

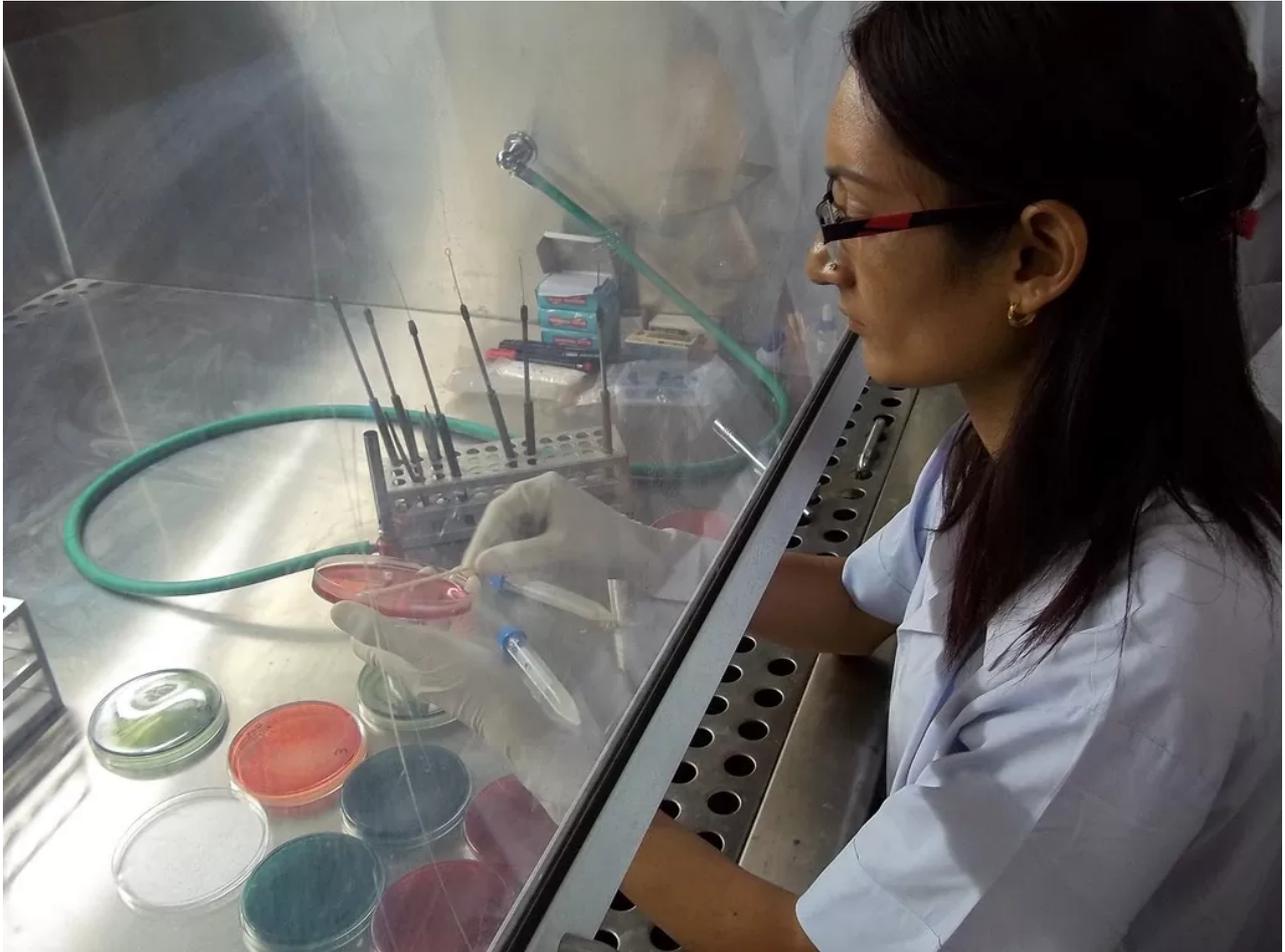
# India's fumbled chance for sharing knowledge

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## Science

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Indian science has been distracted from its plan to share research findings : CDC Global Health CC 2.0

India was an early leader in sharing research and information for science. But it has fumbled since then.

In terms of open access to knowledge, India could have been the *Vishwa Guru* — the world's teacher. As early as 2000 India was making moves to allow taxpayer-funded research to be freely available for anyone in the world to read, share and distribute. But India has squandered that advantage.

