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From 'Made in India' to 'Make in India' in Pharmaceuticals

S K Kulkarni

One of the ambitious projects of our Prime Minister Mr Narendra Modi is 'Make in India'. It is not just a slogan or change of nomenclature from 'Made in India' to 'Make in India'. But the very idea of 'Make in India' is the change of mindset of creating something of our own, a proud desire of owning our own research outcome namely, the product (discovering a new medicine entirely based on Indian research). Even though we proudly say that 'every third pill' consumed on this planet is 'Made in India' and more than 40% of the generic medicines prescribed in the USA are 'Made in India', 'How and/or when the next new molecule would come out of Indian research (*Make in India*)?' is a million dollar question.

From 'Made in India' to 'Make in India' in Pharmaceuticals– a daunting task

The research output of Indian Universities is rarely commercialized and if one goes by the reports in the lay press, only 2 per cent of the work done for PhD research of a premier University in the last one decade has been published in international peer-reviewed journals. Addressing the 98th Indian Science Congress in January 2011, former Prime Minister of India observed that even though Sir C V Raman discovered his Nobel Prize winning, *Raman Effect* some 80 years ago, the instruments available in India using his principle are imported.

Unfortunately, the linkages among Universities, research laboratories, and industry are not harnessed to yield meaningful outcomes to benefit our society. There is an urgent need to build a credible *Pharmaceutical eco-system* in question, in our

institutions and Universities. We must take a leaf out of the experiences of the Western Universities and institutions and create a healthy and competitive environment so that future generations of professionals become products of pharmaceutical innovation eco-system. With mushrooming of institutions, it is a tough call but a beginning has to be made before it is too late.

Professor E Roberts, School of Management and Entrepreneurship of Massachusetts Institute of Technology (MIT), USA describes about 'research with consequences' as innovations that generate value (Innovation= invention + commercialization). In other words, successful research results in innovation. With this approach, MIT boasts as one of the most prolific innovation factories the world has seen. The revenues generated by the companies created and the people employed by the MIT alumni, is one of the largest economies in the world.

Thus, *Innovation eco-system* is an integrated approach for development. Innovation is something that generates value. Innovators must be challenged to produce solutions (medicines) that our society needs. Innovative solutions or research with consequences (research bearing fruits) with potentials must be nurtured and rapidly applied. Inventions will become innovations when they produce consequences (fruits/medicines) of human use. There are two key elements for building a successful eco-system. The first and the foremost is the 'innovation culture', having people who can make a difference or role models in the system. Secondly, people with entrepreneurial capability. These individuals would build networking both for exchange of knowledge (ideas) and business.

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