Publishers for Development (PfD): a new initiative to help researchers in developing countries

High quality research is critical to international development. For developing countries to address the many and complex social, environmental and health challenges which they face they will need to bring new knowledge and thinking to bear on a wide array of problems. Academic publishers are a vital part of the global research communication cycle, and can help to encourage the dissemination of research and ideas from under-represented areas of the international scientific and academic community. Publishers for Development (PfD) is a new initiative of the Association of Commonwealth Universities (ACU) and the International Network for the Availability of Scientific Publications (INASP) which aims to forge a new partnership of publishers for international development.

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Research is critical to development. The ability of developing countries to respond effectively to the complex and multi-layered challenges which they face will depend fundamentally on their ability to undertake rigorous, high quality research. These challenges include improving agricultural production, ensuring sustainable use of natural resources and responding to the effects of a changing climate; developing new medicines and treatments and improving healthcare systems; responding to the challenges of governance, accountability and exclusion; and understanding the social, cultural and political forces which underlie these. Improving policy and training people to respond effectively will require new answers to complex questions and the results of this research to be made widely and easily available to students, researchers, policy-makers and professionals. If research is critical to development, *information* is of course critical to research, the life-blood which animates the scientific and scholarly endeavour and enables the higher education (HE) system to operate. Strengthening developing-country research therefore means strengthening the information and communication cycle.

Why research matters for development

The essential role of research has received much greater recognition in the last decade. A number of major World Bank reports have emphasized the importance of HE and research, while multilateral and bilateral donors alike have broadened their focus from basic education and stepped up their investments in the HE system.[1] However, after two decades where many developing countries were forced to dramatically increase university enrolments, while public sector financing was squeezed and per capita funding declined, the prospects for research at the beginning of the 21st century were severely damaged. Facilities had decayed, there had been minimal investment in basic resources, departments had been hollowed out as staff sought careers abroad or in the private sector, and campuses were operating at many times over capacity. Renewed interest and funding have been followed by a number of new initiatives at many levels – from support to individual universities, to programmes targeting national research systems as a whole. While donor support has been important, universities have also done much to

transform themselves, restructuring and seeking new modes of income generation. Substantial challenges nevertheless remain.

Communicating research

Improving access to information and scholarly communication have, understandably, become major concerns of efforts to revive HE and research. Without good access to the latest scholarly information, researchers are unable to design robust studies, produce high quality research, or participate in the global scientific debate by reading others' work and publishing their own. There are many stories of research which, because of the researcher's lack of awareness of the latest knowledge in a field, has proved redundant because appropriate protocols have not been followed, or recent results or theoretical debates not incorporated into project design or the analysis of results. A very visible result of many years of low investment in universities is the condition of many libraries. Rising journal and book prices, in the face of limited budgets and with poor access to foreign exchange, has made it near impossible for good collections to be maintained and extended.

Responding to this, a number of schemes have been established in which the international publishing community plays a vital role. For the most part these have taken advantage of the huge growth in online journals, and the ability of publishers to offer substantial discounts to developing-country institutions where the costs of printing and shipping are eliminated. Particularly notable are programmes such as the HINARI, AGORA and OARE initiatives of the UN health, agricultural and environmental agencies, INASP's Programme for the Enhancement of Research Information (PERii) and eIFL's e-access scheme.[2] Through these and other initiatives many thousands of volumes of scholarly journals, in addition to bibliographic and citation databases, are now available at no or significantly reduced cost to universities, research institutes, parliaments and NGOs across Africa, Asia and Latin America – the UN programmes list some 7,000 titles while PERii includes 18,000 (full-text) journals and 11,000 e-books.[3] This has been augmented by open access publishing.

Online challenges

Online and electronic delivery models and technologies have done much to push academic literature within more affordable reach of many developing-country universities, but the technological and ICT capacity which is required – severely lacking in many developing-country institutions – has constrained access. The savings associated with digital formats have made book and journal purchasing more affordable, but this has been met by an ever-growing need for substantial investment in computers, campus networks and internet access, meaning that, in many cases, the costs have simply shifted elsewhere. Where these investments have not been possible, many users have failed to access and use the great volumes of information which have been made available to them.

