

'Impact factor' and 'we also ran' syndrome

Kochhar's¹ comments on the opportunity missed by ISRO scientists to have been the first to report the presence of water on the moon are worth taking note of. This is not the first time that our scientists have lost the opportunity to be recognized as discoverers of something novel and significant. Many of us have experienced that while we keep on struggling to satisfy the apparently unending criticisms of the anonymous reviewers, similar findings get published and we end up claiming 'we also found'. Although the real reasons for not considering publication of some important findings like the evidence for water on the moon in the pages of *Current Science* would rest with the authors and ISRO authorities, it is a good guess that our undue obsession with publications in the so-called 'high impact factor' journals may have been a major factor. *Current Science*, though widely circulated in the country and elsewhere (because of full open-access on the internet), continues to have a relatively low impact factor and, therefore, is not preferred by a majority of our established as well as upcoming scientists as a forum for publication of important observations/discoveries. Like *Current Science*, most of the other research journals published in India are trapped in the vicious circle of poor quality papers resulting in low impact factor and, therefore, a continuing dearth of good quality papers available for publication². Currently, impact factors, *h*-indices and other similar quantities seem to have become the only yardstick, albeit unjustifiably, to measure the quality of one's scientific contributions. Given this

emphasis, authors do not feel encouraged to submit their manuscript by choice to *Current Science* or other journals published from India. This is compounded further by the fact that publications in 'national' journals are looked down upon by the peers and judges alike. This bias has forced scientists in India, especially the younger generation, to believe that publication of their results in the so-called international journals alone can help them fetch a job or recognition ('impact-factor syndrome'). The distinction between 'national' and 'international' journals, as found in most of the application forms for jobs, awards, research grants, etc. is anomalous and defies a logical basis. Do the journals published from within the Indian territory not have international authorship, visibility or recognition?

In order to make the research journals published in India internationally competitive, the authors in the first place need to believe that their science is good and will attract readership no matter where it is published. With the internet and online facilities, findings published in the so-called national journals are visible to international audience as well³. Only good-quality science will make the visibility impressive enough to generate citations. The editors need to take a proactive role in attracting good articles in their journals, whereas the reviewers need to be stringent enough to apply the same standard of reviewing as they expect from any quality journal. The 'soft-reviewing' of manuscripts submitted for publication to a journal in India is detrimental not only to the authors but

the journal as well. The case of *Journal of Biosciences*, published by the Indian Academy of Sciences, Bangalore is a good example of how the above three factors help improve the impact factor and visibility of a journal. This journal's ISI impact factor has steadily moved up from 0.966 in 2006 to 1.956 in 2009 because of attempts to attract quality articles and to have more stringent reviewing than usual. The impact factor would have gone up further had more of our established scientists decided to publish at least some of their papers in the journal.

Current Science, with its broad field of coverage and as a common platform for discussions on science policy issues, actually needs to improve the quality of the science that is published in its pages. A special effort is needed not only to improve the quality of reviewing, but also to educate and convince the policy makers and selectors that publication of one's significant findings in journals published from India is not an act of 'refuge', but a conscious decision by the authors to do so. Then we will often not end up as 'we also ran'!

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Carbon credits: today's new currency mantra

Global warming is largely the result of emissions of carbon dioxide and other greenhouse gases (GHGs) from human activities, including industrial processes, fossil-fuel combustion and changes in land use, such as deforestation, etc. Carbon credits are certificates issued to countries that reduce their emission of GHGs, which causes global warming. Carbon

credits are measured in units of certified emission reductions (CERs). Under the International Emissions Trading mechanism, countries can trade in the international carbon credit market. Carbon credits create a market for reducing greenhouse emissions by giving a monetary value to the cost of polluting the air. Emissions become an internal cost of doing

business and are visible on the balance sheet alongside raw materials and other liabilities or assets.

The United Nations Framework Convention on Climate Change, in its formative years, had acknowledged that the share of global emissions originating in developing countries would grow to meet their social and development needs¹.

