using a protocol of core guiding questions. These questions were derived from the desk-based reviews of evidence and of funder policy directions and were designed to explore and understand the perceptions and experiences of each interviewee. Interviews were recorded and transcribed using voice-recognition software prior to analysis. Our initial intention had been to use interviews to elicit a series of change pathways, using a variant of the "most significant change" approach, and to validate these with interviewees and focus group discussions. Following initial interviews, it became clear that low levels of awareness and familiarity with key OA terminology, and thus with possible scenarios, did not allow this. Instead we took a broad qualitative review approach, analysing thematically the responses and comparing perspectives by gender, region, discipline and occupation.

In parallel, we undertook a series of interviews with 11 African national science councils and commissions, during the Science Granting Councils Initiative (SGCI) annual forum in Dar es Salaam. Eight were Anglophone, and three Francophone. These interviews also followed a semi-structured approach. In addition, the SGCI forum provided the team with an opportunity to participate in and benefit from a wider set of discussions around open science. Interviewees responded in the context of these broader discussions and as a result addressed a slightly broader range of issues of concern to

⁹ 11% was split across Europe, Oceania, Latin America and North America

the councils. Interviews with the Francophone councils were combined into a mini focus group and co-facilitated by a French speaking member of the IDRC team.

Focus groups

Following interviews, three focus groups were undertaken. In Tanzania and Uganda, we made use of existing meetings to convene groups of researchers: in Tanzania this was through the OWSD meeting in Dar es Salaam (seven participants from five countries) and in Uganda through a gender alliance workshop, held at Muni University (seven participants from six Uganda universities). Both made use of opportunities to convene often under-represented groups: women researchers, and those from rural or “non-apex” universities. Two further focus groups were convened in conjunction with an INASP Associate in Dhaka (12 participants from 12 organisations).

Each focus group followed a semi-structured approach with facilitators using the same protocol to ensure key information (as per the project requirements) was captured. Guidance included:

- Using probing questions to gather as much information as possible
- Spending time on key issues, keeping in mind the objective of the study and that of the focus group
- Ensuring that all participants had an opportunity to contribute
- Keeping the conversation contained and focused on the main questions but allowing for the cross-fertilisation of ideas and the conversation this generated.

We hoped to be able to facilitate a similar discussion alongside the African Research Universities Alliance (ARUA) conference in Nairobi in November, but an already tight agenda, alongside other scheduling pressures, meant this was not possible.

Survey

Drawing on the interviews and focus groups we developed and circulated a survey to validate findings that had emerged, and to further explore some specific issues, which we felt had not been well answered through prior phases.

The survey was circulated to a sample of 992 individuals, and received 225 responses from researchers, and research managers/institutional administrators closing in late December 2019. The majority of responses came from individuals in public universities, and over half of responses came from Africa (there was a significantly stronger African response than in the original population to which the survey was distributed).

Emerging findings review workshop

In January we held a workshop with the Steering Group and additional representatives from former DFID, NIHR and UKRI. This was designed to validate our emerging findings, discuss our interpretation of the direction of UK policy and agree how these findings could inform a second survey to test some specific possible policy options with LMIC stakeholders.

Second survey

Following the review workshop, a second survey was developed to explore the drivers of research and publishing behaviour in more depth, to understand the decisions made by researchers when seeking to publish their work and the ways in which UK OA policy provisions would intersect with these. The survey also sought to gather information on researchers’ experience of accessing APC fee waivers when publishing through Gold OA routes, and their comfort with different publishing options. This was distributed directly to 513 LMIC stakeholders, of which 100 had responded to the first survey (indicating that they were happy to complete a follow-up survey) and another 413 individuals had not responded to the first survey.

The survey received 82 responses from research managers, institutional administrators and researchers.

Preview group

An invitation to review a draft of the final report was extended to 23 individuals, representing different OA constituencies and covering LMIC research agencies and research institutions, managers of LMIC OA platforms, international science bodies, international development research funders, and other OA experts, commentators and influencers. 16 individuals agreed to receive a draft of the report, and we received comments from 15 of these. These comments were reviewed by INASP, compiled in a comments matrix and were discussed with the Steering Group. A summary of this feedback is given in

section 15.3. The final report was edited to address these comments, principally for clarity and emphasis, and to correct any errors that were identified.

Limitations to the approach

The consultation took place in a relatively short period of time, which coincided with a UK general election (and associated restrictions on UK policy-related activity) and later the rapidly developing coronavirus pandemic. In addition, there were some general limitations in the evidence that could be compiled and the stakeholders that could be consulted. These included the availability of key stakeholders, the fact that the consultation (including literature review and interviews and focus group discussions) was conducted in English (with the exception of a conversation with Francophone African science granting councils facilitated by IDRC), limited opportunities for face to face consultation, and the ability to reach a diverse set of respondents through survey instruments, based on existing databases of contacts.

There is a greater weighting towards African stakeholders in this consultation, reflecting current UK ODA-research funding and networks, as well as opportunities available to the INASP team to align focus groups with existing travel to reduce the costs and environmental impact of the project. These limitations were mitigated as far as possible, by use of existing networks, careful construction of the survey sample, and reminders to survey respondents in order to encourage response. We also directly targeted several specific individual stakeholders from Asia and Latin America, but Latin American stakeholders were significantly under-represented in the consultation.

It was not possible, within the individuals consulted and the data gathered, to consider disciplinary dimensions of OA, such as differing experiences and views of social science and humanities researchers compared to those in the natural and physical sciences, engineering and medicine.

Our original intention was to derive a series of “pathways towards improved future scenarios” (i.e. OA environments which would better meet LMIC needs and better enable LMIC research) from the interviews, which would then be explored further during the focus groups. However, interviews and focus groups did not generate a significant number of pathways, or explicit preferred scenarios as anticipated. This is in part due to the levels of familiarity with OA that we observed, and confidence or willingness amongst stakeholders to suggest specific options. Instead we used evidence from interviews and focus groups, and subsequently surveys, to derive a set of principles and building blocks (see section 6).

The evidence synthesised below is drawn from our interviews, focus groups, and surveys, alongside insights from our initial literature review. We have drawn our evidence from a broad consultation, covering stakeholders from several regions, and spanning 52 countries. While we can be reasonably confident that these are the generic concerns of LMIC stakeholders, we do not have sufficient data to be able to compare, with significant confidence, the differential impacts in Africa, Asia or Latin America, or the differential impacts of OA – positive and negative – between countries.

4 How opportunities and challenges are perceived by LMIC stakeholders

Benefits of OA

The principles of openness and the potential impact of OA to research are viewed positively. Researchers, and those responsible for research policy and management, at institutional and national levels, generally believe that they will benefit from OA.

When asked to explain their reasons, stakeholders note that OA has the potential to significantly increase the availability of research globally, which is seen to be of particular benefit to LMIC researchers who continue to be significantly disadvantaged, relative to Northern peers, by subscription paywalls. Participants in our Tanzania focus group said that very few journal subscriptions were available to them, and access to paywalled journals through philanthropic or other access initiatives such as HINARI and the other collections of the Research4Life programme was not always reliable.¹⁰ Where subscriptions journals are accessible this is often only when on campus, which doesn't always suit researchers' work flows and habits. It is notable that the benefits of OA were discussed primarily in relation to access to research, rather than its publication, though the links were noted.

Under half (41%) of respondents to our first survey currently have good or very good access to literature and evidence (Figure 2), and 89% cited subscription charges and paywalls as an obstacle to accessing research. This was significantly higher than any other barrier: ICT was noted to be a barrier by 32%; the ability to find evidence by 22%; and language by 7%.

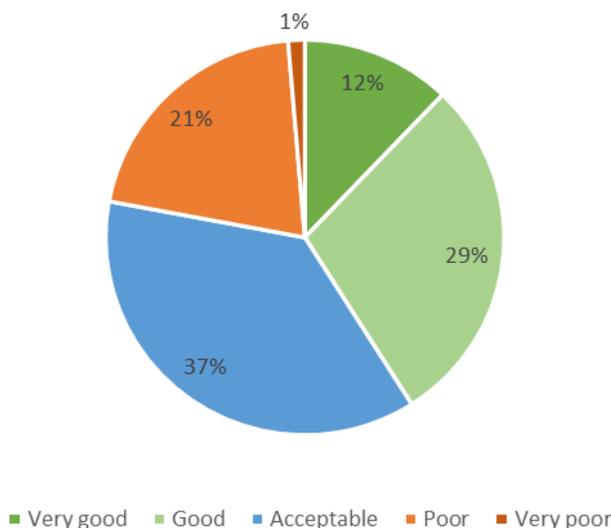


Figure 2: Access to global research literature and evidence (n=222)

¹⁰ The Research4Life initiative is comprised of five linked programmes, covering health, agriculture, environment, law, science and technology and related subjects, managed by UN agencies, academic partners and participating publishers, and makes subscription journals available to LMIC institutions at low/no cost: www.research4life.org

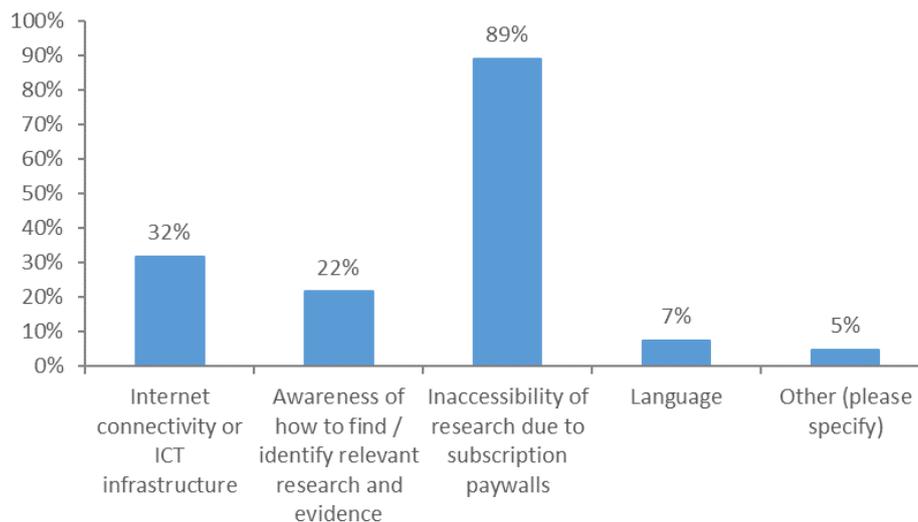


Figure 3: Obstacles encountered in accessing global research literature and evidence (n=218)

Staying up to date

The connections between OA and online connectivity and tools lead many stakeholders to associate OA with sharing ideas and data more freely, particularly beyond their own countries. Participants in our Tanzania focus group felt that because OA research is likely to be more accessible, it will be more readily open to greater scrutiny. This would in turn enhance the integrity of research, discourage bad practices, and push researchers to be “on top of [their] game”. In our Uganda focus group, participants noted that OA has the potential to reduce unintended duplication in research, by ensuring that researchers are aware of what has already been published on a specific question and can ensure that they build on the foundations of prior work.

Increasing visibility

Participants in the Tanzania focus group felt that OA helped to increase the visibility and citations of their work. In our Ugandan focus group it was suggested that by making research more accessible, the visibility of research which is currently overlooked, such as gendered research, or research from other marginalised voices, might be significantly enhanced – thus redressing some of the imbalances of the research and knowledge system.

In Bangladesh, focus group participants noted that transitioning a national journal to OA had generated submissions from outside the country, and led to articles being more widely cited.

On a more personal level, many see OA as offering the potential to increase the visibility of their own work, and thus their visibility as scientists, and in turn making it easier for them to participate more fully in global research endeavours. 93% of respondents to our first survey cited accessibility of their work to other researchers as a priority when thinking about their research and its eventual publication.

Academic inequities

The positive view of OA principles is nevertheless tempered for most stakeholders by more practical concerns and their experience to date. OA is often quickly associated with the requirement to pay publication fees – which present a new set of barriers to LMIC researchers only recently able to access more of what they want to read. These fees are typically seen to be unaffordable (see section 9 for a discussion of Article Processing Charges [APCs]). Some stakeholders also note that OA raises new challenges for national or regional journals, which may struggle in an online publishing ecosystem if they are not able to keep pace with developments in digital publishing technologies and practices.

While greater access to research is seen positively, a small number of stakeholders expressed fears that OA could exacerbate existing divides – namely that as LMIC research is already less visible, and in some cases less well-regarded than research that is undertaken in the North, making all research open would lead to LMIC research being ‘swamped’ by a tide of Northern-published work. They felt this would be particularly difficult under an OA transition which favoured a Gold publishing model, as Northern researchers would be better able to afford APCs, particularly in prestigious journals. Participants in our Uganda focus group talked of the need to invest first in raising the visibility of locally produced evidence, before deciding whether their policies should promote OA or not.

A paper written with reference to South Africa notes:¹¹

"A worst case scenario for South African researchers would be a lose-lose situation in terms of both access and participation. (...) Access to southern research is likely to be even further reduced as local researchers' publishing options might be restricted by financial gatekeeping at the outset. While sweeping changes in the global north will see more northern research freely available to all online, the danger for locals is twofold: firstly, that they may be limited in their opportunities to publish (especially by expensive APCs) and, secondly, that their own research drowns in the worsening invisibility of the online discoverability sphere."

Publishing and promotion

Several interviewees and focus group participants in Tanzania noted that OA publishing, or digital and online publication more broadly, are not well understood by senior academics and managers. As a result the decision to publish in an OA journal could mean, some felt, that promotion applications were blocked or slowed, because OA titles would not be recognised by their institutions as “acceptable” publications.¹² Whether this related to their mode of publication (OA and digital) or the familiarity and recognition of the journal was unclear, and may not be entirely clear to those making the decisions, given the levels of misunderstanding that abound, as we explain below. As one Tanzanian focus group participant commented: “Yes, we are getting access to papers, but if I publish in these journals I am in trouble!”.

¹¹ Czerniewicz and Goodier, ‘Open Access in South Africa’.

¹² The extent of this practice was unclear – examples were cited but perceptions of this practice were also reported

5 OA models

There is significant confusion and uncertainty surrounding OA publishing. Interviews and focus group responses indicated a considerable difference in understanding about what OA means. There was also very variable knowledge and understanding of the different models and approaches to realising it, and the mechanisms through which research can be openly published. Many are unclear that paying APCs to publish, publishing a paper on a pre-print server, depositing a pre- or post-print article in a repository, or a national research agency investing in another form of publishing infrastructure are all mechanisms through which OA publication might be achieved.

Understanding OA

The terminology and concepts of Gold, Green and Diamond OA are not well recognised, nor are concepts such as hybrid journals, although researchers may have nevertheless used a range of OA publishing strategies.¹³ Participants in our Tanzania focus group had a general awareness of databases, but not of the distinctions between tools and platforms such as Google Scholar and repositories. One participant discussed the difficulties of trying to understand what she could and couldn't archive based on the embargo imposed by the journal, and how to comply with this.

