

hotspots, namely the Western Ghats and the Sundaland (that includes Andaman and Nicobar group of islands), with similar threat to biodiversity. With over 405 species, about 308 are endemic to India<sup>6</sup>. Thus, the legal protection accorded to amphibians in the country appears to be grossly inadequate.

With rapid climate change, and in view of the high endemicity and vulnerability, including anthropogenic pressures such as habitat destruction, unplanned urbanization, pollution of wetlands, harvest from wild, etc. the amphibian diversity from northeast India is facing an unprecedented risk of local extinction. Therefore, there is an urgent need to revise various national and international legislations and include more amphibians based on their endemicity and vulnerability to maintain ecosystem health and services.

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## Indian S&T journals: the way forward

The article by Mahesh<sup>1</sup> in *Current Science* raises important issues with regard to the quality of Indian S&T journals. It also urges Indian authors to publish their works in Indian journals so that it helps improve the standard of these journals. I have discussed how the quality and visibility of Indian S&T journals can be improved in light of recent developments in scholarly communication.

There is a lack of research culture in the Indian academia. After receiving his/her Ph.D. degree, there are not many formal courses/programmes through which a researcher could learn the skills of writing and publishing in high-quality journals, with a few exceptions like the Science Writing Course offered by the Current Science Association. This needs to be changed; Indian S&T journals and publishers should come forward to extend their support in language-editing and provide a platform for instant feedback to improve manuscripts and also for funding promising works. By extending support in language-editing and other aspects of manuscript writing, Indian journals can solicit articles from Indian authors. Hence Indian researchers can be encouraged to publish in Indian journals. There have been debates on how developed countries can extend support to improve the quality of research publications in developing countries, since the former have been ruling the scientific

world for many decades and have a strong financial back-up<sup>2</sup>.

The peer-review process also needs to be changed radically to improve Indian journals at par with international standards. Reviewers are not being given due credit for their intellectual labour in India and elsewhere<sup>3</sup>. Many journals published in India do not provide sufficient information on how the peer-review process is conducted. If we consider peer review as a formal work and recognize the same in faculty tenure promotions, assessments, and in awarding research grants (also introducing the best reviewer award), Indian researchers would take peer review seriously and participate in it actively.

Another barrier for Indian researchers is to access the scholarly literature in their respective institutions. Except premier institutions such as IITs, IISc and IISERs, Defence and CSIR research laboratories, very few universities and colleges have a subscription to citation databases such as the Web of Science (WoS) and Scopus, and scholarly journals. Most of the Indian universities subscribe to databases, e-journals and e-books through e-SodhaSindu, which is a centralized Consortium for Higher Education Electronic Resources. Most of the time, researchers have to access scholarly literature only through academic social media platforms such as ResearchGate, academia.edu and pirated

websites like Sci-Hub. With the proposed 'one nation, one subscription policy', access to scholarly literature will be much more centralized and institutions will have no say in the scholarly literature required for their researchers. There must be hassle-free access to scholarly literature required at the institutional level for researchers to improve the quality of their research publications.

Mahesh<sup>1</sup> further emphasizes on nurturing the Indian journals that have been indexed in WoS. This is a good suggestion. However, given the number of researchers pursuing their Ph.Ds and M.Phil. degrees in India and those working in various research institutions, we need to encourage learned societies to start new research publications with quality mechanisms in place, such as a diversified editorial board and transparent, open peer-review system. As mentioned in the article<sup>1</sup>, we do not know exactly how many journals are now published in India. Also, there are no journals in some niche areas. Thus, it is time to have our own journal aggregator system, like those of the African Journals Online (AJOL), and this South American journal aggregators such as SciELO and Redalyc indexing system developed to showcase their research visibility to the global scientific community. With regard to citation index, we do not have a robust citation database of our own. The Indian Citation Index

(ICI) developed by the Knowledge Foundation has not made any significant progress since its inception.

We must also nurture the regional language scholarly publication ecosystem to sustain the diversified cultural ethos of our country. Regional language publications must be made available in English at least abstract of the full-text articles, and vice versa. Social media platforms or other communication channels like blogs/online portals can be leveraged for communicating scientific results in jargon-free regional language and in English. The online publication platform Confluence (<http://confluence.ias.ac.in/>), an editorially moderated discussion forum of the Indian Academy of Sciences, Bengaluru is a notable example in this direction.

Finally, Indian research and academic institutions should encourage and promote open scholarship practices among researchers. It was evident during the COVID-19 pandemic that open science platforms like preprints (e.g. bioRxiv and medRxiv) and open data repositories (e.g. GISAID) have played a significant role in making available vital research results and data to the scientific community and the general public<sup>4</sup>. This has resulted in rapid innovation in vaccine development and repurposing existing drugs and also non-therapeutic interventions for COVID-19. We need to

encourage our researchers to submit their research results to preprints. So that it increases the visibility of their work and provides a platform for greater scientific collaboration. *Nature* and *Science* have been accepting preprints for publications in their journals for a long time now.

The Indian Draft 5th National Science, Technology and Innovation Policy 2020 has made recommendations to promote open access and establish the Indian Science and Technology Archive of Research (INDSTA) to make available all publically funded research open access. This is an encouraging move and policymakers should make it a reality at the earliest to enhance the quality and visibility of Indian research publications.

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## Response

Vasantha Raju has shared some valuable opinions, views and ideas on improving and enhancing the quality and visibility of Indian S&T journals. He includes imparting writing skills, a more transparent peer-review process, recognizing peer reviewers, enhancing access to e-resources, introducing new journals, creating a national-level journal aggregation system, archiving in repositories, using social media, and so on. However, we need to remember that the quality of the Indian journals is inextricably linked to the assessment and evaluation systems and practices followed in Indian academia and research. For now, our research assessment places a premium on publication in foreign journals. We need to closely look at our research assessment and evaluation methods. Any attempt to enhance the quality and visibility of Indian journals should be holistic in approach.

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