Limited and high cost internet access – specifically a lack of reliable high-speed broadband networks – irregular power supplies, insufficient computing facilities, and a lack of internal campus networks to deliver connectivity across institutions, have been particular constraints. Internet connections in many African universities are, for example, often via expensive satellite links, and 30,000 users – the size of a major institution such as the University of Ghana – may be sharing a total bandwidth lower than the average European or North American household (and paying much more for each unit). In 2006, the African average for higher education institutions was 0.76/1.25 megabits per second (Mbps), or 0.68/1.32 Mbps in Southern Africa (uplink/downlink).[4] In Southern Africa, the latest figures suggest it has since improved to 3.5/4.65 Mbps. To put these figures into context, most American, European and Asian universities now aim for gigabit connections (1000 Mbps) to meet their information needs.[5] Figures from a more recent study, by the Kenya Research and Education Network, offer a picture of current speeds in East Africa and show improvement over recent years. Nevertheless, calculating speeds per 1,000 students offers a better measure of relative connectivity and helps to illustrate the very real bandwidth constraints that users face (see Table 1). While new submarine cable projects, such as those recently put in place or shortly due to be put in place down the east African coast, are a cause for celebration – particularly for countries like Kenya and Tanzania

	Burundi	**Kenya**	**Rwanda**	**Tanzania**	**Uganda**
Number of HE institutions	5	17	7	9	10
Total bandwidth available (uplink and downlink, Mbps)	2.368	70.764	31.512	17.24	29.716
Bandwidth per 1000 students	0.115	0.436	0.971	0.421	0.311
PCs per 100 students	1.5	5.3	7.3	2.7	6.8

Source: KENET 2008 - East African Universities E-Readiness Report 2008 http://eready.kenet.or.ke/

Table 1. Comparison of internet connectivity in East African universities

which stand to benefit first – it will be some time before this is translated into significant bandwidth increases to the average university user. [6]

As I write this I am working with the University of Malawi's Chancellor College on a study of e-resource access and use. The university's total bandwidth is 0.384/1.28 Mbps (uplink/downlink). I have just spent 45 minutes trying to download a PDF copy of an article from a current journal issue of a major UK publisher; having reached 80%, the download hung up and had to be re-set. Connectivity is especially poor in the afternoons, and on other occasions, connections time out or power goes off in the middle of the process. [7] By contrast, it was possible to download the HTML version in around 10 minutes – although, if trying to access several articles, the time quickly adds up. Although the HTML alternative allows for on-screen reading, it provides a less satisfactory solution for many researchers who wish to save files for subsequent use. Furthermore, this was an attempt to download a named article – one I had already identified and knew where to find; factoring in the time taken to identify and locate new material under a specific topic means that the process in reality takes a lot longer. Download times are much better in some parts of the continent – the new fibre optic cables are offering dramatic improvements in Kenya, for example, where the same article could be downloaded in a matter of minutes at the University of Nairobi, which enjoys bandwidth of 15/30 Mbps (uplink/downlink) – but improved speeds will not alone address the connectivity gap.

Access to computers is also a problem. The 2006 African Tertiary Institutions Connectivity Study calculated that terminals were shared by an average of 55 people in African universities. While this is likely to be significantly better amongst academic staff (many of whom will now have their own office computers and even personal laptops), and has improved in the last few years, not all have internet connections, and students' access to computers is often very limited.[8] At the University of Nairobi the computer/student ratio for the university's 39,000 students is around 1:20, and insufficient access was frequently reported as an obstacle to the use of e-resources.[9] Furthermore, students who have low internet access are less able to develop their familiarity with online sources and develop the skills and competencies which will help them become the researchers of the future. Where bandwidth is still limited, adding new terminals simply means existing connectivity is split more ways. The continued demand amongst a core of universities for the ACU's own modest print-copy *Low Cost Journals Scheme* is testament to the continual difficulties which e-access poses to many universities.[10] Beyond infrastructure, skills and training are also huge constraints. As online information sources have grown and become ever more complex, the skills to interrogate them effectively have become ever more important. This is particularly true in contexts where general familiarity with and experience of using ICT and internet resources may be limited.[11]

Developing countries all face different challenges, and it is almost impossible to generalize usefully. The research environments and resource bases of Cameroon and Bangladesh are very different, and there are also significant differences within countries. Sometimes the size of a country and the number of academic institutions within it masks the true poverty of many of the institutions concerned. India and Nigeria are examples of this – enough institutions have subscriptions to single journals to represent significant business, and publishers are reluctant to participate in access initiatives in these countries. However, few, if any, institutions could be described as 'well resourced'.

