



QUANTUM LEAP

DINESH C. SHARMA

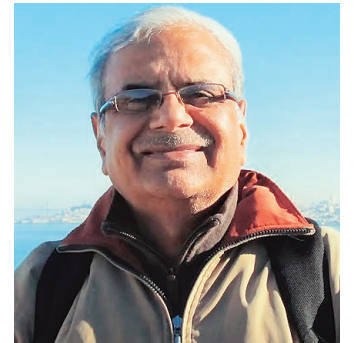


Prime Minister Manmohan Singh was presented a memento at the Indian Science Congress in Jammu on Monday.

Glacier retreat continues

HIMALAYAN glaciers are an important source of water for river systems of Ganga and Yamuna. Various studies in the past have suggested that most of the Himalayan glaciers are retreating though the rate of retreat varies from glacier to glacier.

Now mapping of almost 11,000 out of 40,000 square kilometer of glaciated area distributed in all major climatic zones of the Himalaya has suggested an almost 13 per cent loss in area in the last half a century. Data on glacier mass balance – an indicator of the health of a glacier – based on satellite and ground measurements suggests a significant decrease in mass of Himalayan gla-



Space scientist Anil Kulkarni

ciers. In the last four decades, the loss in glacial ice has been estimated between 19 and 26 meters. This translates into a loss of 443 to 570 gigatonnes of glacial mass out of a total 3600 to 4400 gigatonnes of glacial stored water in the Indian Himalayas. The mean loss in glacier mass in the Indian Himalaya has accelerated between 1975–85 and 2000–2010, points out Dr Anil Kulkarni, space scientist at Divech Centre for Climate Change, Indian Institute of Science who has been studying Himalayan glaciers for many years now. "Retreat of individual glaciers may be influenced by local geomorphic and may not represent regional changes in climatic condition. Therefore, it is important to assess long-term overall changes in glacial extent," says Kulkarni.

SESSIONS of the Indian Science Congress are usually ceremonial affairs in which dignitaries in flowing robes parade, long speeches are made and medals are awarded to septuagenarian scientists and science-bureaucrats. In recent years, it has also become customary to invite an odd Nobel laureate to adorn the podium with the prime minister, the science minister and others. The 101st session of the science congress which opened in Jammu on Monday was no different.

The only departure from the tradition is that for the first time it is being held in February instead of first week of January. For Prime Minister Manmohan Singh though the event had special significance. This was his tenth address to the science congress, creating a record of sorts in recent decades. He was also the General President of the body in its centenary year in 2013, becoming only the second prime minister after Jawaharlal Nehru to chair a science congress session. That's why perhaps Singh evoked Nehru and his vision of science frequently in his speech.

Undoubtedly we have seen an unprecedented wave of institution building in science and engi-

neering education as well as research in the past decade. After the hyperactive five years of Rajiv Gandhi government in the 1980s when a number of new initiatives were taken in science and technology related areas, India slid back badly in the 1990s. Investments into research and education were sub-critical and political leadership generally remained cold to Indian science. Of course, if one counts exploding of the nuclear bomb in Pokharan as a scientific achievement then it is a different matter. The only new institutions seeded during this period were the Indian Insti-

tutes of Information Technology – an idea originally proposed by Dr N Seshagiri in the 1980s. It is only in 2000s that we have seen a resurgence of institution building and injection of massive funds into research projects in several sectors.

Enrolment in higher education in science has risen dramatically. Nearly a million bright children have got scholarships to pursue higher studies in science.

One can still argue that even now we are lagging behind China and Korea in terms of R&D spending as a percentage of GDP, but in absolute terms there has been no dearth of funding. Of course, we need to do much more and

double the spending on R&D from just about one percent to two percent as we have been hearing for the past many years. Quality of education and research is an area that needs greater focus. Even topmost engineering schools are facing faculty shortage and universities are not able to attract high quality talent for research.

Scientific research is still disconnected from industry and societal needs. Need-based innovation in informal sector is taking place, but is yet to reach the market. The solution for Indian scientists, as summarised by Singh, is to learn from the past, connect with the present and focus on the future. Hopefully scientists, bureaucrats and students gathered in Jammu will heed to this wise advice.

Link science to society

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□ WE may not yet have concluding evidence to show that mobile phone use while driving causes car accidents but it is better to act now on available data rather than wait for scientific evidence to emerge, British Medical Journal has suggested in its editorial this week. It says that given the proliferation of mobile phones, the prevalence of distracted driving is undoubtedly increasing. Texting is the riskiest activity because the distraction is cognitive and visual. Handheld phone use comes next, and hands-free use is probably the least dangerous, the journal says.

NEW THRUST TO BRAIN RESEARCH



Kris Gopalakrishnan of Infosys

THE announcement of a massive grant of ₹225 crore for brain research by Infosys co-founder Kris Gopalakrishnan has brought into focus the importance of targeted philanthropy as well as the growing challenge of neurodegenerative disorders in India.

The grant will be used to fund research at the Centre for Neuroscience at the Indian Institute of Science. It is a new centre compared to the National Brain Research Centre at Manesar which opened in 2003 and the much older National

Institute of Mental Health and Neuro Sciences (NIMHANS) in Bangalore. The Department of Biotechnology has also stepped up funding of brain research at these and several other centres across the country through its newly set up mechanism called Neurobiology Task Force, also located in Bangalore. Given the fact that life expectancy in India is going up constantly, there has been an upsurge in degenerative

disorders like Parkinson's, Alzheimer's and so on. Research efforts are currently aimed at understanding basic mechanisms that lead to brain-related disorders such as dementias, causative factors behind them and possible treatment options.

For instance, Indian scientists have found that an Ashwagandha extract reduces spread of the disease and improves memory in the case of Alzheimer's in studies done in animals.

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