Fast forward to 2022, and much of India's research is still locked up behind the paywalls of corporate academic publishers while the global science community increasingly questions why taxpayer-funded research should not be available for everyone to read.

The Indian government initiated a new science, technology and innovation policy in January 2020. The draft policy, released in December 2020, enshrined open science in chapter one. Its three key features were to set up an Indian Science and Technology Archive of Research (INDSTA), a dedicated portal to provide access to the findings of all publicly funded research; to place the full text of scientific papers immediately upon acceptance into a journal in a publicly available repository or INDSTA; and to make all data from publicly funded research available to everyone.

But the policy is not yet in place. The government is instead focusing on a 'One Nation One Subscription' project. This would see the government pay academic publishers an eye watering sum to allow Indian scientists to publish in corporate journals and for all Indians to read them. Apart from benefiting the publishers more than science and scientists, this looks crazy in view of the rapidly rising share of openly accessible research papers and the emerging revolution in preprint servers that publish drafts of research papers for free.

In 2021, of the more than 2.47 million research papers added to a database known as the *Web of Science*, half of them were free to read, or 'open access'. The share of open access papers is increasing at a decent pace: 29.5 percent in 2011; 36.6 percent in 2015; and 50.2 percent in 2021.

India, with 121,494 papers (or 4.9 percent of the world's research output), stood fifth in the number of papers published, behind China, USA, UK, and Germany. Less than one third of Indian papers are free to read. In contrast, in 2021, most papers from the Netherlands (83.43 percent), UK (75 percent), France (69 percent) and Germany (68.8 percent) are open access.

But in those countries, the governments and funding agencies provide financial support to scientists to pay up-front fees to publishers to make their papers free to read. It is no coincidence that most of the large academic publishers are in Europe. The governments have a stake in the success of the journal publishing enterprise, one of the world's most profitable industries. Of the papers that are free to read, a large part (about two thirds) is because scientists have paid up-front fees to the publisher, a practice that should be shunned by low- and middle-income countries. Only 7.2 percent of Indian papers are free to read through publicly available locations.

Thanks to recent guidance from the US White House Office of Science and Technology Policy, the results of all US taxpayer-supported research will become immediately available to all, at no cost, by the end of 2025 at the latest.

Journals of Indian research councils and many medical journals from India are free to read. But the journals of Indian science academies are no longer truly open access, as researchers outside India still pay a fee to German publishing house Springer to access a paper published in them.

As early as 2000, when only 3 percent of the 72.4 million hosts on the internet were in the developing world as against 85 percent in the developed economies, many OA champions pointed out that the developing world would benefit most from open archives initiatives, as their scholars are the ones who suffer the most from ever increasing journal subscription prices and dwindling budgets.

Stevan Harnad, the arch evangelist of the open access movement, urged Indian scientists and librarians to embrace the culture of institutional repositories that can be accessed and searched from anywhere. In 2002, the Indian Institute of Science in Bengaluru, set up one of the earliest repositories for research papers by its faculty and students in the world, and one of the managers won an international award.

Over the next few years, numerous international open access champions were invited to India to talk to heads of scientific agencies about the need for India to adopt open access. Slowly, India's Council of Scientific and Industrial Research, Council of Agricultural Research, Department of Science and Technology, Department of Biotechnology, the Indian Academy of Sciences, and Indian National Science Academy adopted open access, even if it was half-hearted. Many librarians were trained in repository software, a few policymakers got on board and a fledgling Indian publisher of medical journals, Medknow, decided to become an open access publisher (it is now owned by the Dutch publisher Wolters Kluwer).

In 2008, Harnad and Alma Swan suggested that if India adopted a national open access self-archiving mandate for all its research institutions and funders, it would set an example to the world: "India's own research access and impact will be maximised, the rest of the world will follow India's example, and research progress worldwide will be the beneficiary."

The Council of Scientific and Industrial Research and Departments of Biotechnology and Science and Technology initiated both policies and open access repositories but uptake has been poor. The policies are often flouted by scientists with impunity.

The world over, the move towards making drafts of papers on preprint servers the main mode of scholarly communication is gaining momentum. But in India a vast majority of researchers – professors and students alike – as well as officials in the science and education ministries, have no clear understanding of open access. It is like they are still clinging to floppy discs and CD-ROM when the world is racing ahead with the cloud.

***Subbiah Arunachalam*** belongs to DST-CPR, Indian Institute of Science, Bengaluru, and the Centre for Internet and Society Bengaluru.

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