Half of respondents to our first survey felt very familiar with OA, and another 38% felt they were moderately familiar. 60% had self-archived or deposited their work in a repository, 52% had published in an OA journal which did not require an APC¹⁴ and 46% had published in an OA journal with an APC. 72% of respondents to our second survey had read pre-print versions of articles during their research. 43% had deposited a pre-print version of their own work.

Interviews indicated that in some cases it is simply not clear when an output is OA or not: for example, is an article on a publishers' website accessible to a reader because they benefit from a subscription via their institution, or because that article was published OA and is available to any reader? Is a research output that is made freely available to read the same as one that is OA, with the appropriate licenses?

Individual experience

OA and its different models are often least well understood by researchers themselves, and for many it is a secondary issue to doing and publishing their work. Therefore, our interviews indicated that perceptions of OA are driven by individual experience – positively, if researchers can access information freely, or negatively if they are not or are asked to pay to publish their own work.

Librarians and those responsible for infrastructure, understandably, have a greater concern with formats and mechanisms, while managers are more interested in policy at institutional level, the status of their institutions and how this relates to OA. For example, is the research output of their institution widely accessible, visible, impactful, and perceived to be of good quality?

¹³ See Annex 1: Glossary of terms

¹⁴ It was not clear whether this was in an LMIC or Northern journal

6 Myths, misinformation, and misunderstanding

Publishing norms

Misinformation abounds, and when individuals talk about OA they often conflate issues related to the openness of research with issues related to the broader research and publishing process, and the obstacles they encounter in navigating it. To a significant extent, misunderstandings and uncertainties concerning OA reflect misunderstandings and uncertainties (which can sometimes become myths that are difficult to shift) surrounding scientific and scholarly publishing norms, practices and processes. For example, that paying to publish is a sign that the journal quality is poor or that the slow process of peer review for established journals reflects a lack of interest in LMIC research, or that requests to revise an article or even of outright rejection are familiar experiences to researchers across the world.

Paying to publish and “predatory journals”

Researchers’ experience of so-called “predatory journals” plays a part in this confusion and uncertainty.¹⁵ They are frequently asked to pay to publish in journals which are of dubious quality, and which are in some cases predatory journals. Articles published within such journals are likely to be subsequently devalued by their peers or by funding panels or other review boards, so while a researcher’s precious output might now be made visible, it is also lost, in terms of credit and credibility. It is a trap in which many researchers have either been caught, or are aware of, as they seek to get published (a criteria for progression and promotion, and in some cases for PhD graduation), which makes them particularly alert to the ‘dangers’ of paying to publish.¹⁶

Since predatory publishers have to some extent taken the methods of legitimate Gold OA publication (APCs) but without the attendant publication quality and peer review processes, paying a legitimate APC – i.e. to a high quality and credible journal – is in some cases confused or conflated with paying a fee as a deliberate attempt to bypass quality checks and review processes. As one participant in our Uganda focus group noted, it can feel quite hit and miss trying to sift legitimate from predatory journals with no clear process to follow. In our Tanzania focus group, it was noted that more senior academics, or those in administrative positions, were often unaware of legitimate publication fees and considered all journals where an APC was paid to be a form of predatory journal.

While possibly an extreme example, one researcher we interviewed noted that her senior colleague had warned her to avoid eLife (established by four leading health research institutions),¹⁷ believing it to be a predatory journal because it required a fee to be paid. A participant in our Bangladesh focus group explained that interview boards do not recognise fully OA journals. There is also the perception in some cases that “freely accessed” journals must, by definition, be inferior, whereas closed journals which have publisher brands and identities behind them must be naturally better.

While seemingly ‘solvable’ this degree of misunderstanding should not be dismissed too lightly. Many myths prove difficult to shift, and speak not only to information asymmetry, but to the research training and mentoring cultures of many institutions which do not inform and protect early career researchers or help to educate senior staff about changes in research and publishing systems.

Participants in our Tanzania focus group noted that some institutions have developed lists of acceptable journals, but that these are hard to keep up to date. India has also created a national journal whitelist of journals that are accepted for promotion (see section 11). Such lists tend to favour journals in Northern databases and underrepresent LMIC titles (as well as credible OA titles) and are often developed partly in response to the phenomenon of predatory journals (see section 11).¹⁸

¹⁵ There is no common definition of predatory journals, but it is typically used to refer to journals which require payment for publication, and often with rapid publication once the fee has been paid, but do not provide the services that an author would typically expect, such as peer reviewing or editing. For a discussion and attempt to define see Grudniewicz et al., ‘Predatory Journals’. See also the “Think. Check. Submit.” initiative for guidance to support researchers to identify trusted journals: <https://thinkchecksubmit.org>

¹⁶ While predatory journals exist, LMIC journals are often unfairly labelled as predatory. While LMIC journals may exhibit weaknesses in the publication process, or less professionalised journal management and communication systems, or simply demonstrate non-conformity to Northern publishing practices, this is very different from deliberately predatory behaviour. See Raju, Nyahodza, and Claassen, ‘Predatory Publishing from the Global South Perspective’.

¹⁷ <https://elifesciences.org/about>

¹⁸ The Sherpa service developed by JISC may be useful for authors and institutions trying to navigate OA publishing options <https://v2.sherpa.ac.uk>

7 Open data

Open data was out of scope of this consultation, and it would require further investigation and consultation with LMIC stakeholders to understand these issues more fully. However, data is a key concern for many researchers, and many LMIC OA and publishing initiatives are concerned with the development of a shared infrastructure for all scientific outputs. It was therefore difficult to separate the openness of data from discussions about the openness of research publications in our discussions with stakeholders, and the views we heard are noted here.

Data sharing

According to a recently published study of researcher attitudes and experiences of OA in the Global South,¹⁹ there is significant support for the idea of data sharing. The consultation appeared to confirm this view: 82% of survey respondents would be comfortable sharing data after publication of the research article, though only 17% would be comfortable doing so before publication.

Stakeholders nevertheless have concerns. During interviews, and in our Bangladesh, Uganda and Tanzania focus groups, questions of intellectual property, confidentiality, the ethical use of data, and the ways in which data are indexed and managed to make them useable were all noted. The misuse of data, and the risk that others would gain credit for findings that are based on shared data were a particular concern, with the worry of data being “stolen” raised in our Tanzania focus group, and with a few specific cases cited. In some cases, supervisors and senior colleagues had reportedly dissuaded junior colleagues from making data available for this reason.

Open data in private sector partnerships

Interviews with representatives from African science councils, particularly, suggested a blurring of OA, open data and open science, with some terms used interchangeably (though this may also be the result of interviews being undertaken during a Science Granting Councils Initiative meeting on open science). African science councils are particularly concerned about openly published data in the context of public-private partnerships. Many are hoping to generate increased investment in science from the domestic private sector but are concerned that the open data agenda will be in tension with commercial practices and will discourage or inhibit these forms of partnerships.

¹⁹ Nobes and Harris, ‘Open Access in Low- and Middle-Income Countries’.

8 Deciding where and how to publish

Stakeholders were clear that as researchers their primary concern is that they can do their work and publish it in the ways that they wish. OA is therefore considered alongside several factors when determining a publishing strategy.

Drivers of publication

When asked about what influenced their publishing decisions, respondents to our first survey cited the accessibility of their work to the research community (93%), followed by the impact of their work on research more broadly (89%), and career progression (84%) as the three most significant factors.

Objectives when considering research and publication	Important or moderately important
Accessibility to other researchers/the research community	100%
Impact on research within your country or beyond	99%
Accessibility to others beyond the research community	98%
Career progression	97%
Impact on policy and/or practice within your country or beyond	96%

Table 1: Respondents who rated objectives important or moderately important when considering research and publication (n=173)

Respondents to our second survey were asked about the key factors that influenced their journal publishing choices, and the types of journals they would choose when seeking to achieve particular aims: visibility, reaching international or national scientific peers, reaching practitioners or policy makers. The cost of publication was the most significant factor (84%), followed by the profile or reach of the journal (79%) and the scientific or social value of results (72%). The time taken from submission to publication was least important – though significant for 47% of respondents.

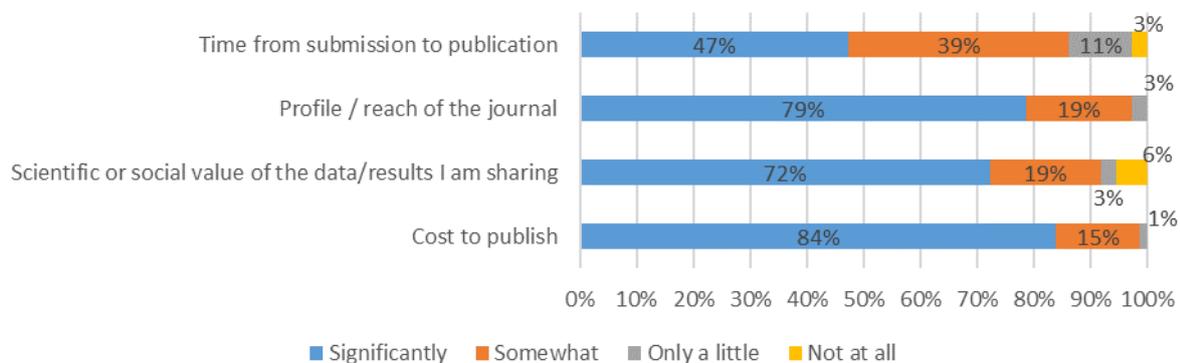


Figure 4: To what extent do the following affect respondents' decisions on where to publish? (n=72)

Prestige and recognition

While all are concerned to ensure their work is visible and available to others, many are also concerned with issues of recognition and prestige. In interviews, participants indicated that journals published in the North are often seen as more prestigious than those published in LMICs or within Africa, Asia or Latin America. They are perceived to be better for individual visibility, and more reliable in terms of quality (i.e. screening of submissions). 57% of respondents to our second survey preferred to publish in a journal based in a Northern journal when they were trying to achieve maximum visibility, 84% when trying to reach their international scientific peers and 82% when they sought international prestige (see Figure 5). For all purposes except maximum visibility, women appear to opt more often for publication in Northern journals than men, but the differences are small, as is the sample.

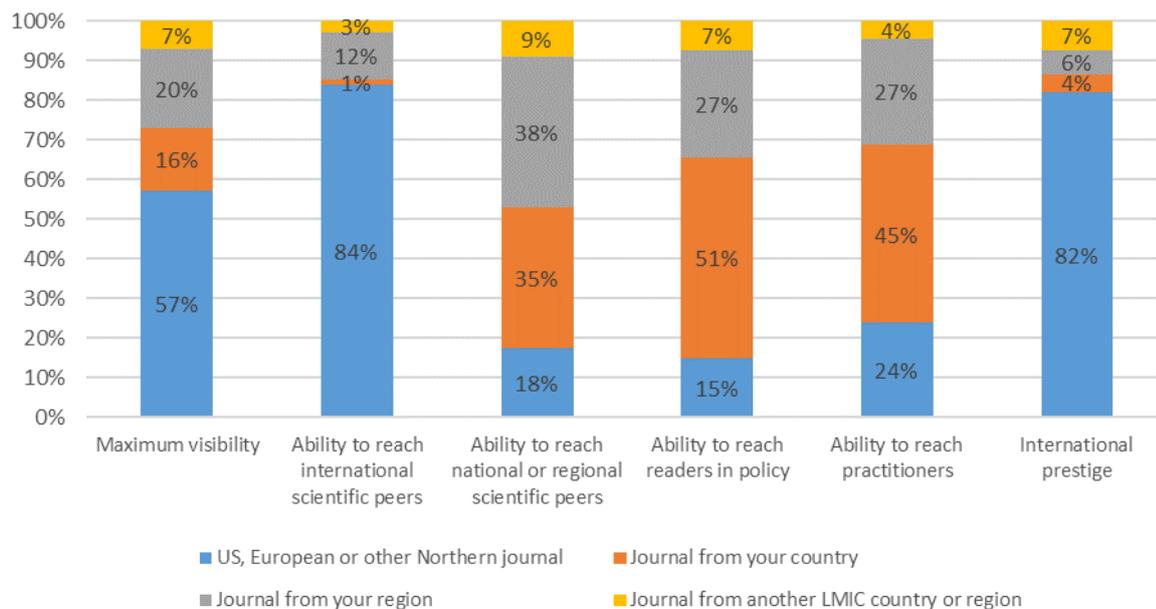


Figure 5: Where would survey respondents prefer to publish to achieve different objectives? (n=71)

For many researchers, publishing in a recognised, “international” journal, which is indexed in one of the major bibliographic databases, and has an Impact Factor,²⁰ is particularly important, and part of “playing the game” of scholarly publishing and scientific recognition. Nevertheless, “high impact journal” and the Impact Factor are not synonymous – the latter is often taken to mean a journal which is widely known and regarded, and can be trusted, rather than as a specific metric based on citations, and one which varies between journals.²¹

Stakeholders talked about the importance of securing publication in prestigious journals because of the systems established by their institutions to structure promotion and progression, or because they recognise its importance to achieve recognition and credibility within their disciplinary and thematic communities. Several interviewees and focus group participants referenced their institutional policies, which give greater weight to so-called international journals in promotion and remuneration criteria. In free text responses to our second survey, direction given by institutional policies and guidelines was cited as a significant factor in choice of publishing venue.

The importance of prestige publication for academic researchers is supported by other studies and is not only an issue for those in LMICs.²² Nevertheless, the difficulties that LMIC researchers encounter in publishing in established Northern journals, and the feeling that they are disadvantaged compared to Northern peers, makes it feel like a higher stakes issue. Nevertheless, there are signs that this may be shifting, with participants in one Bangladesh focus group noting that while there was still a preference for publishing in closed subscription access journals, because of perceived impact and publisher reputations, OA journals are becoming more acceptable.

Publishing in national and regional journals

Stakeholders also emphasised the importance of stronger LMIC journals publishing platforms which have the potential to better meet the needs of their own research communities and their countries more widely. There are clear tensions here. Researchers are juggling multiple concerns and the issues are not clear cut. While keen to see and support stronger local infrastructure, many African stakeholders, including those in our Uganda focus group, also identified a reluctance to publish locally, because of a concern that the article, and the work it is based on, might be less well regarded if they did so.

If more reliable, higher quality and credible options were available to them, which enabled them to publish locally with confidence, it seems likely that LMIC researchers would be keen to make greater use of them – and already choose do so when they want to reach local audiences. 35% of respondents to our second survey preferred to publish in national journals, and 38% in a journal from their region, when they wanted to reach their national or regional scientific peers (compared to 18% who would have

²⁰ See Annex 1: Glossary of terms

²¹ For more on these issues see DORA, ‘San Francisco Declaration on Research Assessment’.

²² Nariani R, Fernandez L: Open Access Publishing: What Authors Want. College & Research Libraries. 2012; 73(2): 182–195. <https://cr.l.acrl.org/index.php/crl/article/view/16219/17665>

chosen a Northern journal for this purpose). 51% preferred national journals when trying to reach readers in policy and practice, compared to 15% who would have chosen a Northern journal (see Figure 5).

