

## In this issue

### Pollution Collusion

Fifty years ago, the word, pollution, was seen rarely outside academic circles. Today it is rare to find a newspaper that does not contain the word. Besides water, air, soil and food pollution, loud noises invade our senses; electromagnetic radiations fill our living spaces... Pollutions of different sorts collude to harm our health and wellbeing.

The time to take concerted action is now, argues a General Article in this issue. We cannot afford to wait another fifty years to respond to the growing problem. Read on from **page 1087**.

### Ornamental Fish

#### *Rainbow revolution*

There are millions of aquaria in the world that display ornamental fish and the trade in ornamental fish is growing at a rate of about 14% per annum. How do fish get their colours? What can fish enthusiasts feed fish to enhance colour? Can the colours be enhanced by genetic manipulation? What are the unethical practices that are emerging in the ornamental fish trade to artificially enhance colour?

Read the Review Article on **page 1093** in this issue.

### Vertical Ozone Profile

#### *From INSAT-3D data*

Ozone, so useful in the stratosphere for absorbing harmful UV radiations, becomes a problem in the troposphere where it impacts health and crop yield, besides acting as a greenhouse gas, absorbing longer wavelength radiations. So it is important to monitor the vertical profile of ozone in the atmosphere.

There are frequent folding events in the tropopause, the imaginary separation between stratosphere and troposphere, leading to enrichment of

ozone in the troposphere over the Himalayan region. This makes ozone profiling over such inaccessible areas an even more challenging task.

Researchers from six institutions got together to test the use of INSAT-3D data for monitoring the vertical profiles of ozone in such regions. The Sounder payload scans the entire country every hour or so, and provides high resolution data of ozone.

Recently, the researchers tested it by comparing the results from the model reanalysis with the data from four years of observations from 122 balloonsondes released from ARIES at Nainital as well as data from other satellite products.

Though there are minor deviations between the results from the model reanalysis and those from other data sources, there is a reasonable agreement between the results from the model reanalysis, the balloon experiments and other data sources – adequate to encourage the use of INSAT-3D data for monitoring ozone vertical profiles over India. Read on for more in the Research Article on **page 1113**.

### Fuel Economy and Emissions

#### *Hybrid electric vehicles*

Electric vehicles are now a common sight. These vehicles move silently, smokeless, along with the conventional fossil fuel vehicles roaring out smoke and pollution. As the technology for electric vehicles catches up, we will witness the slow conversion of conventional vehicles to plug-in parallel hybrid electric vehicles, to take advantage of the best of both technologies.

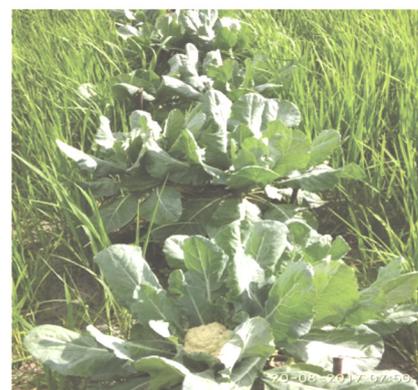
Researchers from the National Institutes of Technology in Surat and Nagpur collaborated to investigate such hybrid vehicles to compare their fuel economy and emissions with

those of the conventional diesel engine. In a Research Article on **page 1123** they present the results.

### Rice and Vegetables

#### *In paddy fields*

Planting vegetables in paddy fields after rice is harvested is a common practice. But ever heard of intercropping vegetables in submerged rice fields?



That is what the researchers from the ICAR-Central Research Institute for Jute and Allied Fibres did. They filled gunny bags with soil and put them in the middle of puddled paddy fields to grow vegetables. From 2011 to 2017, they experimented with growing more than two dozen vegetable species along with rice. They tried it in both *kharif* and *rabi* seasons, in Bengal, Odisha and Assam.

Growing vegetables in paddy fields, without hampering rice cultivation and productivity, can improve the diet and nutrition of rice farming communities and fetch better income, say the researchers. To convince yourself, turn to the Research Communication on **page 1190**.

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