

only to siphon public funds and transfer public assets to private agencies and to thereby 'bring another dimension to our education system'.

How can the proposed reforms in higher and other sectors of education help develop an egalitarian and just society? Common school and neighbourhood school system and the likes are now a

long bygone dream. Until good quality education is generally available and promising students are given an opportunity to continue their education allowing reputed foreign universities to set up campuses here can hardly improve the situation, for, only a small fraction of the 'people of genius' would be able to get entry there.

1. Shashidhara, L. S., *Curr. Sci.*, 2014, **107**, 731–732.

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## Challenges and opportunities in drug discovery and development

The guest editorial by Vishwakarma<sup>1</sup> on modern drug discovery and the Indian opportunity is a good presentation of the perspective and what needs to be done in India to evolve the culture of drug discovery and development. Today, India is one of the biggest producers of generic drugs, which is an outcome of the patent laws drafted in 1970 in order to protect our population. Though this blunted our efforts in the area of drug discovery, it resulted in the creation of robust capabilities in mass production of well known and characterized chemical entities; an example of opportunity in a 'crisis'. By signing the patent laws in 2005, the opportunity of reverse engineering and tinkering with the molecule no more exists with respect to newer drugs. The author has rightly pointed out that currently there are no major drugs in the pipeline with giant pharma players for the diseases important to India and the developing world, a crisis which can be converted into an opportunity by embarking on drug discovery and development with a greater new zeal. Though it may sound paradoxical, this lack of new drugs on the horizon overlaps with several advances made in chemistry, biology and medical sciences in the last ten years or so. Exploiting these advances in drug discovery and development for India-

centric diseases and health issues is important and provides great opportunities.

The human body is a wonderful combination of biology, chemistry, physics and engineering and, of late, microbial ecology. Such a wonderful system needs external intervention for correction at times using one or a combination of the above-mentioned disciplines and drugs top the list. All the drugs in use as a cure for diseases (pathological or physiological) affecting the human body, are chemical entities, inspired or derived from naturally occurring molecules. What wheels are to transportation, chemistry is to drugs and nutrition, food, etc. Additionally, stem cell therapies, still in the evolutionary phase, have also added a new dimension to the drugs and health care.

In the present scenario, due to its established institutions and human resources, India has a unique opportunity in drug discovery and development, which does not exist elsewhere in the developing world. Our strength in chemistry, biology and health sciences can contribute substantially in drug discovery and development. India also has its own systems of medicine and there is an immense possibility of fruitful cross talk between the two systems, which are not mutually exclusive; in fact, they can synergize and result in useful products in the years to come.

The other most important point raised by the author is the collaboration, which is the biggest hurdle to circumvent under the present set-up. Most of us still believe that if our institutions are aligned in a seamless manner together they can deliver anything; a will to make that happen is needed. If such a robust performing platform is created, it will also induce/attract pharma industry to join the bandwagon with a visible effect in 5–10 years time.

The possibility of evolving an entirely new regional drug policy to safeguard regional interests of SARC countries needs attention. I share with the author, the optimism he has projected for the future, but for this to happen would require paradigm shift(s), which should be possible with proactive support from the top leadership in the Government of India, policy makers in S&T institutions and participation of academia and industry. A new work culture for drug discovery and development is needed, amounting to putting the horse in front of the cart!

1. Vishwakarma, R., *Curr. Sci.*, 2014, **107**, 335–336.

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## Evaluating scientists and 'impact factor'

What was the impact factor of journals in which findings of green revolution, white revolution, pink revolution, etc. were published? Further, in the present times, rightly, there is an increased demand to publish research in open access journals. Now if all research work is published in the open access journals which are freely

available, the impact factor of all research work would go sky high making this parameter absurd. It is therefore time to reexamine the value of the 'impact factor' and develop criteria to evaluate scientists based on their abilities and enterprise and not on the 'impact factor'.

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