

Research needs public support to prosper

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The magenta sunset over the gently sloping vineyard seemed to last forever. Talking to two string theorists—immersed in this lyrical beauty—was apt. String theorists make music, though of a different sort. They work on the extreme edge of scientific knowledge, trying to understand the deepest and most fundamental questions of nature. They explore the nature of black holes, early universe cosmology, nuclear physics, intricacies of condensed matter, and more.

Spenta Wadia and Rajesh Gopakumar, the two string theorists, were anything but the prototypical, lost theoretical physicists. They regaled us for 3 hours like dastangoi performers, with the tale of the International Centre for Theoretical Sciences (ICTS).

The sunset and the discussion was reflective of the deep interconnectedness of nature and science, and of its beauty and struggles. Over the last 35 years, India has seen very few good science research institutions like ICTS emerging. Some of the others are: Ashoka Trust for Research in Ecology and Environment (Atree), Nature Conservation Foundation (NCF) and National Centre for Biological Sciences (NCBS). Each of these institutions has been built in the face of complex challenges, including those arising from diminishing financial and social support.

ICTS has been in the news over the past couple of years. Its team has been a part of the Laser Interferometer Gravitational-Wave Observatory (Ligo) project that made the momentous discovery of gravitational waves, and detected the neutron stars collision reported last week. It was set up in 2007. Wadia was the founding director and Gopakumar is the current director of the institute. With gentle humour, Wadia describes the travails and fun of setting up an institution whose work cannot be understood by most people. Doing this within the government system, as part of the network of institutions governed by the department of atomic energy, came with its own complications.

ICTS does work that we can all be proud of, even if we don't understand it. Their work spans the range of physical sciences and mathematics, including biology, earth sciences, and computing. Ten years is too early for a report card on an institution that works on matters that are a few billion years old, but it is clear that ICTS has made a good start.

The environment of north Bengaluru seems to be equally fertile for vineyards and research institutions. The venerable Indian Institute of Science and the Raman Research Institute were built in a different era when institution building was seen as an integral

part of progress. Since the 1980s, a decline in public funding and support has led to few institutions being built. But those that have come up have fascinating stories of strife and success. Many of these are in north Bengaluru.

One such is Atree, founded by Kamal Bawa, R. Uma Shaanker and K.N. Ganeshaiah in 1996. Bawa is the distinguished professor of biology at the University of Massachusetts Boston. Alongside, he has invested his life in building Atree, a research institution in the areas of biodiversity conservation and sustainable development. To build, sustain and grow an institution which consistently does good work, is very hard. It is even harder when, like Bawa and the team at Atree, it has to be done by mobilizing private funding. They have done it for over 20 years now. Their track record is enviable.

Over these years, I have seen Bawa relentlessly doing good conservation science and pursuing money that can fund that good science. Kartik Shanker, the current director of Atree, is now the man who partners Bawa in this tough terrain of building a research institution with private funding.

Inhabiting the same terrain is the remarkable Nature Conservation Foundation (NCF). They work in the high altitudes of the Himalayas and the reefs of Lakshadweep, and many places in between, with the mission of conserving India's unique wildlife heritage through their research. They have done this with dedication and results over the past 21 years since NCF's inception.

The beginning of this burst of research excellence in north Bengaluru can perhaps be traced to the founding of the National Centre for Biological Sciences (NCBS) in 1991. Obaid Siddiqi, its legendary founding director, and his successor K. Vijayraghavan, along with an outstanding team, have built one of the very few world-class research institutions in India. They are a reminder that excellence of the highest order can be achieved and sustained in public institutions. Satyajit Mayor, the current director and his team, continue to push the frontiers of biology.

India cannot progress to its potential of building a good society without high-quality research in science. For a host of reasons of our own making, we have fared poorly in this (and in social sciences and humanities) over the past few decades. Yet a few good institutions have gone against the tide. Given this juncture, the fulcrum of any effective strategy would be to consolidate and mobilize around the existing good institutions, to bolster them and spark more excellence around them.

We cannot make our best scientists run around scrounging for money and bearing the brunt of wanton disparagement. This would be dysfunctional for India's future. We must back the likes of NCF, Atree, ICTS and NCBS to the hilt and celebrate their achievements publicly.

Anurag Behar is the chief executive officer of Azim Premji Foundation and leads the sustainability initiatives for Wipro Ltd. He writes every fortnight on issues of ecology and education.

Comments are welcome at othersphere@livemint.com. Read Anurag's previous Mint columns at www.livemint.com/othersphere

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