Shifting the power structure of global scientific publishing

Panel: **Role of Open Science in Innovation for Development**
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Panelists: **Naser Faruqui**, Director of Technology and Innovation, IDRC; *Panelists*: **Leslie Chan**, Associate Director, Centre for Critical Development Studies, University of Toronto Scarborough; **Suzanne Kettley**, Executive Director, Canadian Science Publishing; **Florence Piron**, Professor, Department of Information and Communication, Université Laval

Takeaways and recommendations

- ✓ Work with universities from the Global South help them acquire the tools and skills to establish online institutional repositories, open archives and local journals
- ✓ Support a pan-African open archive based on open source software
- ✓ Rethink the incentive and reward structure of research funding and who sets the standards for the tools and for the quality of research
- ✓ Open Science is a commitment to the idea of science for the public good. This is particularly important for citizens in the Global South.
- ✓ Open access and open science calls for new forms of governance, institutions and sustainability models
- ✓ Article processing fees provide a sustainable business model for open access journals but there

The policy issue: Open science promises to speed up the process of discovery and innovation, while making research more transparent and reproducible. The recently announced Tri-Agency and IDRC policies on open access and the government of Canada's commitment to open science are clear signals of this growing trend to open access and open data. But what are the implications of open models of scientific practices for innovation in developing countries?

It is against this background that the Open and Collaborative Science in Development Network (OCSDNet) was launched in July, 2014. Funded by IDRC and the U.K.'s Department for International Development, the OCSDNet is a network of 12 research projects led by teams in countries from the Global South. The teams are gathering evidence on how open science could lead to new thinking and locally driven innovations for addressing persistent development challenges.

The options: French-speaking universities in Africa face more hurdles than most when it comes to adopting and benefiting from open access. Speaking in French, Piron said it was widely thought that "open access would change everything" for these universities, but problems persist, including the "cognitive injustice" behind world science.

Piron co-leads an OCSDNet project that is analyzing the barriers to the adoption of open science by graduate students. *Open Science in Haiti and Francophone Africa* (SOHA) believes open and collaborative science (open access to scientific publications, open access journals, open archives, data and bibliographies sharing, public engagement with civil society, citizen science, science shops) can become a major tool of empowerment for developing countries.

Piron explained how open science facilitates access to science by students, researchers, public officials, teachers, and among civil society. It also makes local knowledge and science produced in the Global South more visible and accessible, helping to build local research capacity and thus contributing to cognitive justice.

African universities face several challenges, including a dearth and/or underutilization of computers and collaborative platforms in academia, the high cost of journal subscriptions and high fees to publish scientific papers in open access journals (on average $2500).

"Article processing charges (APCs) are a new barrier, a new form of cognitive injustice," she said. "Promoting APCs as an open access road is tantamount to once again forgetting about African researchers' working conditions."

SOHA proposes a different approach that sees researchers post their articles in "green" online institutional repositories (managed by university libraries) or open archives. For example, SOHA is working with the African and Malagasy Council for Higher Education to build a pan-African archive based on open source software and improve skills in areas like distance learning, open source software, blog writing, Wikipedia contributions and collaborative writing.

Chan is the primary investigator of OCSDNet which promotes more knowledge sharing with the north and between southern countries. He said it's important to open up not just the literature, but the entire research process, including data, methods and collaboration tools. He also called for greater participation by citizens and non-specialists in the research process. "Incorporating people's ideas into the research agenda is critical."

New collaborative platforms are also changing how data are collected and shared. For example, a Kenyan tech innovation hub developed a crowdsourcing platform that allowed people to send texts on where violence was occurring after the 2007 election. That mapping technology, called Ushahidi, is now being used by aid agencies in other countries to help with disaster relief.

"The capacity to develop, use and create these kinds of platforms is absolutely important," said Chan. "It's a new approach that allows for local capacity building. The journal is a 17th century artifact. We should go beyond the old technology and take full advantage of what network technologies have to offer."

Chan suggested new incentives are needed to entice researchers to adopt open access. "We need to think about how we can communicate in different ways with different channels and tools. For example, more researchers are blogging. Why can't the system reward this type of information-sharing?"

Speaking as a not-for-profit journal publisher, Kettley contrasted the utopian vision of open access that sees publishers making research articles freely available, with the commercial realities of these, which rely on APCs to stay in business.

She admitted the model comes with challenges. Money for APCs is typically taken from existing research or library budgets, and publishers use a flat-fee model that sees the same fee charged whether the paper is long or short.

"The (APC) model has resulted in some collateral damage," said Kettley. Unscrupulous predatory organizations claim their publications do peer review and may charge authors up to $500 for that non-existent service. Library budgets are also taking a hit as large commercial publishers bundle multiple titles. The price per title goes up if libraries pick-and-pay for only the journals they want. This "big deal" leaves very little money to pay for open access publishing.

Kettley said publishers, librarians, granting agencies and societies have begun working together on standards and sustainable solutions for open access. Examples include: SCOAP3, Open Library of Humanities, Open Access Network and CRKN/Érudit.

She added that her company, Canadian Science Publishing (CSP), is about to launch two open access journals with an APC model, though fees will be waived until July 1, 2016. However, she highlighted that CSP is interested in collaborative models to fund these journals in the long-term and "as a not-for-profit publisher, CSP wants to be part of the solution."

References:

IDRC's Open Access Policy; www.idrc.ca/EN/Misc/Pages/Open-Access-Policy.aspx

Tri-Council Open Access Policy; www.nserc-crsng.gc.ca/NSERC-CRSNG/policies-politiques/OpenAccess-LibreAcces_eng.asp