

Faculty positions in scientific/academic institutions and citizenship issues

Gowrishankar's letter¹ is precise and I suppose it is technically correct. However, the real issue, in my view, is not how to ensure that foreigners (NRIs and otherwise) are kept out of our academic system, but rather how we persuade our Government to scrap this anachronistic rule.

There is a real hunger for quality education in India, and there is a chronic shortage of good teachers.

Switzerland and the US are two examples of very different countries that opened

the doors of their academic establishments to foreigners. Both countries benefited vastly because of this. Taiwan did this too, but in a more limited way.

We can do this opening up gradually, if what is desired is incremental change. Initially, we could open up to NRIs and those from SE Asia and the SAARC region.

The sort of xenophobia that seems to underlie this rule is ill-befitting a country that is trying to go global in so many other ways. We need many students,

postdocs and faculty from foreign countries within our academic system.

1. Gowrishankar, J., *Curr. Sci.*, 2007, **93**, 1647.

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The rot in Indian universities

Balaram's editorial¹ about the decline of our academic institutions makes sad reading. The academic decline is not specific only to the universities, but all around. Who is responsible for this decline? Will putting in more money rectify the situation? Will the Knowledge Commission report be implemented? These are some of the questions that we need to examine.

The situation is complex. The solution, as pointed correctly, must come from the universities themselves. But do our universities have the ability to do this? With small-time politicians being the Chancellors and Vice-Chancellors, interference in the working of any university by local politicians becomes unavoidable. Most universities do not critically assess their performance once a year. The reports of

the Vice-Chancellors read out at the convocations bring out the rot rather than the achievements.

Nearly five decades ago, as a graduate student at an university in the US, I had seen how the President of the University (Vice-Chancellor) exercised his power to ensure the academic standing of the university. At the beginning of the computer age, the President placed an advance order for a large computer, without obtaining permission from the State. The State legislators criticized the President for this action. Without fear, the President threatened that he would withdraw his order and let the university slip from its high standing. The result was that the legislators backed out and the order was processed. Until we reach such a stage,

higher education and research will continue to be controlled by the political class. With rampant corruption in every sphere and interference by the politicians, no report (no matter how good it is) can make any difference. One can only hope that the Russian 'glasnost' and 'perestroika' will some day occur here, leading to the emergence of a new order.

1. Balaram, P., *Curr. Sci.*, 2008, **94**, 153–154.

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Questioning the geoscience community – Are we on the right track?

As the world is in the midst of rapid change, sustainable development principles are now well acknowledged as a part of the planning process. Addressing such change depends on existing information and in majority of the cases, this information pertains to questions that are vitally geographic in orientation, such as the spatial patterns of biomes, ecosystems, habitats and communities. Towards this pursuit for economic development in

countries like India, the earth observation resource systems and spatial data technologies have with time facilitated and eased such initiatives at multiple scale. Conventionally, India has enjoyed a reputation for its capacity building in space technology science; centres of excellence for GIS have also gained roots. However, we have not productively bridged the gap between technology and development; by this, I mean changing the primal 'output'

of a spatial information system from maps, to 'digital inputs' that can be manipulated, analysed, modelled and imbibed for development frameworks. Hence, there is a fundamental need for re-visioning spatial data and knowledge in the decision-making process in order to address real-world problems with efficacy.

Largely, sustainable development decisions are inherently multidisciplinary. Also, the importance of integrated appro-

aches for development and management of natural resources has been emphasized in many fora on sustainable development, including Agenda 21 of the United Nations Conference on Environment and Development. Nonetheless, it has not been brought into practice to a reckonable extent owing to the conflicting goals in different sectors of the society. On the contrary, most natural resource development research assignments are discipline-based or/and biased. Talking about the geosciences community that encompasses remote sensors, GIS professionals and data analysts, can be powerful because its theme is innately multidisciplinary. Processes such as scenario modelling, decision support systems and knowledge gateways can provide exceptionally influential tools for storage and analysis of multi-sectoral data. But they can inherit this power only when they incorporate thematic information from different sectors in a common platform, since by this approach, a central system can be developed that can facilitate analysis of trade-off scenarios at all scales and resolutions.

