

## In this issue

### SERB-SURE Scheme

#### *Stimulating research*

While centrally funded universities and research institutions have shown excellence in research, most state universities, private universities and their affiliated colleges are not doing so well in research and development. A part of the reason for this is the availability of funds. So, in 2022, the Science and Engineering Research Board (SERB) launched a scheme, State University Research Excellence (SURE), to stimulate the culture of scientific research at state-level universities, private universities and colleges. Principal investigators from such institutions who have not received financial support for research from SERB can put forth project proposals to SERB-SURE.

A General Article on **page 934** in this issue examines trends in project proposal submission and approval based on parameters such as gender, state, institute type and subject area during the financial year 2022–23.

### Solar Photovoltaic Installations

#### *In the era of climate change*

As temperatures rise, output from solar panels in tropical areas decreases, even if solar insolation remains the same. So, with the predicted warming of the climate, we should anticipate that existing photovoltaic installations would not provide us the same output in the future. Moreover, rising temperatures will degrade and reduce the service life of the crystalline silicon-based solar panels from the presently estimated values, points out a Review Article in this issue.

Besides, average days with cloud cover, increasing amount of aerosols and dust raised by wind will also impact the performance of photovoltaic output and, therefore, such factors may need to be factored in while setting up solar energy farms.

Setting up large solar energy farms often involves the cutting of trees, im-

pacts soil health and increases local temperatures. Increased temperatures are recorded even a quarter of a kilometre away from large solar farms. This has implications on at least the regional climate, if not on the global climate.

On the plus side, roof top solar panels reduce the heating of buildings, bringing down the energy requirement for cooling in tropical settings.

Though tapping solar energy will indeed help reduce the dependence on fossil fuels, alleviating the impact of greenhouse gases on climate, the article on **page 945** brings together these and other research results that render a reality check necessary.

### Madagascar and South India

#### *Reworking lost relationships*

Madagascar today is about 4600 kilometres from South India. But, a long time ago, South India, Sri Lanka and Madagascar were connected intimately to East Antarctica. The lithological and structural similarities between Madagascar and the Southern Granulite Zone of South India are unmistakable. Moreover, the Southern Granulite Zone of South India and Madagascar are both composed of a mosaic of blocks bounded by several shear zones.

But, while some geologists suggest that the Achankovil Shear Zone in the Southern Granulite Zone and the Ranotsara Shear Zone in Madagascar were once interconnected, others believe that the Achankovil Shear Zone and the Tranomaro shear zone in Madagascar were continuous.

In a Research Account in this issue, scientists from CSIR-NGRI put the controversy at rest. Using surface geological and morphological features from remote-sensing and the subsurface geological structure and lithological variations revealed by available aeromagnetic data, they correlate magnetic trends on both sides of the rift margin – the west coast margin of India and the east coast of Madagascar. Like diligent

detectives, they deftly put together the clues and fit the puzzle pieces of blocks and shear zones to show how it was the Ranotsara Shear Zone that was once connected to the Achankovil Shear Zone. Flip to **page 955** to read the details.

### Asoka Tree Distribution

#### *Habitat loss and gain*

The Asoka tree, *Saraca asoca*, a perennial evergreen, is important in Hindu mythology and in Ayurveda. But, due to uncontrolled harvesting from the wild, it is now listed as a threatened species by the IUCN. To conserve the species, the first step is to understand the distribution of the species in India and its preferred habitats. But then, with the projected climate change, there will be environmental changes in the existing niches. These may also open up new niches for the species.

A Research Article in this issue reports the collation of occurrence points of *Saraca asoca* from available records and correlates the environmental variables to model the present distribution of the species. Then, using the data of four different scenarios of the global circulation model, the authors predict the changes in the niches and the future distribution of the species.

While all scenarios predict significant habitat loss for the Asoka tree, some gain, though small, is also predicted. The Western Ghats and coastal Orissa will remain the hotspots for the species. But the central parts of India will become more unsuitable for the species. New habitats will open up, mostly towards the colder parts of Meghalaya, Mizoram, Assam, Uttarakhand and Himachal Pradesh, say the authors.

Since the life span of the tree is about fifty years, attempts to conserve the species may need to take into account these predictions. Read on from **page 989**.

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