At the request of former DFID our second survey included a question specifically related to the African Academy of Sciences (AAS) Open Research platform.²³ 93% of Africa-based respondents expressed interest in publishing here,²⁴ and the free text comments reflected support for an African-based platform:

“Good to have local solutions to our challenges in Africa”

“An open-access platform for African researchers has always been of interest to me because of the poor global visibility of researchers from Africa”

“A great platform it would be for African researchers especially those from developing countries and those not able to meet the publishing costs.”

Recent publication histories

We asked respondents to our second survey to indicate where they had published in the last three years; 34 of 82 respondents provided information meaning our sample is limited. Of the journal articles published, 53% had been in Northern journals published by large commercial publishers, 32% were published in LMIC-based journals (some international in scope, some national and some institutionally based) and 15% were published in other smaller or institutionally based Northern journals. 44% of articles were published in fully OA journals and 41% in hybrid journals.

The data was insufficient to identify patterns in publication charges and waivers. However, a review of the websites of the journals in which these articles were published found that 57% of the hybrid journals (all from major publishers) and 70% of the OA journals (all from small independent or university presses) did not appear to offer fee waivers or discounts.

Respondents also noted 18 monographs or book chapters that they had published. Only two were published with publishers offering an OA model, and only three had been deposited in a repository (though two of these were publisher platforms, and only one an institutional repository).

Licensing

UKRI has suggested a Creative Commons Attribution 2.0 Generic (CC BY 2.0) license in its OA policy review,²⁵ to enable the greater use of research, namely granting full re-use rights, including for commercial purposes. However, UKRI is consulting on this position, and considering some exceptions for which a CC BY-ND (no derivatives) licence would be accepted. Given that UKRI supports innovation it has suggested that a CC BY-NC licence would not be compliant with its proposed policy.

As explained above, stakeholders expressed some concerns with their data and work being made freely available, in case it was taken and used for commercial benefit by third parties or was plagiarised and published by others.²⁶ To explore this further we asked respondents to our second survey which of the license options being considered by the UKRI review they would be comfortable with. 70% would be comfortable with a fully open CC BY (Creative Commons Attribution) license, but 15% would only be comfortable with a CC BY ND (Creative Commons Attribution-NoDerivs) license to prevent modifications of their work. A further 15% would not be comfortable with either license.

²³ For a further discussion of AAS Open Research see section 10 Regional, national and institutional OA infrastructure: African infrastructure

²⁴ A specific question was added to the survey to solicit interest in AAS Open Research at the request of FCDO; the survey did not seek responses related to other LMIC platforms.

²⁵ UK Research and Innovation, ‘UKRI Open Access Review: Consultation [Published: 13 February 2020; Updated: 25 March 2020]’.

²⁶ Plagiarism is a matter of research ethics, rather than of infringement of copyright, i.e. licensing does not prevent plagiarism. See p.20 of Collins, Milloy, and Stone, ‘Guide to Creative Commons for Humanities and Social Science Monograph Authors’.

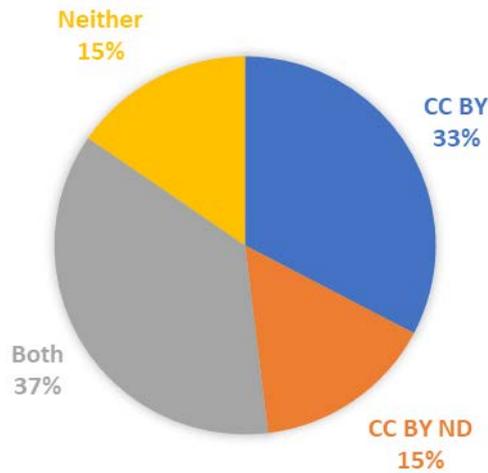


Figure 6: Which licenses respondents would be comfortable with

Licensing and Creative Commons

A concern with licensing in academic publishing stems from a concern that, under the subscription-publishing model, authors were often required to transfer copyright to the publisher, in order that the publisher could sell subscriptions to the journal, and with the original author retaining limited rights to their work.

Creative Commons, a US-based non-profit organisation, has developed a series of public copyright licences, to enable authors and creators a free and standardised way to grant others permission to copy distribute and make use of their work, and to ensure it is properly attributed to its original author or creator.

The use of Creative Commons licenses is increasingly common in academic publishing and are recommended by the Open Access Scholarly Publishers Association (OASPA).

Licenses are composed of four components, each of which is represented by a two-letter code. These are: Attribution (by); ShareAlike (sa); NonCommercial (nc); NoDerivatives (nd). The licenses are modular and are designed to be machine-readable. There are six licenses, based on the four components above. These are:

Attribution (CC BY): This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation.

Attribution ShareAlike (CC BY-SA): This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under the identical terms.

Attribution-NoDerivs (CC BY-ND): This license lets others reuse the work for any purpose, including commercially; however, it cannot be shared with others in adapted form, and credit must be provided to you.

Attribution-NonCommercial (CC BY-NC): This license lets others remix, tweak, and build upon your work non-commercially, and although their new works must also acknowledge you and be non-commercial, they don't have to license their derivative works on the same terms.

Attribution-NonCommercial-ShareAlike (CC BY-NC-SA): This license lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under the identical terms.

Attribution-NonCommercial-NoDerivs (CC BY-NC-ND): This license is the most restrictive of our six main licenses, only allowing others to download your works and share them with others as long as they credit you, but they can't change them in any way or use them commercially.

Definitions taken from: <https://creativecommons.org/use-remix/cc-licenses/>. See also: <https://oaspa.org/best-practices-licensing-attribution-need-to-know/>

Licensing was also discussed during interviews with African science council representatives to understand their position on openness and its implementation. While open licenses were felt to be important, concerns were expressed about the extent to which licensing would grant commercial actors the ability to use data and outputs generated in the continent. It is worth noting that this has often been the case in the pre-OA system, and is still common where a journal does not use an open license: researchers are required to assign copyright to the publisher during submission, which enables the publisher to generate revenue from the publication. Comments were framed by a history of extractive behaviour by Northern actors towards African countries, and by an ambition to secure greater research investment from the domestic private sector, which might be deterred if privately- or commercially-funded research outputs were made freely available. While there is a difference between rights and licensing, it is evident that the issues are a cause for concern.

9 Affordability of publication

While prestige and visibility are critical concerns, respondents to both surveys indicated that the cost of publication has a significant impact on the specific decision of where to publish.

Article processing charges

Many stakeholders, during interviews and focus groups, and through our surveys were concerned that OA publication was often through Gold journals, or other journals charging fees,²⁷ and that Article Processing Charges (APC) fees are frequently unaffordable. A separate study of attitudes and experiences of researchers within LMICs, many of whom were early career, found that 60% of respondents had paid APCs personally, and participants in our Tanzanian focus group referred to paying from their own pockets, because of a lack of institutional funding, and suggesting barriers in accessing funding or waivers.²⁸

In our Uganda focus group one participant had two articles that had been accepted by a journal over a year ago but that were still pending publication because they could not afford the fees. In the same focus group, participants noted that institutions were encouraging them to publish in “free” journals to avoid costs, but that this then limits their publication choices. In Bangladesh, one private university had instituted a \$300 cap for any APC (or conference fee) which limited publication options.

35% of respondents to our first survey felt that it is difficult to build APC or other publication costs into their research proposals, 23% were unsure, 23% were neutral, and only 19% thought it would be easy to do so. None of the African science councils that we interviewed had an APC fund, and there was no indication that this was likely to be instituted. The obligation therefore falls to researchers to build these into grants or to pay the costs in another way.

Separate evidence was shared by the Association of Commonwealth Universities (ACU), drawing on academic salary data available to them, and is reproduced for illustrative purposes below. Although this data was not gathered from interviews or focus groups, it is instructive in showing the relative costs of APCs, whether met from personal or institutional funds.

	APC (USD)	Number of days work needed to earn an APC			
		Australia	Nigeria	South Africa	UK
Mean APC	\$1,666	7 days	3 months 2 days	18 days	13 days
Mean “top journal” APC	\$3,489	15 days	6 months 12 days	1 month 7 days	26 days
Nature Communications	\$5,200	23 days	9 months 17 days	1 months 25 days	1 month 9 days

Table 2: APCs relative to academic salaries (Source: ACU)²⁹

When asked about the management of institutional funding for APCs (e.g. via block grants), 43% of respondents to our first survey felt that it would be easy for their institutions to manage this. 20% were neutral, 24% did not know, and 13% thought it would be difficult. However, in interviews and focus groups, there was only one mention of a specific institutional budget available to pay for APC charges.

In our Tanzania focus group it was reported that some researchers had become so frustrated by the obstacles that APCs present (amongst other challenges they face in conducting and publishing research) that it had discouraged them from pursuing academic research and had led them to pursue consultancy work instead.

It seems likely that researchers who are often already relatively disadvantaged within their institutions – including early career researchers and women researchers in some countries and institutions – would be additionally disadvantaged by the need to meet APCs from their own pockets, but the consultation did not generate strong data on this. However, as we note below in our discussion of APC waivers,

²⁷ Legitimate fee-charging Gold OA journals and fee-charging so-called ‘predatory’ journals are often not easy to distinguish for LMIC stakeholders. This may reflect gaps in training and mentoring for PhDs and early career researchers (e.g. as they learn to navigate the global publishing system), limited awareness of tools to make these assessments, or more limited access to peer networks, locally, regionally or internationally to help them to validate the legitimacy, quality and credibility of publishing outlets.

²⁸ Nobes and Harris, ‘Open Access in Low- and Middle-Income Countries’.

²⁹ The figures provided above for average APCs are designed to be illustrative of relative costs and were calculated by the ACU using openscience.com for the mean APC and University of Cambridge data for the mean top journal APC. Because we do not have access to the raw salary data to recalculate these figures using alternative APC costs, we have left the figures as reported.

women researchers were less likely to have requested, and thus received, a fee waiver when publishing. In addition, while research funding from a country such as the UK might include provision for paying APCs, local research funding does not tend to. This could create a further hierarchy in how research funding from local versus international sources is viewed, and the dissemination and reach of the resulting evidence.

APC waivers

Fee waivers are often seen as ways of mitigating APCs in LMICs. Interview and focus group feedback suggested that waivers are a source of frustration and are not felt to work well. Waivers are reported to be poorly advertised and understood, the process for applying is felt to be confusing and time-consuming and, for many, not worth the effort.

To understand APCs and fee waivers better we asked further questions in our second survey: unfortunately, the number of responses was not high enough to draw firm conclusions.

Respondents had published 167 articles in OA journals and 140 in subscription journals over the past 3 years, an average of 2.8 articles in non-OA journals, and 4.0 articles in OA journals for each author. Of the articles published in OA journals, over half were published under a full fee waiver.

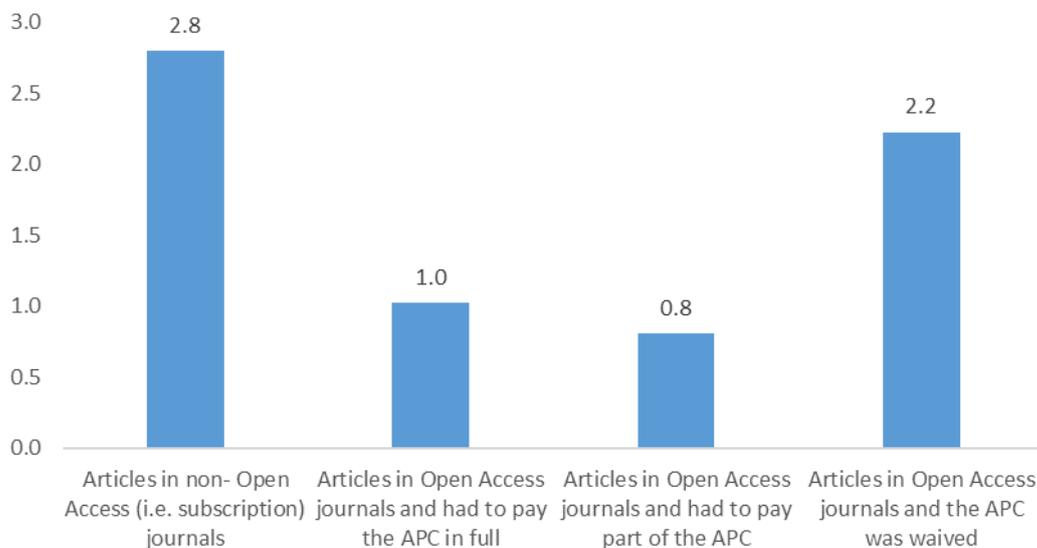


Figure 7: Average number of articles published in the last three years (n=56)

68% of respondents to our second survey had never requested a fee waiver when publishing in an OA journal. Female respondents were significantly less likely to have requested a fee waiver when publishing in an OA journal compared to male respondents (17% compared to 42%), indicating a significant gender barrier. 66% of respondents had never received a waiver (whether solicited or not). 27% had received a full waiver, and 7% a partial waiver. Where a waiver had not been requested, it had only been offered in 13% of cases. The picture is better when those who had requested a waiver are isolated: of these 60% had received a full waiver.

Views on fee waivers are mixed. When asked how they felt about fee waivers, most respondents (73%) responded positively, however, the free text comments suggested this was because it was the only way respondents could imagine affording publication costs, not because they felt the system worked well, or that it was their preferred means of affording publication. When exploring these issues in more depth with our interviewees and focus groups, we heard that there was a feeling of stigma attached to having to apply for a fee waiver, especially if a researcher's co-authors did not need to seek one (as in the context of international collaborations). This was echoed in one Bangladesh focus group where researchers also felt the power to provide or deny a waiver created ethical issues. Some commented that where fee waivers were secured, they were insufficient, offering a partial discount, but with the balance still a prohibitive cost.

10 Regional, national and institutional OA infrastructure

For the purposes of this discussion, we understand infrastructure to include a variety of tools and services to support and enable research to be published, including journal publishing platforms, digital repositories at institutional, national and regional levels, and pre-print servers, and the networked initiatives to connect them together and enable greater interoperability between them. Repositories are typically associated with Green OA, since they enable deposit of a version of an output in parallel to publication in a journal, including subscription journals. Publishing platforms or individual journals which enable outputs to be published without charge are typically associated with Diamond OA.

While Green OA is not a widely recognised concept, repositories are evident across LMICs. There are also good examples of successful Diamond infrastructures, such as academic community-supported platforms, or individual journals. Specific examples that were mentioned by stakeholders or emerged during the consultation are discussed in more detail below. Many stakeholders see value in repositories at institutional level, as well as repositories (or “databases”) or other research publishing platforms at national level.

While some institutions have repositories, and effective examples were noted in a few cases, interview and focus groups indicated that many institutional repositories are poorly used and not well-regarded. However, 60% of respondents to our first survey cited having deposited their work in an organisation’s repository (if not their own) so there are some conflicting views here.

