

In this issue

Managing Water Resources

About 4000 billion cubic metres of water are precipitated over India annually. But utilizable water in India is only 690 billion cubic metres of surface water and 447 billion cubic metres of groundwater, totalling 1137 billion cubic metres. Increasing withdrawals from surface and sub-surface water bodies are not sustainable. Very soon, demands for water are likely to exceed availability.

Surplus water in some regions could overcome scarcity in others. Inter-basin water transfer is an attractive proposition but it is costly and has ecological repercussions as well as political implications.

Under such conditions, how can the Government of India solve the country's water woes to provide water and food security to the nation? Sharad K. Jain presents the steps that need to be taken immediately: manage precipitation variability, conserve flood water, rationalise cropping patterns, and speed up construction projects, and recycle and reuse water. Read more in the General Article on **page 569** in this issue.

Politics and Social Structure

Macaques master sexual signals

In the Campbell Bay area of the Great Nicobar Island, there are five groups of the long-tailed macaque, *Macaca fascicularis umbrosus*, roaming the littoral forests and evergreen hill forests, often venturing into small home orchards and coconut plantations. A group of Indian scientists belonging to five different institutions started observing one of these groups of macaques from May 2014 and started collecting data

using rigorous protocols from July. This group of 18 individuals with two adult males, one sub-adult male, eight females, four juveniles and three infants had a foraging range that overlapped with that of two other groups on either side. This mostly meant peace but at times included aggressive posturing between groups.

On 14th October, an outsider came into the group, defeated the alpha male and became the boss. The earlier group leader became ill and died within a few months.

After the aggressive takeover of the group by the new leader, there were more confrontations with the other groups on both sides. The group became unstable. Individuals left. The group was sustained only due to deceptive sexual strategies adopted by some of the female members of the group, ostensibly, to protect their young ones. Though these primates have increased sexual behaviour from January to June, the mating frequency increased after the takeover by the newcomer in October. A female that resisted was hurt and her young one 'disappeared'.

Sometimes understanding our simpler cousins-removed-a-million times gives us insights on the dynamics of our own, a million times more complex, socio-political structures. Read the Research Article on **page 672** in this issue.

Arsenic removal from water

Low cost solutions

Arsenic in water beyond 10 parts per billion is considered to be unsafe for drinking. But there are places in India where water contains more

than 400 micrograms of arsenic per litre!

Researchers from the Indian Institute of Technology (BHU) and the Institute of Engineering and Technology, Lucknow examine a low cost solution for the problem: activated powders of mango bark, guava leaves and bagasse. And bagasse, waste from sugar industries, worked out to be the winner.

Read more in the Research Article on **page 649** in this issue.

Earthquake Resistance

Cognitive deficit and disaster

In spite of the experiences of earthquakes and the harm they do to buildings, why do people continue to create constructions that do not take into consideration the recommendations of the Indian Bureau of Standards for earthquake prone areas?

Faculty from the Government Engineering College, Thrissur, the Rajiv Gandhi Institute of Technology, Kottayam and the Karunya University, Coimbatore examine building construction practices adopted in Theekoy and Varavoor, Kerala before and after an earthquake experience. Though local populations in this literate society are aware of the need to change construction practices, there is a cognitive deficit in the construction delivery system consisting of architects, engineers, contractors and masons, say the authors of the Research Communication on **page 690** in this issue.

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