Why Publishers for Development?

Publishers play an important role in the development of high quality library and information services around the world – which are in turn the

foundations of research and learning. They are also a vital part of the global research communication cycle, and can help to encourage the dissemination of research and ideas from underrepresented areas of the international scientific and academic community. Substantial work to improve access to information has already been done through the range of initiatives indicated above. Many of these programmes have expanded beyond simply delivering information, to encompass skills training, library and ICT development, and publishing and editing support. The situation is gradually improving, but the information environment is growing in complexity and considerable obstacles remain. There is undoubtedly more to be done, and new thinking is needed to identify ways of bridging the divide. Such new thinking can only come, we believe, from a genuinely collaborative approach which pulls together publishers and access or library support programmes with librarians and research users in developing countries. A frank and flexible conversation is needed, to reflect on what could be done, and to identify the ongoing bottlenecks in access, use and publishing.

The ACU and INASP have established Publishers for Development (PfD) as a first step towards this. Our feeling is that a supportive and collegial space is needed in which publishers can discuss the issues in more detail, ask questions, consider prior successes and problems, and generate new approaches. Through PfD we hope to offer such a forum for open and frank exchange. In doing so, we hope we can work together to develop a deeper and more nuanced understanding of the problems, directly informed by the experiences of colleagues in the universities and institutions we are aiming to support. Developing countries do not yet represent a significant market for academic publishing, and we recognize that involvement in existing access initiatives is largely driven by a deep philanthropic commitment to advance scholarly and scientific knowledge and investigation. Nevertheless, there are some wider reasons for this involvement, and which underpin the thinking behind this initiative:

1. Serving authors well is important to all publishers, ensuring that research is disseminated to the widest readership. Developing countries are important audiences, particularly for development-related subjects, and to serve research well these readers also need to be reached.

2. Tackling access constraints is also a way in which publishers contribute to building the global research system, assisting researchers across the world to develop their subject knowledge but also to improve their information searching and analytical skills.

3. Finally, increasing access and use is essential to improving the quality of papers submitted for publication – directly contributing to the future sustainability and life of a journal. Much good research is done in developing countries but academics are often unable to translate this into publishable papers because of their lack of access to the latest literature. Better access will lead to better and higher quality papers, helping publishers to identify and source new material and recruit new authors.

What can publishers do?

Some solutions may be straightforward, others considerably more complex. Large-scale infrastructural development, connectivity and improved facilities are of course for governments and universities to address, but there are other areas which are within the scope of the publishing community to address, and which may help to improve access and usability more generally. Making pages lighter – in terms of download sizes – means they will load faster and more reliably.[12] Ensuring that access routes do not require users to navigate several pages deep – waiting for each to load before they can continue – to reach the content they require would not only be a huge improvement in low bandwidth environments, but would probably also improve use by busy northern-based academics and students (ie. those in developed countries) looking for the quickest ways into the content they require. As information landscapes become more diverse and complex, it will increasingly be those content providers who provide the most straightforward interfaces and easiest navigation who will enjoy greatest use.

We also hope to look at the editorial side of things. Authorship as well as readership matters to strengthening the research cycle. Increasing the number of 'southern' authors (ie. authors from developing countries) matters not only for developing-country research but also for researchers in northern institutions who want to engage in scholarly debate with colleagues in the south. This

will mean looking in greater detail at the authoring and editing process. What are the principal reasons that southern papers do not make it to publication? Are they mismatched to journals or lack good data or up-to-date references? Is greater assistance needed to help authors refine their submissions and target them more effectively? Can editors and publishers do anything to assist – by making instructions clearer or offering greater feedback?