Interviews indicated that deposit by researchers is often irregular, which means they do not fulfil the aim of providing reliable access to research outputs, or they are not well curated so the quality of work within them is variable. While 61% of respondents to our first survey reported that their institutions had a repository, only 33% had an OA policy, suggesting that the mis-alignment between infrastructure and policy at institutional level may be one factor in the poor use of repositories and irregular deposit indicated earlier.³⁰

Researchers may struggle to understand and navigate the provisions for self-deposit – i.e. to comply with publisher embargoes and without reliable institutional or national repositories may opt to do so via commercial platforms such as ResearchGate. 61% of respondents to our first survey were unable to access support and advice from a central office, to support publication decisions, implying that most relied on peer or other sources of advice.

A review of OA in the so-called BRICS (Brazil, Russia, India, China and South Africa) concluded that models developed in these countries could be particularly important for other LMICs rather than models emerging in Europe and North America:

"[BRICS] countries may be better positioned to provide sustainable models for other regions such as the Maghreb, Sub-Saharan Africa or Latin America."³¹

Latin American infrastructure

Latin American research agencies have been significant actors in global OA work, and are notable for having pioneered the development of platforms and infrastructure in the region, and beyond.

Publishing platforms

Brazil established the Scientific Electronic Library Online (SciELO) project and platform in 1997. SciELO provides a publishing system and database of OA journals and related analytics.³² It has 13 country collections³³ containing over 1700 journals, a pre-prints collection and a books collection, and is supported by national and state research councils. SciELO’s platform was later adopted by South Africa (see below). Latindex, a bibliographic system, was established in 1997 and is run from National Autonomous University of Mexico (UNAM) as a network of 14 Latin American countries (plus France, Portugal and Spain). In 2002 researchers at the Universidad Autónoma del Estado de México (UAEM)

³⁰ However, in a 2015 IAI survey of African repositories, 100% of respondents from 17 repositories cited having an Open Access policy (several with embargo accommodation policies). The repositories with licencing policies in place were mainly using Creative Commons and endeavoured to respect national and publisher copyright policies. Mutis and Kitchen, African Digital Research Repositories”.

³¹ Schöpfel, ‘Open Access to Scientific Information in Emerging Countries’.

³² Scientific Electronic Library Online <https://www.scielo.br>

³³ Covering Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Mexico, Paraguay, Peru and Uruguay in Latin America, Spain and Portugal and South Africa. Collections for Venezuela, Ecuador and the West Indies are in development.

founded the Redalyc platform of OA journals,³⁴ which now covers a further 12 Latin American countries (again with Spain and Portugal) with almost 1,400 journals and 673 participating institutions.

In 2018, the work of Redalyc led to the founding of AmeliCA, an initiative to build and sustain a cooperative, open infrastructure for publishing for the region. It is a collaboration between Redalyc, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Latin American Council of Social Sciences (CLACSO), UAEM in Mexico, Universidad de Antioquia in Colombia and the National University of La Plata in Argentina.

Mexico has also introduced a national fund to support researchers to publish, at least part of which goes to support the cost of nationally published journals (supporting editorial and other services) and has a national publishing platform.³⁵

While we were unable to consult extensively in Latin America, much has been written about the Latin American experience with OA.³⁶ Recently, concerns have been raised from several prominent Latin America OA actors about the potential negative impacts of Plan S on a well-established OA ecosystem in the region, that is predominantly non-commercial and does not rely on APCs. López and García³⁷ note:

“Latin America has until recently maintained a distinct non-commercial OA infrastructure where scientific publication is handled by academic institutions. Scholarly communication – the production, publication, distribution, and consumption of research literature – has therefore operated without charges, whether for reading or publishing, and has been financed principally via public funds destined for education and research, mainly through academic institutions.”³⁸

Echoing these concerns, Debat and Babini argue:³⁹

“Plan S has yet to demonstrate that it will also support the advancement of non-commercial open-access initiatives. We call for discussions to commit leading institutions and funders to global publishing that is more community-based and not commercial.”

We note, however, that there are a diversity of models and approaches across the Latin American region, and as we were not able to consult Latin American stakeholders in any great numbers, these offer only a partial picture.

African infrastructure

Interviewees from African science councils noted that OA infrastructure in the region is significantly dependent on institutional platforms.

Repositories

The International African Institute (IAI) lists 188 African Digital Research repositories from 27 countries, noting that there are no known repositories in 25 African countries.⁴⁰ Some work to map and understand the African repository landscape was done as part of the pilot phase of the African Open Science Platform.⁴¹ A group of African Research and Education Networks (NRENs) are also working to establish a framework for sustainable OA repository and journal development in Africa and operate a shared OA repository and a research data management platform, as part of the AfricaConnect3 project.⁴²

There is a notable variation in the existence and potentially quality of repositories between “flagship” or apex institutions and those in provincial areas or rural locations, and the systems of flagship universities (such as the University of Ghana, Legon or the University of Botswana) or national research institutes (such as the CSIR system in Ghana) were often cited as examples of national infrastructure. Participants in our Uganda focus group were drawn from predominantly rural universities, and most did

³⁴ Red de Revistas Científicas de América Latina y El Caribe, España y Portugal (Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal) <https://www.redalyc.org>

³⁵ <https://www.repositorionacionalcti.mx>

³⁶ Poynder, ‘Open and Shut?’; López and García, ‘Latin America’s Longstanding Open Access Ecosystem Could Be Undermined by Proposals from the Global North’.

³⁷ López and García, ‘Latin America’s Longstanding Open Access Ecosystem Could Be Undermined by Proposals from the Global North’.

³⁸ Although the platforms are non-profit, it was noted that university and other academic publishers may hire the services of small companies to support the process, including XML mark-up, copy-editing, translation, etc. Some Latin American journals also operate with APCs. See: Vilchis, Santillán-Aldana, and Yupari, ‘Outsourced Services’; Appel et al., ‘The Adoption of Article Processing Charges as a Business Model by Brazilian Open Access Journals’.

³⁹ Debat and Babini, ‘Plan S’.

⁴⁰ Mutiis and Kitchen, ‘African Digital Research Repositories’.

⁴¹ <http://africanopenscience.org.za>

⁴² <https://spaces.wacren.net/display/LIBSENSE/LIBSENSE+in+AfricaConnect3>

not have institutional repositories, and could not identify a national system to provide such a service – and felt such a platform for research was needed, and that there needed to be a national-level effort to support institutionally published journals.

Publishing platforms

In terms of journal publishing, notable initiatives in Africa include the South African SciELO database, African Journals Online (AJOL) and Ethiopian Journals Online. SciELO SA was established in 2009, and part of the Brazilian SciELO initiative (see above). It hosts 81 South African journals and is funded by the national government and managed by the Academy of Science of South Africa (ASSAf). AJOL is a non-profit publishing platform for African journals established in 1998, which currently hosts over 500 African-published journals, around half of which are OA, The journals themselves are sustained by the institutions and professional bodies which publish them, with AJOL's work supported primarily by grant funding. In Ethiopia, Addis Ababa University hosts the Ethiopian Journals Online platform, with 27 OA journals listed.⁴³

Within South Africa there is notable support amongst the research community for a Diamond OA journal publishing system. As one paper notes:⁴⁴

“Diamond open access is being embraced by a number of higher education institutions in South Africa. Currently, there are six South African higher education libraries that are offering, in some way or another, a “library as publisher” service. These academic libraries have published almost 40 open access journals.”

In recent years a variety of initiatives have emerged to provide alternatives to African researchers, including an African pre-print server, AfricArxiv, which enables researchers to post a range of different outputs (from pre-prints to accepted manuscripts, working papers and presentations) to increase access to African research.⁴⁵ The African Academy of Sciences has also developed AAS Open Research,⁴⁶ an OA publishing platform which publishes the work of AAS Fellows or grantees. Research articles, studies, reviews and other outputs are published before review, to enable rapid access to new research, with a process of open, invited peer review following. It uses an APC-based model, with the AAS currently paying the APC for its supported researchers. AAS funding is secured significantly from international funders so the affordability of the model under African continental or domestic funding is therefore unknown and opening it up to other researchers would require APCs to be met from other sources.

Interviewees from African science councils suggest that their organisations need to play a stronger role to coordinate this infrastructure in future. The African Science Granting Councils' Initiative (SCGI) recently commissioned a paper on the Open Science paradigm,⁴⁷ its significance for Africa, and possible roles for the Councils in promoting its development. The paper recommended that acting as a collective, councils could achieve efficiencies of scale, stimulate virtual critical masses, intra-African collaboration and enhanced impact and should consider the timely creation of an African Open Science Area. Within the second phase of the SGCI initiative, there is a pillar dedicated to open science.

Asian infrastructure

In Asia, India has infrastructure in the form of institutional repositories and an active community pushing for OA policy, including, recently, the Delhi Declaration (2018).⁴⁸ This offers an Indian vision for South-South learning on OA and for systems that come from the Global South:

“The Declaration also envisages a developmental framework for the South-South cooperation in promoting OA and country-specific OA action plans where the OA ideas need a faster implementation framework. The under-represented stakeholders in OA ecosystem also need to be accommodated for the creation of a greater public good.”

A need for stronger institutional and national level infrastructure was emphasised by participants in our Bangladesh focus group. A difference was noted between private universities, many of which had repositories and the staff and technology to maintain them, and public universities, which did not.

⁴³ <http://ejol.aau.edu.et>

⁴⁴ Raju, 'From Green to Gold to Diamond'.

⁴⁵ <https://info.africarxiv.org>

⁴⁶ <https://aasopenresearch.org/>

⁴⁷ Boulton et al., 'Open Science for Research and Innovation for Development in Sub-Saharan Africa: A Report for the Science Granting Councils' Initiative'.

⁴⁸ Das, 'Delhi Declaration on Open Access 2018'.

Journal publishing

Several national journal platforms exist in Asia, such as Bangladesh Journals Online (BanglaJOL),⁴⁹ which hosts 143 Bangladeshi journals, Sri Lanka Journals Online (SLJOL)⁵⁰ which hosts 87, and Nepal Journals Online (NepJOL)⁵¹ which hosts 176 journals.⁵² These initiatives have done much to increase the visibility of locally-produced research, although as participants in our Bangladesh focus group noted, there are quality issues with some journals, and some do not publish regularly.⁵³ Journals within the Journals Online network often take a diamond approach to OA or have low APCs.⁵⁴ In India around half of OA journals do not have APCs. India hopes that its approaches will become a model for other LMICs,⁵⁵ and the recent collaboration between Open Access India and AmeliCA show the wider influence of the Latin American OA model.⁵⁶

Technical standards and interoperability

For LMIC journals, emerging OA standards require editors to navigate relatively complex licensing and copyright issues with which many are unfamiliar, or in some cases unaware of, and journals may lack the technical requirements for indexing. In 2019, UNESCO announced the launch of the Global Alliance of Open Access Scholarly Communication Platforms (GLOALL),⁵⁷ bringing together the coordinators of six platforms in a North-South alliance: AmeliCA, African Journals Online (AJOL), Érudit, J-STAGE, OpenEdition, and SciELO, with the aim “to democratize scientific knowledge following a multicultural, multi-thematic and multi-lingual approach”. The initiative offers the potential for platforms to work together to create a non-profit OA future, and to share technology and experience.⁵⁸ A form of CC BY license might be necessary in order to support the translation of outputs into additional languages, including through AI and machine-learning technologies.

However, interviews with platform managers suggested that other less well-resourced repositories and platforms may struggle to meet some of the technical requirements that are currently proposed by UKRI. Standards for repositories and platforms are often not maintained because the software being used is old and requires funding and technical expertise to upgrade it to the latest versions, and to ensure rolling updates.

Requirement	Reason
May be difficult to achieve	
Machine-readable information on the OA status and the licence must be embedded in the article in a standard non-proprietary format	Technically easy to achieve if using Open Journal System (OJS) ⁵⁹ , but education needed for editors, authors and managers of the sites
Long-term preservation should be supported via a robust preservation programme such as CLOCKSS ⁶⁰	Costly and requires acceptance of the platform or journal by CLOCKSS. When Public Knowledge Project (PKP) implements their Private LOCKSS Network, this will become much easier for independent journals and smaller platforms

⁴⁹ <https://www.banglajol.info>

⁵⁰ <https://www.sljol.info>

⁵¹ <https://www.nepjol.info>

⁵² These platforms have all been supported by INASP, through prior FCDO and Sida-funded research capacity programmes.

⁵³ INASP and AJOL have collaborated to develop the Journal Publishing Practices and Standards Framework (<https://www.journalquality.info>), and are working with editors and managers of the Journals Online Platforms to support them to strengthen publishing quality. Each title now bears a “quality badge” to indicate that its publishing processes have been assessed and rated.

⁵⁴ Irfanullah, ‘What Does Bangladesh Tell Us About Research Communication?’

⁵⁵ Das, ‘Delhi Declaration on Open Access 2018’.

⁵⁶ AmeliCA Conocimiento Abierto (@Ameli_CA), ‘High-Quality #OpenAccess Scientific Production from India Will Be Visible in Redalyc and AmeliCA. Starting It up with Journal of Horticultural Sciences Edited by Society for Promotion of Horticulture (SPH).’, 15 October 2019.

⁵⁷ ‘Launch of the Global Alliance of Open Access Scholarly Communication Platforms to Democratize Knowledge’. UNESCO, 12 April 2019. <https://en.unesco.org/news/launch-global-alliance-open-access-scholarly-communication-platforms-democratize-knowledge>.

⁵⁸ Poynder, ‘Open and Shut?’

⁵⁹ The Open Journal System (OJS) software is developed and maintained by the Public Knowledge Project. OJS is the most widely used open source journal publishing platform used by 10,000 journals globally <https://pkp.sfu.ca/ojs/>

⁶⁰ <https://clockss.org>

Openly accessible data on citations must be made available according to the standards set out by the Initiative for Open Citations	Requires journals/platform to be members of CrossRef and to deposit all references. Time consuming and technically challenging for small scholar led journals
Intermediate difficulty to achieve	
Persistent digital object identifiers for research outputs must be implemented. International standards such as DOI	Financially prohibitive because of deposit fees unless a waiver is granted
Article-level metadata must be used according to a defined standard that supports the proposed UKRI OA policy and is available via a CC0 public domain dedication. The metadata standard must adhere to international best practice such as the OpenAIRE ⁶¹ guidelines	More challenging to keep up with the international requirements and upgrades to software
Self-archiving policies must be registered in the Sherpa Romeo database ⁶²	Lengthy application required to Sherpa Romeo and then evaluation required. Many smaller journals are not aware of the service
Must be registered in the Directory of Open Access Journals (DOAJ) ⁶³ or be in the process of being registered there	Lengthy and confusing application form and some technical requirements which smaller journals find difficult to achieve unless they are on a platform like OJS. Mentoring and education required
Article-level metadata must be implemented according to a defined standard that supports the proposed UKRI OA policy and is available via a CC0 public domain dedication. This should include the persistent identifier to both the author's accepted manuscript and the version of record. The metadata standard must adhere to international best practice such as the OpenAIRE guidelines.	More challenging to keep up with the international requirements and upgrades to software

Table 3: Likely level of difficulty for selected LMIC platforms to meet proposed UKRI technical standards

For a more detailed analysis of selected LMIC platforms see Annex 2: Standards and requirements for journals and publishing platforms.

