

plans of swamp-deer translocation in the near future are important steps towards restoration and recovery.

Recent news reports and developments suggest an emerging system and agreement of trans-boundary joint protection and management regime, which would be implemented jointly with Bhutan. It is a significant development since the forests of Bhutan, contiguous to Manas, not only provide critical corridors for movement of large animals, but also act as a safe refuge during disturbance and conflicts to which the Indian part remains vulnerable owing to higher population and developmental pressures. Currently, several organizations, including the World Wide Fund for Nature (WWF-India programme), Aaranyak and ATREE/UNESCO are collaborating to provide technical support to the government's

efforts at scientifically estimating the wildlife/tiger population in Manas.

Manas is recovering. However, to sustain this recovery combined efforts of the BTC, the Assam Forest Department, the local community along with stakeholders at several levels spanning local, regional to international agencies, governments, and academic and civil society institutions would be critical. With an extended favourable social and political climate and popular support for conservation activities and rigorous science informing political decision-making, we can hope for the emergence of a stronger and resilient Manas, which can remain secure and buffered from future setbacks.

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## Misuse of scientometry for individual assessment

Many scientists in India, young and old, are getting preoccupied with scientometrics, and phrases such as 'impact factor', 'h-index' and 'number of citations' are being heard often in conversations among them. What is disturbing is that many times these factors weigh heavily in scientific hirings, promotions and awards in the country, and actual serious discussion of the scientific contributions which merit such recognitions is lacking. This trend is influencing and pressurizing young researchers into getting unduly concerned about citations-based recognition by pursuing scientific bandwagons at the cost of doing creative science which may not be fashionable at present.

Thankfully, for the most prestigious prize in science, it is heartening to see that scientometrics is not the basis of the award. Recent Nobel Prizes have been awarded to scientists who may not rank at the top either on the number of publications or on the h-index. Examples are Venky Ramakrishnan (2009 Nobel Prize in Chemistry) and Koichi Tanaka (2001 Nobel Prize in Chemistry). It is indeed well known that in some instances the work for which a Nobel Prize is awarded becomes highly cited only after the award, as the award highlights the importance of the work.

This state of affairs is reminiscent of the efforts to measure the intelligence of

humans in the 19th and 20th centuries, chronicled in the book, *The Mismeasure of Man* by Stephen Jay Gould<sup>1</sup>. The intelligence of a human was reduced to a number by methods such as craniometry (measuring the skull volume) and psychological testing. Based on these studies, it was erroneously concluded that women were less intelligent than men and that whites were more intelligent than other races. The intelligence quotient (IQ) which was based on psychological testing and which was first introduced with the noble purpose of identifying children who required special attention in the Montessorios, was twisted and misused. For instance, IQ became the basis on which lower immigration quotas were set for East Europeans compared to West Europeans for settling in the United States.

It has been shown that impact factors of journals can be raised by artificial means. So also can the ranking of institutions by methods which have a high weightage for scientometrics. Furthermore, citation to a work does not necessarily mean approval of the work and can often be a scathing criticism. It also does not mean that the work is original, since reviews which are just compilations of the work in a field often attract a large number of citations.

Scientometry can be helpful in assessing institutions and departments, instead of individuals. This is so because, like statistics, scientometric analysis is helpful when applied to large numbers. It can tell us about the state of activity of groups to make decisions regarding funding and remedial measures to improve a certain institution or department. But, using it to evaluate individual scientists for career advancements and recognitions must be stopped. Henceforth nominations for awards and fellowships, papers for promotion, and application forms for faculty positions should desist from asking for scientometric information of individuals. Assessments must be made solely on the merit of the scientific contributions of the individual concerned.

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