How we will do this

PfD is guided by an advisory group drawing together colleagues from Wiley-Blackwell, Oxford University Press, Taylor & Francis, IOP Publishing and ALPSP, in addition to librarians from the Universities of Botswana and Nairobi. Our approach so far has encompassed both online and face-to-face discussions, using an invitation-only and moderated space on the Dgroups online communities platform to host a series of focus discussions, each taking a different theme. The aim will be to take the outcomes of these discussions and feed them into networks of librarians and researchers, and to take the concerns of these groups and feed them back into our PfD discussions – facilitating a two-way dialogue, but managing the process in the early stages. We hope that discussions will help publishers to understand how their products, services and delivery mechanisms might be adapted to better serve researchers and readers in low-bandwidth environments. In doing so they will be helping to strengthen – and rebalance – the global research system.

Further information is available from www.acu.ac.uk/pfd, or http://www.inasp.info/file/f5c039878f09a104df806301113361a5/publishers-for-development-pfd.html. To join the PfD group, please contact Jonathan Harle (j.harle@acu.ac.uk) or Anne Powell (apowell@inasp.info).

References and notes

1. The most recent of these is World Bank (2008) *Accelerating Catch-up. Tertiary education for growth in Sub-Saharan Africa* (Washington: World Bank) http://siteresources.worldbank.org/INTAFRREGTOPEDUCATION/Resources/e-book_ACU.pdf. (accessed 29 September 2009).

    This follows a number of reports since 2000, the most influential being: Task Force on Higher Education and Society (World Bank/UNESCO) (2000) *Higher Education in Developing Countries: Peril and Promise* (Washington: World Bank) : http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/547664-1099079956815/peril_promise_en.pdf (accessed 29 September 2009) and World Bank (2002) *Constructing Knowledge Societies: New Challenges for Tertiary Education* (Washington: World Bank): http://go.worldbank.org/GX5J0A0KK0. (accessed 29 September 2009). In the UK, the Department for International Development's most recent research strategy makes a clear argument for the critical role of research: DFID (2008) Research Strategy 2008-2013 (London: DFID): www.dfid.gov.uk/Documents/publications/research- strategy-08.pdf (accessed 29 September 2009).

2. For a more in-depth discussion of some of the major challenges, and the many support initiatives in operation, see Harle, J (2009), *Digital resources for research: a review of access and use in African universities*, p.11 (London: ACU) www.acu.ac.uk/publication/download?id=173. (accessed 29 September 2009). The three UN initiatives have recently been joined by a fourth, coordinated by the World Intellectual Property Organisation, know as Access to Research for Development and Innovation (aRDi): www.wipo.int/ardi (accessed 29 September 2009).

3. See: www.research4life.org (accessed 29 September 2009) and www.inasp.info/peri (accessed 29 September 2009).

4. Uplink/downlink refers to the capacity to upload or download data respectively. The downlink is therefore the critical element for accessing journals and other resources.

5. Figures from Gakio, K, (2006) *African Tertiary Institutions Connectivity Study* (ATICS 2006 Report) (IDRC): http://aau.org/renu/docs/ATICS2006.pdf (accessed 29 September 2009) and SARUA (2008) *ICT: A Status Review of ICT in Universities in the SADC Region* (Johannesburg: SARUA): www.sarua.org/files/publications/OpeningAccess/Opening_Access_Knowledge_2008.pdf. (accessed 29 September 2009). For further discussion see Harle, J (see ref. 2).

6. See, for example: BBC News 23 July (2009)
    'East Africa gets high-speed web'
    http://news.bbc.co.uk/1/hi/world/africa/8165077.
    stm (accessed 29 September 2009).

7. Jonathan Harle, personal communication with
    University of Malawi staff.

8. Gakio, K, (2006), see ref.4.

9. Jonathan Harle, personal communication with
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10. Known as 'Protecting the African Library' within
    Africa.

11. Rosenberg, D, (2008) *Evaluating Electronic Resource
    Programmes and Provision: Case Studies from Africa
    and Asia*, INASP Research and Education Case
    Studies, 3 (Oxford: INASP):
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12. Jackson, A, (2009) 'When it comes to websites...
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