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Global Innovators

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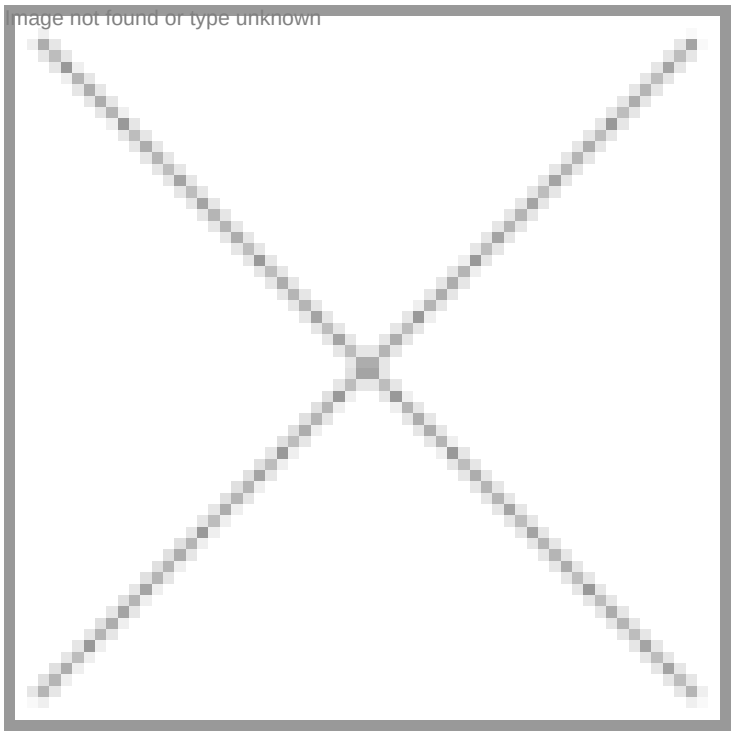

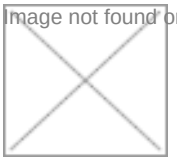

RA Mashelker 

Global Innovators

The world's leading technology companies are increasingly looking at ways to reduce their research budgets and ensure every dollar spent is stretched further and further. This opens up huge opportunities for providing research services to the world for many sectors including biotechnology, argues CSIR chief RA Mashelker.

India is rapidly becoming a global R&D hub. More than 100 major companies around the world have set up their R&D centers in India in the last five years. The biggest would be the R&D center of General Electric (GE) in Bangalore. Its current size of 1,600 employees will increase to around 2,400 employees, making it the second largest R&D center of GE in the world. It is not India alone. Similar phenomena are in evidence in China, Korea, Singapore, Taiwan, etc. Specialized clusters are coming up in the Philippines, Malaysia, etc. Many leading enterprises around the world are building innovation platforms through multi-sourcing of innovations.

Why has multi-sourcing of innovations gained prominence? There is an increasing pressure on shortening international market penetration times for new products, on shortening R&D times and on decreasing the market life times for new products. Innovations are beginning to have multiple geographical and organizational sources of technology with increasingly

differentiated and innovation specific patterns of diffusion. R&D in high-technology industries such as biotechnology, microelectronics, pharmaceuticals, information technology and new materials has become highly science based. The costs of doing R&D are also increasing phenomenally.

There has been a progressive weakening of the strategic position of corporate central laboratories within large firms. The firms around the world are becoming very selective with internal developments focused on critical products and processes. They complement their internal efforts with external technology acquisition on a global basis.

Creation of seamless laboratories around the world is also being helped by the evolution of global information networks. Indeed, these networks are allowing the real-time management and operation of laboratories in any part of the world. Thus, companies are gaining a competitive advantage by using the global knowledge resource and working with a global time clock. The trend is also being fuelled by the shortage of R&D personnel in some emerging high technology areas in industrialized countries. The companies have to bridge that demand-supply gap in skills by external outsourcing. Obtaining access to high-quality scientists, engineers and designers is on the top of the agenda of many major companies now.

The impact of the severity of the shortage of R&D personnel can be seen from this statistics from European Union (EU). For EU to meet the goal set at the Barcelona Summit to raise R&D spending as a share of GDP to 3 percent by 2010 will require 700,000 new researchers. Obviously, there will be a great demand-supply gap. It is not surprising that there will be a greater draw on "third world researchers" as one of the EU official put it recently.

The demographic shift in the developed world means that developing countries with relatively favorable demographic profile with a large proportion of working and talented young people can become global innovation hubs, from which not only outsourcing of innovation will be done, but in which R&D based innovation centers will be set up by the companies from the developed world. This progressive shifting of the R&D location from the developed to the scientifically advanced developing nations is likely to have strong social, cultural, political, economic and strategic implications. Increased local demand on high quality science and scientists as also a competition between local institutions and industry on one hand and foreign R&D enterprises on the other hand for access to superior human capital will be some key drivers of change. Shifting of the "center of gravity" of knowledge production to these scientifically advanced developing nations will have strategic implications in the long run. Such shifts will also lead to a gradual reversal of brain drain due to the increased opportunities in the country of one's origin.