As participants in our Uganda focus group noted, it is not only an issue of technical infrastructure or the creation of repositories to store research. Systems of support, such as editors and reviewers, are needed to improve the quality of journals, and to support researchers to improve the quality of their work.

⁶¹ <https://guidelines.openaire.eu/en/latest/>

⁶² <http://sherpa.ac.uk/romeo/>

⁶³ <https://doaj.org>

11 OA policy and agenda setting in LMICs

National and institutional OA policies

Worldwide, policies and approaches to OA are often interlinked with and driven by national policy and by funding. Awareness of OA initiatives and policies among researchers remains low across the globe.⁶⁴

The literature review found little evidence of organisational OA approaches and policies⁶⁵ within LMIC universities and other research institutions. There was some mention of institutional repositories, but we did not find significant literature reporting on organisational approaches to managing OA payments, waiver negotiations or the logistics of Gold OA in the Global South.

Inevitably policy implies different concerns for different stakeholder groups. During our interviews and focus groups researchers referred on several occasions that there was a need for policy to guide them and their institutions, to address the current problems they encounter in navigating a publishing landscape, beset with uncertainty, misinformation and risk. There was, for example, a strong emphasis on the need for national level policy development during our Bangladesh focus groups, to encourage adoption of OA systems, to encourage deposit of research papers in repositories, and to shift behaviour. Nevertheless, the complexity of the system, with several ministries and agencies responsible for research and for higher education, was noted to be a challenge.

Policy and operational managers within national research agencies tend to think of policy as a means of setting a national direction for research, in order to assert greater control over the system and to secure greater return from the investment they make in research, and as a way of guiding or shifting researcher behaviour. This seems intended to address concerns that a lack of clear policy creates a vacuum and as a result research and publishing behaviours respond more to external forces and agendas than to national priorities and needs. Stakeholders within African science councils nevertheless recognise a need to bring researchers with them through consultative processes, and several such processes have been established or are planned. These may be lengthy processes: a Namibian respondent noted that it had taken five years to get to the point where the need for a national position and a consultation to enable this were recognised.

At institutional level, 51% of respondents to our first survey do not have an OA policy in place. 33% have a dedicated OA policy in place and 34% have a research policy which mentions OA in some way. When asked what would improve understanding of OA in their institution, a better OA policy environment, at either national or institutional level, was a common theme.

Where policy does exist, interviews suggested that awareness of existing policy provisions is low for many stakeholders. This suggests that the impact of current policy is not strongly felt. Our interviewees and focus group participants suggested that policy is often incoherent, unaligned or weakly enforced, and researchers feel that they and their institutions lack the means to comply with or enforce it.

Interviews with African science councils demonstrated that many are trying to develop a cohesive picture of the research that is being produced by researchers within their country – and some are concerned to also capture the outputs of diaspora researchers. There are significant concerns in some countries that nationally produced information and data (broadly understood) has been or is being lost, and a strong association made by African science councils between national development ambitions and OA, by enhancing the potential of research to contribute to national development plans. This is, in turn, related to approaches that many have had from commercial publishers who increasingly want to sell them not only content (journals) but analytics and data on their research systems. In some cases, this is understood as a deliberate shift away from “science for the sake of science” to a more development-aligned research agenda (or a return to earlier developmental science agendas). It was noted in several interviews that publication is a poor metric for the developmental contribution of research.

Perhaps inevitably, given the ways in which interviews with African science councils officials were framed by the discussions at the Science Granting Councils Initiative meeting, and by existing discussions about an African Open Science Platform, there were evident interests in some degree of regional collaboration. Within Southern Africa, many countries look to the regional inter-governmental agency, the Southern African Development Community (SADC) for benchmarking and cooperation in

⁶⁴ Anna et al., ‘Taylor & Francis Researcher Survey 2019’.

⁶⁵ By organisational approaches and policies, we mean the approaches and policies adopted at an organisational level, for example to coordinate distribution of any funding available to support OA and common rules or procedures for depositing publications into repositories.

these issues, and particularly to South Africa and the National Research Foundation which is seen as having advanced further than most national agencies.

In Asia, the Delhi Declaration is notable in its broad alignment with Global North OA approaches but differs in some parts, for example by calling for a national journal whitelist (a list of journals deemed “safe” to publish in or trust research from). While apparently expressing support to Plan S, India has recently clarified its position and explicitly withdrawn its support to focus on national efforts to support scholarly publishing with the principal scientific adviser to the Government of India, reportedly stating that:⁶⁶

“Directions will be entirely determined by the interests of Indian academia and of India, for which our understanding of and collaboration internationally with groups such as Plan S is important.”

It is notable that, despite strong high-level support within India, there is currently quite a low uptake of OA by researchers. This is attributed to lack of incentives; whilst there are some OA policies in place, OA is not mandated or properly rewarded.⁶⁷

In Bangladesh there are strong champions of OA, including Open Access Bangladesh.⁶⁸ However, as in India, while there is a desire for a government policy, many researchers are not convinced by it.⁶⁹ Approaches to promotion align with the current model and there is little incentive to change.

Participation at the SGCI annual forum in Dar es Salaam allowed us to gather more detailed information about policy responses in Africa

Ethiopia has a notably progressive policy agenda around OA, explicitly learning from South Africa’s model, including the establishment of a national journal evaluation system, with strong commitment to improve both the network of Institutional Repositories and OA journals. In June 2019 the government published a new national OA policy for higher education.

Zambia is notable for being the only African science council (and one of few non-Northern councils) to have endorsed Plan S. The intention in Zambia seems to be to set the vision and use this to trigger movement in the policy framework, and in parallel to work out how to manage the process. It is driven by a strong concern that research begins as a public affair (i.e. it is publicly funded) and then becomes “locked away” during the process. There is a Zambian Information Centre, a plan called Smart Zambia, and an intention to develop a Zambia Open Science Framework.

Botswana has an open data/open science committee which aims to create a conversation around this in the country, as a precursor to policy development.

Uganda does not currently have a policy, but there is a process to develop a national research agenda, within which OA discussions are located, and to which UNCST is responding.

Namibia has recently embarked on a consultation with stakeholders (research institutions, research directorates in government ministries and stakeholders in the informal sector such as entrepreneurs and innovators) to help make recommendations for an Open Science policy (of which OA would be a component) with an appropriate framework and process.

Kenya is in the process of developing a new STI policy. There is emphasis in the draft policy on the need to embrace open science.

Francophone science councils (**Burkinso Faso, Cote d’Ivoire, Senegal**) cited a lack of demand for national OA policies, because governments do not currently see the impact of OA on economic development. There is also a sense that opening-up data/research creates a vulnerability to extraction, with other countries taking information out of Africa.

Influence of funder policy on LMICs

In order to understand the extent to which international and funder policy was felt to be a factor influencing researchers we asked stakeholders about their experiences of collaboration, and of accessing UK and other international funding. 50% of respondents to our first survey have received funding from outside of their country, and 31% from a UK funder, while 71% had collaborated with someone outside of their country and 38% with a peer in the UK.

While 83% of survey respondents indicated that OA related policy at their institution was influenced by funders to some extent (33% strongly so), international funder policy is one of many factors to which LMIC researchers and institutions respond. For some it is direct (for example, if they receive UK funding) but for many it is not and is not accorded significant importance as a result. Others feel that

⁶⁶ Mukunth, ‘India Will Skip Plan S, Focus on National Efforts in Science Publishing’.

⁶⁷ Gutam, ‘Open Access in India and Way Forward for South Asia’.

⁶⁸ <http://www.openaccessbd.org>

⁶⁹ Islam, ‘Open Access Bangladesh’.

there is limited or no room to negotiate, and instead expect to simply comply in return for funding. The impact of funder policy is therefore likely to vary, and perceptions vary, according to the extent to which stakeholders were aware of funder policy and were in receipt of international research funding. It is also possible that researchers are unaware of the extent to which international funder policy influences their national science agencies, or institutional policy. Our understanding of this issue is therefore relatively limited.

12 Summary of evidence

- The principles of openness and the potential impact of OA are viewed positively. Stakeholders generally believe they will benefit from OA. They cite the greater availability of global research, the barriers that paywalls create and the advantages of these being removed, including the potential to avoid duplication in research, the potential to increase the visibility of their work, to share ideas and data and to enhance replication and research integrity, and to participate more fully in global research endeavours.
- There is nevertheless significant confusion and uncertainty surrounding OA: what it entails, the different approaches and models of OA, and the mechanisms through which it is achieved. Misinformation abounds. When individuals talk of OA, they often conflate issues related to openness of research with issues related to broader research processes, and the obstacles they encounter when trying to get their work published.
- The terms and ideas of Gold, Green and Diamond OA are not well recognised, nor are concepts such as hybrid journals. In part this is related to confusion about the research publishing process itself, and particularly with respect to research norms set in the North. Researchers' experience of so-called "predatory journals" also plays a part in this confusion and uncertainty.
- It is difficult to separate discussions of OA from discussions of open data, and increasingly of open science practice.
- Researchers' primary concern is that they can do their work and publish it in the ways that they wish. While all are concerned to ensure their work is visible and available to others, many are concerned with issues of recognition and prestige, whether as a result of their own priorities, or those set by their institutions or disciplinary communities. For many, publishing in a recognised, "international" journal, indexed in accepted databases and with an Impact Factor, is particularly important, and part of "playing the game" of scholarly publishing and scientific recognition. At the same time there is a wish to see stronger LMIC outlets and platforms which better meet the needs of their countries and regions.
- While prestige and visibility are critical concerns, the cost of publication has a significant impact on the specific decision of where to publish. APCs are frequently noted to be unaffordable. Many researchers are not able to call on a research grant to pay for these and researchers often pay from their own pockets, sometimes sharing the cost between co-authors.
- For the most part, researchers are focused on journal publication. Books and monographs did not feature prominently in discussions, although this may reflect the balance of disciplines covered.
- Broadly speaking, infrastructures for "Green" and "Diamond" are less well developed at national or institutional levels in Africa and Asia, relative to Latin America. In some cases, there are limited procedures to ensure that only high quality outputs are deposited within repositories, which can undermine their perceived value, and their reliability is further limited by more fundamental issues of internet connectivity, ICT systems and funding. Although there are strong examples of community-supported journals in LMICs, these are sometimes overlooked by respondents who focus on examples of weaker outlets when discussing journal publishing.
- Latin America has developed strong "Green" and "Diamond" publishing infrastructures, much of it under the management of academic institutions and with a community governance model, and with the technical infrastructure often locally developed. Several countries in Africa and Asia are looking towards these models as they consider their own options.
- There is general agreement that policy is needed to extend the reach and benefits of OA, and that it is needed at national and institutional levels. However, awareness of existing policy provisions is low for many stakeholders. There appear to be significant policy gaps for OA at institutional level, and limited policy development at national level.

13 Conclusions

The evidence we have been able to gather from consultation with stakeholders, and from our limited review of the literature leads us to draw the following conclusions:

OA agendas and policy

- Agendas relating to OA and open science are shifting, within LMICs and globally. There is convergence in the ambitions of LMIC stakeholders, international funders, and publishers to increase access to global research and strengthen science, but divergence in the ways they each seek to achieve this. LMIC stakeholders are often pushed towards the pursuit of models or systems determined in the North.
- National and regional science councils and research agencies have an important role to play in helping their governments to create the appropriate policy and regulatory tools and to invest national resources to enable their growth, enabling the research institutions and universities which make up the system to navigate them, and ultimately to ensure that their citizens benefit from global and local science.
- While Plan S is just one approach to OA, and should not be taken as a global standard, it is evident that LMIC countries and regions have not been significantly engaged by cOAlition S in its development to date, despite having developed systems which incorporate some of its provisions.⁷⁰
- OA increasingly needs to be considered within the context of open science, particularly where infrastructure and systems for sharing and using data are growing in importance.

LMIC research and publishing infrastructure

- Researchers typically want to publish nationally and regionally (as well as internationally) but hesitate to do so because of concerns about the quality and credibility of journals and platforms, and the impact this has on their recognition, nationally and globally.
- LMIC-led and managed journals and other publishing platforms – many of which follow a Diamond model – are critical parts of national and regional research communities but in Africa and Asia do not always meet the technical publishing standards mandated by funders, or demonstrate the quality of the publishing process, to be credible outlets for researchers who wish their work to be visible and valued globally.
- Existing collaborations indicate the potential to develop a “connected infrastructure” across countries, or within regions.⁷¹ This could be on a cooperative, decentralised and distributed basis, harnessing the skills, financial resources, technical capacities and hardware of a network of research organisations across countries or regions.⁷² As well as technical support, this may require support to governance arrangements, to ensure that local structures and initiatives can be sustained and prosper alongside well-resourced Northern platforms.
- The availability of sophisticated open source platforms and systems, the ability for developers to make use of the interoperability between them, and the increasing strength of National Research and Education Networks (NRENs) as providers of national-level academic ICT infrastructure and services, means that it is increasingly possible for technically sophisticated platforms to be developed in and by LMICs at relatively low cost.
- Supporting systems in LMICs also requires support to strengthen local skills, to provide the necessary editorial, peer review, platform management and technical development. There is thus a “human infrastructure” as well as technological infrastructure. This requires investment not simply in researchers and research, but also in the professionals who support this process.
- Efforts are needed to progressively shift perceptions of OA publishing, and of LMIC journals and platforms, targeted particularly at decision makers and gatekeepers in the LMIC research community, such as university managers and deans. Efforts are also needed to shift perceptions of LMIC journals and platforms in the North, such that these outlets and platforms

⁷⁰ Debat and Babini, ‘Plan S’.

⁷¹ The Africa Open Science Platform strategy proposes a “Federated hardware, communications software infrastructure, and a suite of policies and enabling practices”. Participants of African Open Science Platform Stakeholder Workshop et al., ‘The Future of Science and Science of the Future’.

⁷² Within a country, universities and research institutions may host their own repositories which are aggregated at a national level, and journals published by different organisations or professional bodies may share publishing platforms.

are more widely accepted and respected, and thus the research within them is judged on its own merits.