To evaluate the potential contribution of geosciences in the development planning initiatives, it requires asking questions such as: To what level do we conceptualize cross-disciplinary object-oriented research proposals? Does mapping at a particular scale offer operational functional management information? Can it identify key issues and change drivers, mitigation options or risk analysis? To

what extent is it useful for modelling conservation and development pathways? How many times do we involve the implementation authority as a relevant stakeholder in a geospatial assignments?

The idea behind this thought is to conceptualize and model global-to-local scenarios using a wide array of spatial data that consider temporal variability (centennial, decadal, annual or diurnal), spatial scales and a host of other issues. Also, geospatial tools that present the objective result of current earth observation systems can significantly contribute toward policy recommendations that aid sustainability. These tools can access and process information from a variety of sources and display it in a spatial and visual medium, hence offering a pertinent solution for varied environmental concerns. In addition, recent advances in spatial technology have opened a new paradigm of data analysis, modelling, harmonization and access. Advances in geosciences and the new paradigm of data policies have brought the power of high-quality advanced spatial data access to institutions and individuals to resolve development and sustainability-related problems. These advances have made it promising for furthering global public-goods spatial data gateways to generate invaluable products or knowledge and hubs.

This paradigm shift has also resulted in empowering institutions such as the International Water Management Institute, to generate focused spatial data

gateways (<http://www.iwmidsp.org>) that present chorded spatial data for its niche areas of water and land resource management. Production of the Global Irrigated Area Map and the global map of rainfed cropland areas (www.iwmi.org), is crucial for studies related to global food security and water use. These gateways promote independent and consistent products for the world, avoiding inconsistencies of census-based statistics. Another related study on wetland systems gave birth to the Global Wetland Inventory and Mapping (www.iwmi.cgiar.org/wetlands/), an endeavour to build a network of researcher collaborations through distributed networks aligned within the framework of agreements, such as the Ramsar Convention (www.ramsar.org). This movement is slowly but surely gaining momentum within leading corporations and government agencies. GIS is becoming part of the customary workflow of many development sectors. This type of dedication to spatial knowledge reflects a promising apparition of a national government that understands the significance and application of potentially utilizing the emerging technologies to facilitate sustainable development.

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Ganga Express Way – A path of wetland destruction

Ganga Express Way is a project of the Uttar Pradesh Government. According to this, an eight-lane road is to be constructed along the left side of the River Ganga, between Noida and Ballia. This correspondence deals with a critical analysis of the project in amalgamation with environmental concerns.

This project will consume 1,047,000 × 8 × 7 sq. m fertile agricultural land of doab. This Indo-Gangetic Plain is well known for its fertility and productivity. In the light of this, in no way does it appear justifiable to sacrifice such a huge area and that too at a time when the

world is facing problems feeding the exploding population.

Each year the Ganga brings billions of tonnes of fertile soil, which is deposited along the river basin. It is this soil which is responsible for high fertility of the area. Now, if a road is constructed along one side of the river, it will act as a dam or barrier for the free flow of water. As a result, huge amount of mud will be deposited on the riverbed, decreasing the cross-section area of the river. During rainy season, when excess amount of water flows through the Ganga, the water will find its way into cities, resulting in

floods. After a few years, when the river bed would be almost filled, Ganga may be forced to change its path and pass through cities, i.e. perennial floods would become common.

The Indo-Gangetic Plain is fertile because it receives fertile and fresh soil each year and also the river regularly provides water for irrigation. After construction of the road, the high barrier will lead to two disadvantages. First, the off-side of the road will become waterless. Since soil of the adjoining belt is sandy, in no way does it appear feasible to perform irrigation through other sources in such a soil.