

## In this issue

### Inequality in Punjab

Agricultural development in Punjab is high. The state's economic development relies largely on agriculture. A Research Article from the Punjab Agricultural University examines economic inequalities in agricultural households in Punjab.

The Situation Assessment Survey of 2013 had data related to the income of sample households from 94 villages. The researchers analysed the data to derive Gini coefficients, an accepted measure of income inequality. They examined the contribution of the various income sources – farming, livestock and salaries as well as nonfarm business – to the high inequality and found that agriculture is the most crucial factor. Comparing the Gini coefficients of the districts, they found that Barnala district had very low inequality whereas, in Firozpur, the distribution of income in agricultural households showed high inequality.

The researchers divided Punjab into five agro-climatic zones. With analysis using the Theil index, another popular measure of inequality, they realized that any attempt to address inequality through policy or other interventions needs to consider the high inequalities found within districts and within agro-climatic zones. Strategies useful in one region or district may not work at all in others.

Based on their analysis, the researchers have specific recommendations for decision makers in Punjab. Turn to **page 1855** for more.

### Microplastics in Water

*A case study from Chennai*

More than 300 million metric tonnes of plastics are produced every year. A sizable portion of this ends up as waste, polluting land, water and air. Microplastics, plastics sized less than 5 millimetres, are especially notori-

ous for polluting water. Researchers at the Anna University collected water samples from various locations: from the sea, as well as from groundwater and surface water which are sources of drinking water supply, canned water supplied to homes, bottled water...

Microplastics were found in all. Only the number of microplastic particles per litre was different. In a Research Communication on **page 1879** in this issue the researchers provide more details such as the colour, structure and composition of the microplastics and some of the locations with potential for contaminating drinking water sources in Chennai.

Chennai is only a case study. Other cities in India may also be facing the same problem. There is an urgent need to control the microplastic contamination of drinking water. Policy and administrative interventions to regulate manufacture, consumption and disposal, research on the impact of microplastics on human physiology and the development of technologies for removing microplastics from drinking water may need to be taken up concurrently, to stem the pollutant.

### Deciphering Solomon's Skills

The legendary King Solomon the Wise is said to have had the ability to understand the language of birds. Scientists of today aspire to break the code, by analysing the syntax and guessing the semantics of bird calls.

When C. Divyapriya joined as Ph D scholar at the Sálím Ali Centre for Ornithology and Natural History, Anaikatty, near Coimbatore, her guide, P. Pramod narrowed down the goal. Out of nearly 200 bird species found near the campus, capture an adequate amount of the vocalisations of the Common Iora, *Aegithina tiphia*, to enable analysis and to gain insights.

So she went around with a recorder and microphone from six in the morning to seven in the evening, capturing vocalisations during the breeding season (January to August) as well as in non-breeding season. After about two years, after removing all noisy sounds and after cleaning up the usable sections, they had nearly 50 recordings. 240 minutes of Common Iora vocalisations. 142 specific vocalisation events. The researchers had also recorded the behaviour of the birds during vocalisation. The meanings of the vocalisations depend on the context...



Out of the thirty-four recognisable syllables of the bird vocalisations, the team focused on fifteen of the most commonly uttered ones. Fourteen of them were produced by males and only one by females. Now when Divyapriya and Pramod hear the Common Iora's vocalisation, they can predict the height at which it is perching, whether it is an attempt to attract the female or to warn off other males, what it might be doing, hopping or perching, with or without the female partner....

A careful reading of the Research Article on **page 1863** in this issue may help you also when you eavesdrop on the conversations of the Common Iora.

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