Countries with surplus credits can sell the same to those with quantified emission limitation and reduction commitments under the Kyoto Protocol. Developed countries that have exceeded the levels can either cut down emissions, or borrow/buy carbon credits from developing countries. A company has two ways to reduce emissions. One, it can reduce GHGs by adopting a new technology or improving upon the existing one to attain new norms for emission of gases. Or it can tie up with developing nations and help them set up a new technology that is eco-friendly, thereby helping the developing country or its companies 'earn' credits.

Addressing climate change is not a simple task. To protect ourselves, our economy and our land from the adverse effects of climate change, we must reduce emissions of carbon dioxide and other GHGs. To achieve this goal, the concept of Clean Development Mechanism (CDM) has come into vogue as a part of the Kyoto Protocol. India signed and ratified the Kyoto Protocol in August 2002, and has emerged as a world leader in the reduction of GHGs by adopting CDMs in the past few years. According to a report on the National Action Plan

for operationalizing CDM by the Planning Commission, Govt of India, the total CO₂-equivalent emissions in 1990 were 1,001,352 Gg (Gigagrams), approximately 3% of the global emissions. If India can capture a 10% share of the global CDM market, annual CER revenues to the country could range from US\$ 10 to 300 million (assuming that CDM is used to meet 10–50% of the global demand for GHG emission reduction of roughly 1 billion tonnes CO₂, and prices range from US\$ 3.5 to 5.5 per tonne of CO₂). Carbon, like any other commodity, has begun to be traded on India's Multi Commodity Exchange (MCX) since the last fortnight. MCX has become the first exchange in Asia to trade carbon credits.

In his inaugural address at the International Workshop on 'R&D Challenges in Carbon Capture and Storage Technology for Sustainable Energy Future', R. V. Shahi (Ministry of Power) suggested greater initiatives to research on carbon capture and storage technology and R&D challenges to be met for building scientific strengths in the Indian context².

India has generated approximately 30 million carbon credits and approximately 140 million in run, the second

highest transacted volume in the world. India's carbon market is growing faster than the information technology, biotechnology and BPO sectors, as 850 projects with a huge investment of Rs 650,000 million are in the pipeline. According to the Prime Minister's Council on Climate Change³, the revenue from 200 projects is estimated to be Rs 97 billion till 2012.

Although awareness about carbon credit trading is yet to pick up fully in India, those who are well-informed about the opportunities are gearing up to cash in on it in a big way.

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Revising India's water policy: need for a process

Late in May 2010, the Prime Minister's Climate Council approved a National Water Mission for India, as part of the broader task of preparing the nation to adapt to climate change. This news is welcome and timely. One important goal of the Mission is to have a revised National Water Policy approved by 2013. This goal is commendable.

Included among the Mission's objectives are: ensuring equitable distribution both across and within states through integrated resource development and management, a comprehensive database in public domain, public participation through promotion of citizen–state interaction, and integrated basin-wide management and enactment of state-wide legislation through persuasion. These well-considered objectives, upon reflection, reveal the need for a process that will guide policy revision.

On the one hand, integrated resource development, basin-wide management and a comprehensive database in public domain require that the best available scientific knowledge of water and natural resource systems must lie at the core of the policy. On the other hand, ensuring equitable distribution both across and within states, public participation through citizen–state interaction, and enactment of state-wide legislation through persuasion involve human factors that lie beyond science. Integrated water management entails fundamental questions about ownership of surface water and groundwater that have to be managed together for long-term sustainability. Thus, for a national water policy to be credible, scientific knowledge and human factors must harmonize in unprecedented ways towards a common purpose. The challenge is to harness science knowledge

with human values. Ultimately, policy has to be made based on social judgement. Yet, such social judgement cannot be credible without comprehending what the best available knowledge has to say about availability of the vital resource.

If this premise is reasonable, the logical next step in revising India's National Water Policy would be to pay particular attention to the process that will guide the task of revision. Although water is used locally, the principles by which 'integrated' management can be achieved must be uniformly applicable throughout the country so as to unite it. For this reason, the authority for the process needs to emerge from the highest levels of the Indian Union. In India, water is indeed a state subject. Yet, considering the special attributes of water as a natural phenomenon, the Union Government's role is a profoundly philosophical one, giving