# In this issue

### Walk the Talk

*Collaborative corridor restoration*

Conflict between humans and animals is a major concern for wildlife conservationists. People who live in and around national parks have to pay huge costs for survival. Their animals are preyed upon, farmlands are destroyed and sometimes lives are lost. It is but natural that sometimes such communities may retaliate against nature.

But such people are also a rich source of knowledge on animals and the ecology of forests. Involving them in protecting wildlife corridors could create a sustainable structure for wildlife conservation. To this end, a group of scientists from the Ashoka Trust for Research in Ecology and the Environment initiated a dialogue with grassroots level organizations in the Biligiri Temple Tiger Reserve, Karnataka to restore an important corridor of the park.

The Edeyarhalli–Doddasampige corridor currently supports 15 wildlife species in addition to indigenous and non-tribal communities. With a length of only half a kilometre, there is already tremendous pressure on the forest. The researchers are now working towards restoring the corridor to 25.5 km. For this, the adjoining land is being enriched by planting saplings that would support the local people as well as wildlife. Preliminary dialogues show that local stakeholders support such restorative initiatives. On **page 1440** read a report on this initiative. How has it been planned? And what are the results?

### Unity in Diversity

*A national electricity council?*

After China and USA, India is the third largest electricity producer in the world. The growth in electricity generation during the Twelfth 5-year plan has been tremendous. But a huge fraction of this energy is sourced from burning coal which causes pollution.

More than three-quarters of India's electricity is sourced from coal. We have vast untapped coal reserves that can continue to fuel India's electricity generation for several decades. But as we move towards environment-friendly energy production, several challenges emerge. We lack the technology to produce, store and distribute the electricity generated from renewable sources of energy. If India wants to fulfil its commitments to the UN by 2030, we need to expedite our investments in transmission and distribution of energy. We also need to develop critical energy storage to integrate the intermittent electricity generation from renewable sources into the National electricity grid.

The challenges related to the electricity sector in India are also compounded by the lack of coordination between the Centre and the States which hampers the creation of 'One Nation–One Grid–One Price'. These challenges can be overcome with a National Electricity Council that takes note of all the issues to develop holistic solutions. On **page 1233** read a General Article detailing the challenges to be overcome by India's electricity system and some key recommendations to tackle the present bottlenecks.

### Colouring Outside the Lines

*Coloured Rajnigandha varieties*

Flowers have colours that attract pollinators. People too, are fascinated by bright hues. To cater to a growing demand for quirky flowers, the global flower industry generates unique blends of colours through cross breeding. One species identified for creating coloured flowers is Rajnigandha.

Due to its divine smell and nature to outlive other flowers in arrangements, Rajnigandha is already very popular at floral stores. But the varieties cultivated in India are mostly white. The colour of a flower depends on the nature and amount of pigment produced by the plant. So, if the genes that code for the pigments are expressed, the flowers may develop a tint of pink, red or yellow.

The first step for such experiments is extracting the genetic material from a related plant that blooms coloured flowers. Some varieties of Rajnigandha found in Mexico are orange or striated and may be used for this purpose. By creating a library of genetic material from related plants that breed tinted flowers, the process of producing pigmented Rajnigandha can be made more efficient.

The National Botanical Research Institute, Lucknow, and the Indian Institute of Horticultural Research, Bengaluru have produced certain pigmented Rajnigandha varieties by cross breeding and induced mutation. On **page 1255** find an in depth review that outlines all the progresses made in terms of colour development in Rajnigandha so far.

### The Bigger Picture

*What is the deal with diabetes?*

Humans once lived in jungles, surrounded by nature. They used to feed on fruits and vegetables and meat, barely cooked on the fire. But then gradually, we cleared the jungles, adopted farming and gradually progressed towards urbanization. Our lifestyles underwent a parallel change with every new invention we made.

Even though scientific advances have made us immune against most fatal infections, today we are struggling with another problem – a global diabetes epidemic.

Diabetes was once considered a disease of over nutrition. It comes as a surprise that India, a developing nation, is fast becoming the diabetes capital of the world. The physiology of the disease is simple: The amount of insulin secreted by the body decreases or cells of the body become insensitive to the insulin secreted. This raises the blood sugar levels. However, a minor change like that spikes the blood pressure, affects the heart, upsets the liver, causes kidney dysfunction, impairs vision and even affects brain health. Diabetic patients are also more prone to infections. After several years of research, we still do not have a cure for diabetes.

Scientists are now integrating the knowledge from several different disciplines to better manage the disease. On **pages 1264–1353** read what Indian scientists are doing to tackle this disease.

Sarah Iqbal
*scienceandmediaworkshops@gmail.com*