

## In this issue

### Anthropogenic Disasters

#### *Global strategies, local action*

In this issue, J. S. Singh, from the Banaras Hindu University, briefly reviews the development of the environmental movement, the evolution of concepts such as global warming, ecological footprint and sustainable development. He takes into account the known risks due to climate change: its effects on food production, water availability, sea level rise, changes in habitats, increase in natural hazards, human migration... He moves on to deal with global efforts, such as the Paris Agreement of 2015 and the development of new technologies at local levels, to mitigate these effects. He manages to cover major landmarks over seven decades of the history of the field in about seven pages. Students, including those in their eighties, cannot afford to miss the General Article on **page 210**.

### Catch that Sunshine

#### *Dye sensitized solar cells*

Plants use solar energy better than animals do. Even an insignificant blade of grass can convert solar energy with greater efficiency than the average solar cell. To deconstruct this mechanism, scientists took to the study of photosynthesis in the 1960s. A result of this was the conception of the dye sensitized solar cells (DSSCs) that use organic dyes – like chlorophyll – to catch photons for power generation. This reduced the costs of production.

DSSCs can be assembled with great ease. Today, DIY DSSC kits are available in the market. Some even utilize primary organic dyes like pigments from raspberries or jamun. But here is the catch: the power generation capacity of even third generation DSSCs, is less than that of traditional solar cells. It would require a revolution to boost their efficiency in solar power generation capacity.

With India aiming for an ambitious 100 GW solar power generation by 2022, there is a greater need for innovation in this sector. On **page 228** in this issue, scientists from the Institute

of Chemical Technology, Mumbai review where we are with respect to DSSCs – pitfalls in the current design, new breakthroughs in the construction, and what needs to be done for a sustainably charged future.

### Revise Management Curriculum

#### *Strategy to sustain development*

As corporate economies outgrow national economies, profit is often made at the cost of people and the planet. Social and natural capital are often overexploited and even destroyed. Thus, there is a need to inculcate the multi-dimensional view of sustainability and skills that can facilitate the path to sustainable economy, in future businessmen. This can be undertaken by integrating sustainability into the curriculum for training management graduates.

A Research Article, on **page 236** in this issue, proposes a synergetic combination of theology and business management for this purpose. Students need to imbibe a deep sense of association between theological thoughts and their commercial applications. And to do that, traditional Indian wisdom can be employed, claims the author.

Politics and theology have been inextricably linked in the history of mankind. Will the proposed formal linking of theology and commerce balance the forces that move mankind?

### Sacred Groves

#### *Ants in leaf litter*

The image that the term ‘sacred groves’ provokes in us is of small, pristine forests, venerated by people. We see the trees, but not the ants in the leaf litter.

Researchers, at the Central University of Kerala, decided to look at ants in sacred groves. They compared the diversity and population structures of ants found in two groves near urban areas and three groves in rural areas. They find an abundance of invasive ants in urban sacred groves.

Though the species diversity of ants is not different in these sites, nine species were exclusive to rural sacred

groves and five species were exclusive to the urban sites. The Research Communication on **page 317** in this issue provides data to create indicators to measure the extent of the influence of urbanization.

### The Lunatic is on the Grass

#### *Male birds moon over females*

The male Pied Bush Chat, *Saxicola caprata*, is a small bird, found in grasslands, paddy and sugarcane fields. Coloured black with patches of white, it is rather unremarkable except for its song. The male Pied Bush Chat usually starts singing from the last week of January and, by the first week of February, the bird becomes noticeable. Throughout the breeding season, it twitters, sitting on its favourite perches. So it is easy to observe individual birds over time.



Researchers at the Gurukula Kangri University, Haridwar, ringed 12 such birds with coloured plastic bands to make sure that they were observing the same birds. And they collected data on onset time of dawn chorus, duration of song, song rate, etc. for 59 days. They wanted to find the environmental factors that influence the birds’ songs.

Besides well expected parameters such as time of sunrise and photoperiod, temperature and wind, they found an unexpected factor that influences the birds’ croon: the moon.

The Research Communication on **page 329** in this issue should inspire research on Twitter accounts to check whether *Homo sapiens* are prone to similar influences too.

Sarah Iqbal and K. P. Madhu  
*scienceandmediaworkshops@gmail.com*