Cost of publishing in Northern journals

- At present LMIC researchers and research institutions face a dual barrier: their access to research papers is limited, where subscription costs are unaffordable,⁷³ and they struggle to afford the costs of APCs to publish in Gold or hybrid OA journals.
- A primary concern must be to remove cost barriers for individual users. While systems to pay APCs from collective funds (at institutional level, or direct from funders) do this in principle, they do not serve all users and also require systems to allocate and manage them.
- Northern-published journals, which have recognised identities as journals, or are part of recognised publisher brands, are still important for LMIC researchers because they help them to reach peers internationally, and because they carry specific prestige. While it is not inevitable that this must continue, it represents an important concern for LMIC researchers for the foreseeable future.
- Fee waivers can only ever be a short-term solution for LMICs, acting as a temporary fix to enable LMIC researchers to access Northern driven publishing systems, which do not work for LMIC research economies.
- It is worth noting that many LMIC researchers cannot imagine an alternative to subscription journals, or to the operating models of Northern publishers, but that this should not be taken as an endorsement by LMIC stakeholders of these models which are questioned by explicitly and implicitly.
- Making publishing affordable is likely to require a combination of a more rapid transition towards free readership in LMICs, a more accessible and comprehensive system to provide APC funding grants, either to individual researchers, or through support to national research agencies, and fee waivers offered by publishers who agree to absorb the costs of LMIC publishing.
- An alternative to off-setting APC costs would be to invest funding in the development of non-profit publishing platforms that support these activities on national or regional levels. That might feasibly be done by supporting membership models, either directly, or by allowing these costs in research grants.

Metrics

- Many of the challenges that LMIC researchers note are related to the need to navigate the global research and publishing system, and to achieve visibility, recognition, and credibility within it. These challenges are not unique to LMIC stakeholders, but they are at, and feel, at a disadvantage relative to their Northern peers. The ways in which research is evaluated, at various stages during the pre-award, research publication, and post-award evaluation process significantly shape perceptions, researcher behaviour, and research cultures.
- While research metrics may be beyond the specific remit of OA policy, and need to be considered as part of wider system-level initiatives, it is clear that efforts to increase the positive impact of OA policy and practices are closely related to on-going work to establish more appropriate metrics for research and publishing. Researchers in LMICs are significantly disadvantaged by the currently prevailing metrics in global research.⁷⁴

Licensing

- Licensing is an integral part of OA publishing, but is also complex and technical, often misunderstood globally. Many LMIC stakeholders are also unfamiliar with the terms and provisions of the licenses proposed, and the question of *whether to publish OA* conflated with *how to do this*, such that OA is also confused with IP and copyright. LMIC stakeholders are, nevertheless, wary of their existing disadvantage – actual and perceived – being amplified or increased by the use of open licenses. A history of the expropriation of indigenous and ‘local’

⁷³ Philanthropic initiatives such as Research4Life do not provide universal access, and introduce additional barriers such as passwords and authentication

⁷⁴ A more detailed discussion of these issues is beyond the scope of this report, but see: Kraemer-Mbula et al., Transforming Research Excellence.

knowledge by Northern science from the colonial period onwards means that questions around openness and licensing are more complex than is often recognised.⁷⁵ As is the case in the North, efforts will be needed to build understanding and confidence amongst LMIC research communities in the advantages offered by open licenses, and the protections that they afford for intellectual property, if they are to be widely accepted.

13.1 Existing and emerging policy directions and Plan S

The recommendations made by cOAlition S, through the Plan S initiative, are part of the evidence that UK funders are considering. We note that Plan S is still evolving, and below we identify where we believe that the evidence gathered from the consultation suggests that adoption of Plan S would support or impede LMIC stakeholders.

Alignment

- Plan S is neutral about the publishing platforms through which outputs are published and accommodates the Green (i.e. repository) route to OA, provided that platforms meet the basic technical standards and requirements. In theory this means that researchers are free to publish through LMIC platforms.
- Plan S encourages funders to support the development of appropriate OA platforms where these do not yet exist.

Possible tension

- For many LMIC researchers who are unable to pay APCs and still seek a prestige publishing outlet, a hybrid journal behind a paywall is their only option. Plan S makes provision for authors to publish in hybrid journals where they have a self-archiving policy which would enable the author to make their publication OA. However, self-archiving would depend on access to Plan-S compliant repository infrastructure to be available to them.
- cOAlition S endorses transformative arrangements as a strategy for publishers to transition to full and immediate OA, whereby publishers offset subscription income from payments for publishing services to avoid double payments. cOAlition S are also exploring with OA publishers the idea of linking the APC to the purchasing power parity (PPP)⁷⁶ of the country. Given the lack of evidence for management of OA costs within LMICs, it is unclear how transformative arrangements could work for LMICs. This could be further complicated by read and publish waivers offered by publishers.
- Plan S requires that OA journals and platforms provide APC waivers for authors from low-income economies and discounts for authors from lower middle-income economies. The evidence from this consultation suggests that there are some uncertainties with the APC waiver approach and tensions to resolve.

Misalignment

- The criteria and requirements proposed by Plan S would make it difficult for many LMIC journals and platforms to be compliant in the short term, without additional support and investment.

⁷⁵ For a discussion of some of these issues see: Hall and Tandon, 'Decolonization of Knowledge, Epistemicide, Participatory Research and Higher Education'. For a discussion of openness in relation to indigenous knowledge in Australia and the US see Christen, 'Does Information Really Want to Be Free?'; Christen, 'Tribal Archives, Traditional Knowledge, and Local Contexts'.

⁷⁶ See https://en.wikipedia.org/wiki/Purchasing_power_parity

14 Principles and building blocks for OA policy and supporting actions

The availability and access to research results in LMICs, and the ability of LMIC researchers to communicate their own findings more effectively within international scientific and development communities presents a number of challenges, but there are also many opportunities for LMICs to do things differently, and for UK and other funders to support them in the process.

From the evidence we have gathered, we have identified a series of principles which we believe any new policy would need to satisfy to meet the needs of LMIC stakeholders. From these we have suggested a series of building blocks which describe different choices and paths which could be followed, to achieve an improved OA environment. While the recommendations in this review are intended to inform UK funders and policy processes, and these principles and building blocks were developed as part of this process, they may be of broader relevance.

There will be tensions to resolve between these principles and building blocks, and they are not mutually exclusive options. Framed by these principles and building blocks, section 7 outlines a set of longer term policy recommendations, short term policy options, and a set of supporting actions, which would enable funders to support a positive evolution of the OA research and publishing system, such that it better enables and does not disadvantage, LMIC stakeholders.

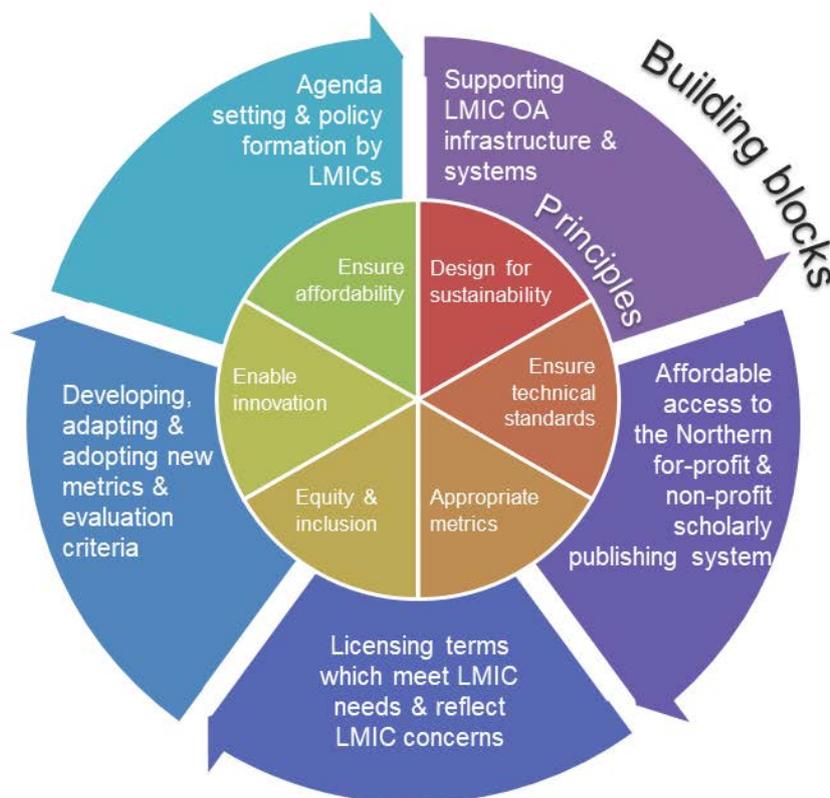


Figure 8: Principles and building blocks of an OA environment which would respond to LMIC needs and priorities

14.1 Principles

1. **Ensure affordability:** The costs of acquiring access to the infrastructure, platforms and tools needed to support OA publishing, where these are provided by commercial or non-profit organisations should be affordable to LMICs through the resources and investment available to them from public funding. Where LMICs develop their own approaches, at a national or regional level, it should be possible to meet international standards, and to evolve to meet new standards, within resources available to them.
2. **Design for sustainability:** The cost of maintaining and evolving nationally-run OA infrastructure, platforms or tools, or of acquiring continued access to infrastructure, platforms and tools provided by external commercial or non-profit organisations should be sustainable within the resources available to LMICs. Annual or multi-year cost increases should be incremental, affordable and predicible. Where LMICs develop their own national infrastructure, platforms and tools, the cost of compliance with international standards (through future

developer costs) should be recognised, and new standards applied over an appropriate timeframe.

3. **Ensure technical standards:** OA infrastructure, platforms and tools, whether locally developed or acquired from external commercial or non-profit providers, should be technically sophisticated enough to meet internationally recognised standards, and to allow interoperability wherever possible.
4. **Appropriate metrics:** Research metrics and research evaluation mechanisms should be chosen and applied in such a way as to identify the quality and relevance of the underlying research rather than the outlet in which research is published. Metrics which measure a journal should not be applied to individual articles or to researchers.
5. **Equity and inclusion:** Access to the necessary OA infrastructure, platforms and tools, should be founded on and enable equitable partnerships between LMIC researchers and their local and international peers. LMIC researchers should be afforded access to OA publishing independently, not only through better-funded Northern peers, and be able to do so without any perception of stigma.
6. **Enable innovation:** Where funders and other external actors are involved in shaping global OA research and publishing ecosystems, they should enable innovation within these ecosystems, such that new models are able to emerge and incumbent business models are not unfairly protected. Any direct interventions in publishing markets or systems should recognise the potential for unintended distortions to those systems, and consider the future cost and sustainability of tools and services for LMICs.

14.2 Building blocks

1. **Agenda setting and policy formulation by LMICs:** The role that science ministries, national science councils and research agencies within LMICs must play in formulating OA and related research policy and systems, and in supporting the development of the national research environment, is recognised and a continuing conversation is facilitated between Northern research funders and agencies and LMIC funders and agencies, and between LMIC agencies, ensuring that these are inclusive of diverse voices in LMIC research systems.
2. **Supporting LMIC OA infrastructure and systems:** LMIC countries develop and invest in their own infrastructure to support research and publication, enabling them to make research outputs OA through nationally or regionally managed and funded platforms.⁷⁷
3. **Affordable access by LMICs to the Northern for-profit and non-profit scholarly publishing system:** The costs of the existing publishing system, particularly the cost of accessing the for-profit commercial parts of the system, are reformed, to more successfully accommodate the needs and circumstances of LMIC researchers.
4. **Developing, adapting and adopting appropriate research metrics and evaluation criteria:** The quality of research and data is recognised on its own merits, irrespective of where it is published, and more objective measures of the quality of a publishing platform or outlet are provided.
5. **Licensing terms which meet LMIC needs and reflect LMIC concerns:** Where funders have requirements about the licenses used by researchers they fund, they make provisions which take into account the concerns of LMIC stakeholders related to the commercial use of their work.

14.3 Interpreting what our stakeholders told us and formulating recommendations

Firstly, it is useful to reflect that levels of awareness of OA, and its specific mechanisms and business models are relatively low amongst many LMIC researchers. While there are many LMIC experts and advocates who are grappling with these issues and proposing and developing local publishing models and platforms, they represent a small minority of LMIC research stakeholders. Many researchers cannot imagine an alternative to subscription journals, or to the operating models of Northern publishers. This should not be taken as an endorsement by LMIC stakeholders of these models.

⁷⁷ Although it was not raised by the stakeholders consulted, our preview group noted a number of cases where LMIC journals and platforms have, once they had become viable publishing outlets, been taken over by Northern commercial entities, to the detriment of LMIC research and publishing systems.

Secondly, it is obvious that the evidence presented here alone cannot answer the question of an appropriate policy response from the UK, though it can guide those decisions. This is particularly true given the balance between non-profit, academic or public models of OA, and commercially provided, for-profit mechanisms and business models. Ultimately, the UK will need to decide how to adjust its policy, and make any supporting investments or actions, based on the principles above.

Thirdly, achieving full and equitable OA to research requires a major transition in the scholarly publishing ecosystem. In this context, some of the policy responses and supporting actions proposed below should be taken as short-term steps to support a transition, and may only be temporary measures; others should be understood as longer-term responses, that are needed to ensure a longer term shift in the economic models underpinning research and publishing. Short term actions may also have unintended and negative consequences for longer term changes: we note some of these in the risks below.

Fourthly, while the UK is only one actor, and cannot and should not seek to shape these systems alone, it is nevertheless an influential actor, through its position in global research and publishing systems and as a significant funder of LMIC research, and thus has an important role to play in collaboration with others.

Finally, while ensuring that policies reflect LMIC needs is essential, the nature of research and publishing, and the interconnected nature of research systems mean that OA policy change alone will not be sufficient to drive and enable a positive transition for LMICs. Policy and supporting actions, at global, regional, national and institutional levels must also address issues related to research assessment, research careers, and encourage and enable changes to broader research cultures and behaviours.

15 Recommendations

15.1 Key aims of UK OA policy

Collectively, the key aims of UK funders in relation to OA policy are to.⁷⁸

- Ensure that the research the UK funds is immediately and freely accessible
- Maximise the re-use of UK-funded research, to enable broader social and economic benefits to be secured
- Ensure value for money within UK-funded research
- Ensure affordability of publishing routes where UK-funded grants are contributing
- Maintain confidence in the quality of research outputs produced through UK funding
- Ensure ease of compliance for UK-funded researchers
- Ensure LMIC stakeholders are not inhibited in their pursuit of research, or in publishing and disseminating research, by UK OA policy
- Encourage the development of new models of OA publishing
- Ensure UK OA policy does not exacerbate inequities within the global research ecosystem, and as far as possible helps to narrow these inequities.

15.2 Understanding our recommendations

The study explored the policy levers of the three funders and mapped these to the evidence produced from the consultation, and the principles and building blocks that were derived from these, in order to understand potential policy options and specific actions that could be taken by funders.

We have ordered our recommendations into three categories:

1. **Policy aims and risks:** these describe what the recommendations and supporting actions in this section are intended to achieve, building on the key aims identified by funders above, and the possible consequences of taking any of the actions presented in the sections above, or of not acting on any of these recommendations.
2. **Policy options:** these are the immediate changes which could be made to existing or new OA policy documents, based on the policy levers identified by each funder.
3. **Supporting actions:** these are the non-policy actions and investments that UK funders could make to help to create an enabling environment for OA in LMICs and are based on the potential supporting actions that funders have indicated are within scope.

For each policy option and supporting action we have noted how strong we feel the evidence that supports the recommendation is. Note, that this reflects the evidence we were able to assemble and consider here, and other evidence may already exist.

- The evidence from the consultation is clear and we are confident in making the recommendation: **[Evidence: good]**
- The evidence from the consultation is reasonably good, but there are some uncertainties or tensions to resolve: **[Evidence: medium, some tensions]**
- The evidence from the consultation is partial, and further work would be merited to understand the issue better: **[Evidence: partial, further work]**.

Former DFID has already published a study looking at its existing OA policy, which makes a series of recommendations for how it can ensure greater access to the outputs it produces directly or through its funded programmes.⁷⁹

⁷⁸ This information was provided by representatives of the three UK funders

⁷⁹ Fosci, Johnson, and Chiarelli, 'Open Access Research'.

15.3 Feedback from external review group

We received 231 comments from 15 external readers. Some comments were relatively minor, some more substantial

54 agreed with our analysis and recommendations, and 16 of these suggested we should be stronger in our recommendations; 41 disagreed with us to some extent; and 136 were neutral, either noting interest in the evidence, or suggesting we clarify a point further or add additional information.

Reviewers were clear that mechanisms were needed to ensure greater LMIC voice and decision-making. The importance of investing in the development of LMIC infrastructure was strongly supported, and particularly the need to ensure it could operate on a par with Northern infrastructure. Reviewers agreed on the importance of re-thinking the metrics used to evaluate and assess research and publications, and to ensure that LMICs were able to determine the most appropriate metrics for measuring their own science.

A number of these called for a stronger and more critical consideration of the for-profit publishing system, the ways in which LMICs were structurally disadvantaged by the prevailing system of research assessment and publishing, and the ways in which Plan S could further exacerbate inequity.

There was a split in views on APC fee waivers – with one reviewer feeling these were important to level the playing field, and another feeling that they were unsustainable and would continue to build in bias against LMICs. There was also disagreement about whether the deadline for meeting technical standards should be relaxed to allow LMICs to work towards compliance, or whether they should be retained and compensated by greater support to achieve them.

Some of the comments made by the group point to broader concerns related to OA and to research and publishing debates globally, including inequities in global research and knowledge systems, the structural disadvantage of LMICs, and the longer term risks that are posed to LMICs by agendas, policies and systems which are led and designed from the North. These are important questions, but many fell outside of the scope of the consultation and we have been unable to address them fully in this report.

15.4 Recommendations for OA policy and supporting actions

Agenda setting and policy formulation by LMICs	Supporting actions	Funder OA policy lever or action ⁸⁰	Alignment with principles
<p>Aims: LMIC stakeholders play a stronger role in formulating global OA and open science agendas and can drive policy and lead decision-making in their own regions.</p> <p>Risk: Without sufficient opportunities to organise, discuss and formulate regional positions, LMICs will continue to be disadvantaged relative to Northern countries in their ability to drive OA agendas and policy responses.</p>	Continue to work with LMIC regional and national science agencies to enable the greater involvement of LMICs in international research forums. <i>[Evidence: good]</i>	Collaboration and alignment with national and international partners	<ul style="list-style-type: none"> ✓ Design for sustainability ✓ Equity and inclusion
	Encourage and support the development of regional, national and organisational OA and open science policies. <i>[Evidence: good]</i>	Collaboration and alignment with national and international partners Direct funding to LMIC stakeholders to build capacity (people and infrastructure)	<ul style="list-style-type: none"> ✓ Design for sustainability ✓ Equity and inclusion
	Support LMICs to formulate and to collectively peer review their own policies and guidelines. <i>[Evidence: good]</i>	Collaboration and alignment with national and international partners Direct funding to LMIC stakeholders to build capacity (people and infrastructure)	<ul style="list-style-type: none"> ✓ Design for sustainability ✓ Equity and inclusion ✓ Enable innovation
	In collaboration with other funders, support the involvement of LMIC science councils and research agencies in the formulation of cross-funder and cross-country policy agendas, and be willing to consider alternative proposals from LMIC research coalitions. <i>[Evidence: good]</i>	Collaboration and alignment with national and international partners	<ul style="list-style-type: none"> ✓ Design for sustainability ✓ Equity and inclusion
	Increase understanding of OA provisions, approaches and options for both LMIC and UK researchers, through guidance and training. <i>[Evidence: good]</i>	Communication of policy and purpose and further support Direct funding to LMIC stakeholders to build capacity (people and infrastructure)	<ul style="list-style-type: none"> ✓ Design for sustainability ✓ Equity and inclusion ✓ Enable innovation
	<p>Supporting LMIC infrastructure and systems</p> <p>Aims: A diverse research and publishing ecosystem is enabled in and for LMICs, which meets the distinct and varied needs of LMICs at</p>	<p>Policy options</p> <p>Enable LMIC researchers to publish or deposit their work in an appropriate LMIC institutional, national, or regional platform or repository, irrespective of route to access, to support LMIC ownership. Where an appropriate LMIC platform does not exist, encourage deposit in a relevant disciplinary or other repository. <i>[Evidence: good]</i></p>	<p>Funder OA policy lever or action</p> <p>Compliant routes to access Policy divergence to address specific needs of LMIC stakeholders</p>

⁸⁰ Supporting actions include those directly related to OA policy as well as wider supporting actions funders could take

<p>costs that they can afford and sustain.</p> <p>Risks: Adopting a “business model neutral” position is likely to mean a continued reliance on Northern infrastructure (commercial or otherwise). Over the short to medium term an APC-funded route contributes to sustaining the cost of Northern publishing platforms but reduces the ability of LMICs to invest in local research infrastructure. This is likely to continue to create serious problems of affordability and sustainability for LMICs. Relaxing the requirements for LMIC platforms to comply with UK funder technical standards in the short term could increase divergence between Northern and LMIC systems.</p>	<p>Recognise the importance of diverse research outputs to LMICs, beyond peer-reviewed papers and monographs. Encourage deposit of all outputs generated by research in an appropriate repository. <i>[Evidence: good]</i></p>	<p>In-scope outputs Influence wider research culture and environment, including around responsible research assessment</p>	<p>✓ Equity and inclusion ✓ Enable innovation</p>
	<p>Consider relaxing the requirement for LMIC publishing platforms and systems to be immediately compliant with UK technical standards, enabling a transition period of 2-3 years. Also consider whether these standards should be adapted to be more inclusive of LMIC needs. <i>[Evidence: medium – some tensions]</i></p>	<p>Policy divergence to address specific needs of LMIC stakeholders, including timing of policy implementation</p>	<p>✓ Equity and inclusion ⚠ Ensure technical standards</p>
	<p>Supporting actions</p>	<p>Funder OA policy lever or action</p>	<p>Alignment with principles</p>
	<p>Consider investing directly in academic-led or public OA infrastructure in LMICs to support greater diversity and innovation in OA publishing and to meet the distinct publishing needs of LMICs. In doing so, enable the necessary technical and quality improvements to be made too. Also support LMICs to develop appropriate business models to sustain this infrastructure. <i>[Evidence: good]</i></p>	<p>Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Design for sustainability ✓ Ensure technical standards ✓ Equity and inclusion ✓ Enable innovation ✓ Ensure affordability</p>
	<p>Consider allowing membership costs for LMIC journal publishing platforms to be included within research grants. <i>[Evidence: good]</i></p>	<p>Terms and conditions of funding to support OA policies</p>	<p>✓ Design for sustainability ✓ Equity and inclusion ✓ Enable innovation ✓ Ensure affordability</p>
	<p>Support LMICs to develop and lead capacity development interventions which aim to develop the knowledge and skills to operate, maintain and develop high quality publishing platforms. <i>[Evidence: good]</i></p>	<p>Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Design for sustainability ✓ Ensure technical standards ✓ Equity and inclusion ✓ Enable innovation</p>
	<p>Consider expressing explicit support for academic-led and public OA models and platforms, especially as this applies to LMICs, to recognise the advantages that they offer and the opportunity for LMICs to do develop different publishing systems and models to those established in the North. <i>[Evidence: good]</i></p>	<p>Influence wider research culture and environment Collaboration and alignment with national and international partners</p>	<p>✓ Design for sustainability ✓ Ensure technical standards ✓ Equity and inclusion</p>

			<ul style="list-style-type: none"> ✓ Enable innovation
	Consider a collective funder effort to develop and maintain a list of LMIC platforms which meet the standards required by UK funders or to develop a badge or kite mark which would enable LMIC platforms to demonstrate they have been assessed as “compatible” with UK funder requirements. <i>[Evidence: partial, further work]</i>	Communication of policy and purpose and further support	<ul style="list-style-type: none"> ✓ Ensure technical standards ✓ Equity and inclusion
<p>Affordable access by LMICs to the Northern for-profit and non-profit scholarly publishing system</p> <p>Aims: LMIC researchers are not prevented from publishing in their journal or platform of choice due to unaffordability of APCs.</p> <p>Risks: A system which involves APC waivers that require significant effort to request them is likely to reduce the number of researchers securing these. Requiring publishers to provide APC fee waivers may create further bias against LMIC authors. Addressing LMIC OA needs through APC payments and fee waivers risks transferring funder resources to for-profit publishing companies limiting funds for investment in LMICs.</p>	<p>Supporting actions</p> <p>As a transitional arrangement, consider a collective fund to allow LMIC researchers to apply for additional funding, during the life of their grant and beyond the close of the grant.⁸¹ <i>[Evidence: partial, further work]</i>⁸²</p>	<p>Funder OA policy lever or action</p> <p>Mode of funding to support OA policies</p>	<p>Alignment with principles</p> <ul style="list-style-type: none"> ✓ Equity and inclusion ✓ Ensure affordability
	Undertake further work to investigate the costs of APCs, the balance between publication costs and profit, and the value for money for UK funders of supporting APCs through grant funding relative to investments in LMIC infrastructure. <i>[Evidence: good]</i>	Funding to support OA policies	<ul style="list-style-type: none"> ✓ Ensure affordability
	For a journal to be eligible to receive an APC payment from a UK-funded grant it should provide clear and prominent statements about the APC fee waiver offered for LMICs, and where possible should apply these automatically. <i>[Evidence: medium, some tensions]</i>	Terms and conditions of funding to support OA policies	<ul style="list-style-type: none"> 🟡 Design for sustainability ✓ Equity and inclusion ✓ Ensure affordability
	Work with other international research funders, and particularly those with an ODA or development research portfolio, to support LMIC stakeholders to directly advocate for their own needs in meetings and discussions with Northern publishers. <i>[Evidence: good]</i>	Collaboration and alignment with national and international partners	<ul style="list-style-type: none"> ✓ Equity and inclusion ✓ Ensure affordability
	Provide support and advice to ensure that LMIC researchers can successfully navigate the Northern publishing system, though the training elements included within grant programmes. Work to ensure compliance is made as straightforward as possible for LMIC researchers. <i>[Evidence: good]</i>	Communication of policy and purpose and further support	<ul style="list-style-type: none"> ✓ Equity and inclusion ✓ Ensure affordability

⁸¹ Considering the operational implications of a collective fund would require more detailed further work by funders, but there could be opportunities to learn from others, including IDRC.

⁸² For FCDO, this aligns with the recommendations of the Research Consulting review.

Additional compliance requirements may add a further burden to LMIC researchers.	Consider supporting the costs of language editing and translation services to enable LMIC authors to publish their work, and particularly for authors from non-Anglophone countries who wish to publish in Anglophone journals. <i>[Evidence: partial, further work]</i>	Direct funding to LMIC stakeholders to build capacity (people and infrastructure)	✓ Equity and inclusion
<p>Developing, adapting and adopting appropriate research metrics and evaluation criteria</p> <p>Aims: To empower researchers to choose publication venues that meet their needs and are fit for purpose and to encourage research behaviour which is aligned better to realising the social and economic benefits of research.</p> <p>Risks: If the metrics for research assessment are not rethought, LMIC researchers and LMIC citizens will continue to be disadvantaged by a system which favours prestige publication over local relevance and accessibility.</p>	Supporting actions	Funder OA policy lever or action	Alignment with principles
	Consider more explicit inclusion of outputs beyond peer reviewed papers and monographs when assessing research projects at grant stage, or during project progress reviews. <i>[Evidence: good]</i>	Influence wider research culture and environment, including around responsible research assessment	✓ Appropriate metrics ✓ Equity and inclusion ✓ Enable innovation
	Consider how prospective grantees who demonstrate a publication strategy designed to increase LMIC accessibility and impact might be positively scored during assessment of grant applications, and include this in rubrics and guidance to reviewers. <i>[Evidence: good]</i>	Influence wider research culture and environment, including reward and recognition for open science practices and contributions to the global ecosystem	✓ Appropriate metrics ✓ Equity and inclusion ✓ Enable innovation
	Ensure that appropriate metrics for assessing the strength of a research application are clearly indicated in the rubrics and guidance provided to grant reviewers. <i>[Evidence: partial, further work]</i>	Influence wider research culture and environment, including around responsible research assessment	✓ Appropriate metrics ✓ Equity and inclusion
	Support LMICs and LMIC publishing platforms to develop their own indicators and metrics of quality, or to implement established metrics, to enable them to demonstrate their quality to prospective authors and readers. <i>[Evidence: good]</i>	Direct funding to LMIC stakeholders to build capacity (people and infrastructure)	✓ Appropriate metrics ✓ Equity and inclusion ✓ Enable innovation
	Investigate new approaches to research assessment, particularly for ODA-funded research, and consider investing in new methods and tools where sufficient methods and tools do not yet exist. ⁸³ <i>[Evidence: partial, further work]</i>	Influence wider research culture and environment Collaboration and alignment with national and international partners	✓ Appropriate metrics ✓ Enable innovation
	Commit to and advocate for the use of new and more appropriate metrics to assess and evaluate the quality of research and researchers. Consider endorsing and putting into practice the principles of the San Francisco Declaration on Research Assessment (DORA) to demonstrate a strong collective UK funder view. ⁸⁴ <i>[Evidence: good]</i>	Influence wider research culture and environment Collaboration and alignment with national and international partners	✓ Appropriate metrics ✓ Equity and inclusion ✓ Enable innovation

⁸³ Funders could consider adapting the Research Quality Plus framework, designed by the International Development Research Centre (IDRC Ofir et al., 'Research Quality Plus: A Holistic Approach to Evaluating Research'.

⁸⁴ DORA, 'San Francisco Declaration on Research Assessment'.

<p>Licensing terms which meet LMIC needs and reflect LMIC concerns</p> <p>Aims: To maximise the re-use of UK-funded research, while recognising that exceptions for a transitional period may be needed to allow LMICs to build domestic funding initiatives and understanding of licensing terms.</p> <p>Risks: If licensing provisions are not well understood it is likely to perpetuate a perception of extractive behaviour by the Northern research community and could undermine efforts to secure local investment in research and infrastructure.</p>	<p>Policy options</p>	<p>Funder OA policy lever or action</p>	<p>Alignment with principles</p>
	<p>Consider further work to understand whether there is a case to allow LMIC journals, platforms and researchers publishing within them to opt for a CC BY-NC license for a transitional period . <i>[Evidence: partial, further work]</i></p>	<p>Requirements around licensing, copyright and rights retention in OA policies policy divergence to address specific needs of LMIC stakeholders</p>	<p>✓ Equity and inclusion ? Ensure technical standards</p>
	<p>Consider undertaking further work to better understand the impact of licensing on LMIC researchers. <i>[Evidence: good]</i></p>	<p>Requirements around licensing, copyright and rights retention in OA policies Harmonisation and divergence in OA policy to address specific needs of LMIC stakeholders</p>	<p>✓ Equity and inclusion</p>
	<p>Supporting actions</p>	<p>Funder OA policy lever or action</p>	<p>Alignment with principles</p>
	<p>Support initiatives which aim to help LMIC researchers to understand copyright and licensing provisions to enable them to make informed decisions when publishing. <i>[Evidence: good]</i></p>	<p>Communication of policy and purpose and further support Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Equity and inclusion</p>
<p>Support LMIC publishing platforms to adopt copyright and licensing provisions which ensure that authors retain copyright and that outputs are published under a standard machine-readable license. <i>[Evidence: good]</i></p>	<p>Communication of policy and purpose and further support Direct funding to LMIC stakeholders to build capacity (people and infrastructure)</p>	<p>✓ Ensure technical standards</p>	

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See also Annex 5: List of references from which the literature review drew.

Annex 1: Glossary of terms⁸⁵

Article Publication Charge (APC): A single payment made to the publisher to make an output open access. This does not guarantee that the author retains copyright or that a publication is made available under a Creative Commons licence.

Author accepted manuscript: A version of a paper which has passed peer review but before typesetting and publication in the journal.

CC – Creative Commons: A free public copyright licence that enables the free distribution of an otherwise copyrighted work. A CC licence is used when an author wants to give people the right to share, use, and build upon a work that they have created.

CC BY –Attribution: Licensees may copy, distribute, display and perform the work and make derivative works and remixes based on it only if they give the author or licensor the credits (attribution) in the manner specified by these.

CC BY-NC –Attribution-Non-Commercial: This licence lets others remix, tweak, and build upon your work non-commercially, and although their new works must also acknowledge you and be non-commercial, they don't have to license their derivative works on the same terms.

CC BY-ND –Attribution-Non-Derivative: This licence allows for redistribution, commercial and non-commercial, as long as it is passed along unchanged and in whole, with credit to you.

Diamond OA: Journal or other publishing platform or service which publish OA without levying an APC.

Global North/North: Term used to refer to countries of the economically wealthy world. Definitions are contested, but often taken to include Europe, North America, Australia and New Zealand, and wealthy countries of East Asia (e.g. Japan, Singapore, South Korea).

Global South/South: Term used to refer to countries of the majority and often economically poorer world. Definitions are contested, but often taken to include countries in Africa, West, East and South Asia, Latin America and the Caribbean, and the Pacific Islands.

Gold OA: publication in a journal in which all articles are freely and immediately accessible to a reader, sometimes based on the author's payment of an article processing charge (APC).

Green OA: deposit of a full-text article (after peer-review but before typesetting) in a subject or institutional repository, from where it is freely accessible by any user, though in some cases following an embargo period imposed by the publisher of the final article.

Hybrid journal: Journal containing a mix of articles, some of which are available only with subscription, some available OA with the author having paid an APC

Impact Factor or Journal Impact Factor: The Impact Factor (IF) is a score given to a journal based on the yearly average number of citations received by articles published within it over the last two years. Journals must be indexed by the Web of Science to be included. The IFs of journals are given in the Journal Citation Report published by Clarivate Analytics, a publishing analytics firm. The IF has come to be used as a proxy for the importance of a journal. The term impact factor is thus sometimes conflated with a sense of a journal's importance, irrespective of its actual IF. The IF has come to be used as a measure with which to compare the output of individuals and institutions. The Declaration on Research Assessment was in part a response to the deficiencies of the IF.⁸⁶

Open Access: free and irrevocable access to full-text outputs from research, to any user worldwide

Official Development Assistance (ODA): ODA is when support, expertise or finance is supplied by one government to help the people of another country. The term was coined by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) to measure aid.⁸⁷

Preprint: A version of a scholarly or scientific paper which is published without peer review, and which may precede eventual publication in a peer-reviewed scholarly or scientific journal. Some platforms

⁸⁵ Adapted from Fosci, Johnson, and Chiarelli, 'Open Access Research'.

⁸⁶ DORA.

⁸⁷ For a full definition see: OECD, 'What Is ODA?'

now publish pre-prints and make these available, with peer review undertaken subsequently and with a revised version of the manuscript made available.

Publishing platform: A digital, online facility that enables the deposit and publication of and access to research outputs.

Repository: An online archive, may be provided as an institutional repository by a university or other research institution, or as a subject repository, by a funder, professional association or other group for collecting, preserving, and disseminating digital copies of articles and other content produced by scholars in a particular area.

Annex 2: Standards and requirements for journals and publishing platforms

The table below provides an analysis of standards and requirements proposed by UKRI to ensure maximum access, discovery and reuse, against a selection of LMIC journal publishing platforms.

Proposed UKRI standards for journals and publishing platforms	LMC publishing platforms	Level of difficulty for LMIC journals & platforms to achieve			Notes
		Easy	Intermediate	Difficult	
Persistent digital object identifiers for research outputs must be implemented. International standards such as DOI	Nepal Journals Online	Easy			Deposit fee waivers which have been granted currently, according to financial situation, could change and then it would be financially challenging.
	Sri Lanka Journals Online	Easy			
	African Journals Online (AJOL)	Easy			
	Other Journals Online		Intermediate		Financially prohibitive because of deposit fees unless a waiver is granted.
	SciELO South Africa	Easy			Payment for deposit of DOIs is part of membership fee
Article-level metadata must be used according to a defined standard that supports the proposed UKRI OA policy and is available via a CC0 public domain dedication. The metadata standard must adhere to international best practice such as the OpenAIRE guidelines	Nepal Journals Online	Easy			If OJS software is used, it is compliant with the Dublin Core Metadata
	Sri Lanka Journals Online	Easy			
	African Journals Online	Easy			
	Other country JOL		Intermediate		More challenging to keep up with the international requirements and upgrades to software
	SciELO South Africa	Easy			Supported by development of SciELO Brazil platform which includes latest developments
Machine-readable information on the OA status and the licence must be	Nepal Journals Online	Easy			Technically easy to achieve if using OJS software, but education needed for editors and authors. Not all journals use CC licences
	Sri Lanka Journals Online	Easy			

embedded in the article in a standard non-proprietary format	African Journals Online (AJOL)				Not available at the moment.
	Other Journals Online				Technically easy to achieve if using OJS software, but education needed for editors, authors and managers of the sites.
	SciELO South Africa				CC-BY licence is a requirement for inclusion.
Long-term preservation should be supported via a robust preservation programme such as CLOCKSS	Nepal Journals Online				Costly and requires acceptance of the platform or journal by CLOCKSS. When PKP implements their Private LOCKSS Network, this will become much easier for independent journals and smaller platforms.
	Sri Lanka Journals Online				
	AJOL				
	Other country JOL				Many would not be aware of the need for preservation. It is financially and technically challenging.
	SciELO South Africa				Pays for membership of Portico. It is therefore a financial challenge and requires the skills to set it up.
Openly accessible data on citations must be made available according to the standards set out by the Initiative for Open Citations	Nepal Journals Online				Requires journals/platform to be members of Crossref and to deposit all references. Time consuming and technically challenging for small scholar led journals.
	Sri Lanka Journals Online				
	African Journals Online (AJOL)				
	Other Journals Online				
	SciELO South Africa				Obtains data from SciELO citations. Some from WoS and Scopus.
Self-archiving policies must be registered in the SHERPA RoMEO database.	Nepal Journals Online				Lengthy application required to SHERPA/RoMEO and then evaluation required. Many smaller journals are not aware of the service.
	Sri Lanka Journals Online				
	African Journals Online (AJOL)				

	Other Journals Online				
	SciELO South Africa				Requires journals to be registered, but needs constant updating and education
Proposed standards specific to OA journals and OA publishing platforms					
Must be registered in the Directory of Open Access Journals (DOAJ) or be in the process of being registered there	Nepal Journals Online				Lengthy and confusing application form and some technical requirements which smaller journals find difficult to achieve unless they are on a platform like OJS. Mentoring and education required.
	Sri Lanka Journals Online				
	African Journals Online (AJOL)				
	Other Journals Online				
	SciELO South Africa				Supporting journals to be included but requirements difficult to meet.
Proposed standards for OA repositories					
Persistent digital object identifiers for research outputs must be implemented. International standards such as DOI, URN or Handle must be used					Software used by most IRs are older versions. If the DOI has already been assigned by a publisher then there is no technical challenge in newer versions of software, just an administrative and financial one to upgrade software. Some repositories (Zenodo) automatically assign DOIs.
Article-level metadata must be implemented according to a defined standard that supports the proposed UKRI OA policy and is available via a CC0 public domain dedication. This should include the persistent identifier to both the author's accepted manuscript and the version of record. The metadata standard must adhere to international best practice such as the OpenAIRE guidelines.					Most institutional repositories use open source software. Examples such as Dspace, ePrints and Zenodo all provide this automatically. Older versions may not have the functionality. Standards of input not maintained
Machine-readable information on the OA status and the licence must be					Depends on the software being used. Dspace is commonly used and includes machine readable licence terms.

<p>embedded in the article in a standard non-proprietary format.</p>					
<p>The repository must be registered in the Directory of Open Access Repositories (DOAR).</p>					<p>Latin America is well represented in DOAR and South Africa has 44 repositories registered. Bangladesh has 14. Relatively simple for repositories to register.</p>

Annex 3: Stakeholder groups consulted

For the purposes of data collection and analysis, stakeholder categories were further segmented by regional distribution and in the case of universities and research institutes according to private/public status. We have presented a simplified view here for purposes of clarity.

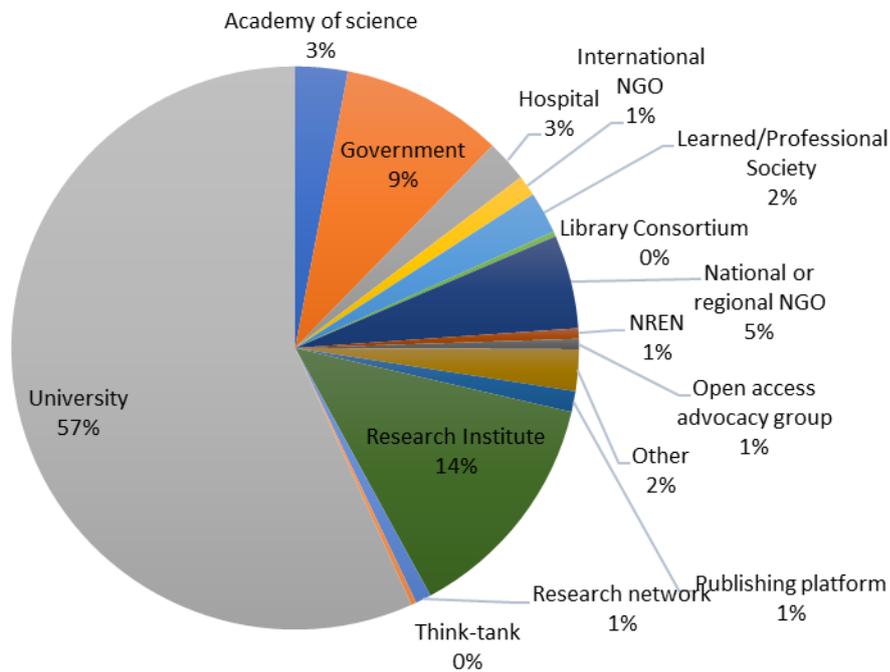


Figure 9. Stakeholders by category (n=335)

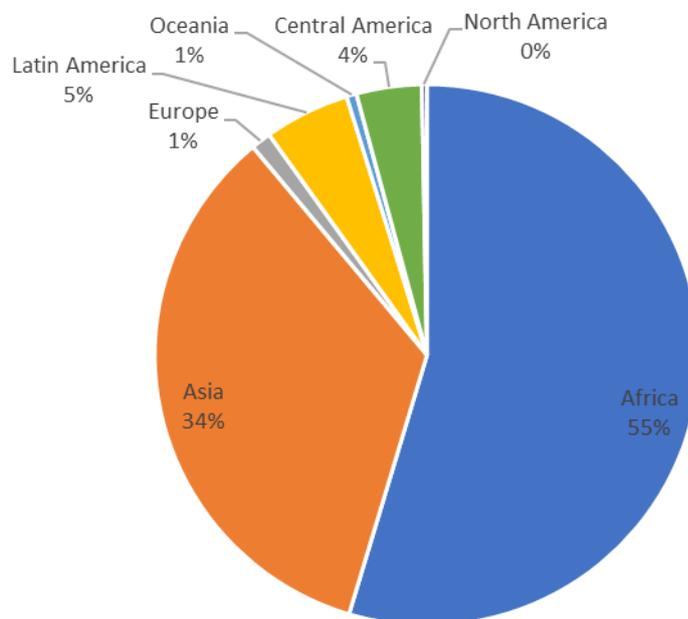


Figure 10. Stakeholders by region (n=335)

Annex 4: Pre-release review group

- Dr Leslie Chan, Associate Professor and Associate Director, Centre for Critical Development Studies, University of Toronto Scarborough, Canada
- Vrushali Dandawate, Regional Ambassador for South Asia, Directory of Open Access Journals (DOAJ), India
- Ashley Farley, Associated Officer, Knowledge & Research Services, Bill and Melinda Gates Foundation, US
- Henrike Grund, Head of Operations, UK Collaborative on Development Research (UKCDR), UK
- Dr Sepo Hachigonta, Director of Strategic Partnerships, National Research Foundation, South Africa
- Hannah Hope, Open Research Co-ordinator, Wellcome, UK
- Iryna Kuchma, Open Access Programme Manager, EIFL, Ukraine
- Ivonne Lujano, Regional Ambassador for Latin America, Directory of Open Access Journals (DOAJ), Mexico
- Elizabeth Marincola, Senior Advisor for Communications and Advocacy, African Academy of Sciences, lead for AAS Open Research, Kenya
- Dr Connie Nshemereirwe, Co-chair Global Young Academy, Uganda
- Andrea Ordóñez, Director, Southern Voice, Ecuador
- Dr Abel L Packer, Director, SCIELO, Brazil
- Andrea Powell, Director of Outreach, International Association of STM Publishers and Publisher Coordinator, Research4Life
- Richard Poynder, independent writer, UK
- Dr Graham Stone, Senior Programme Manager – Open Access Monographs, Jisc, UK
- Dr Matthew Wallace, Senior Program Specialist, International Development Research Centre (IDRC), Canada

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