

## World News Roundup



A member of the Pollution Response Team collects a sample of an oil spill from boulders at the coast, a day after an oil tanker and an LPG tanker collided off Kamarajar Port in Ennore, in Chennai on Jan 30. (Inset): Members of the Pollution Response Team lift the body of an oil-covered turtle from boulders at the coast, a day after an oil tanker and an LPG tanker collided off Kamarajar Port in Ennore, in Chennai. (AFP)

## Climate

## Crisis for tea

## Incinerator shows promising results

OSLO, Feb 1. (Agencies): Oslo's main trash incinerator has shown promising results in the world's first experiment to capture greenhouse gases from the fumes of burning rubbish as a new way to slow climate change, officials said on Tuesday.

If built at full scale, however, the technology would be a very costly way to limit carbon dioxide emissions as part of an international agreement to curb global warming reached by almost 200 nations at a summit in Paris in 2015.

So far, research into capturing carbon has focused mainly on emissions at the chimneys of coal-fired power plants. It had been unclear if the same could be applied at an incinerator for municipal and household waste.

"We had very promising results," said Oscar Graff, head of carbon capture, utilisation and storage at Aker Solutions, which ran the year-long test since January 2016 with a facility bolted onto Oslo's main Klemetsrud waste incinerator.

"Here you have almost everything which can burn ... plastics, tyres, suitcases, whatever," he told Reuters. He said the test found "no show stoppers" such as chemical reactions producing damaging foam, pollution or emissions to the air.

The incinerator, which generates energy for heating buildings in the Norwegian capital, emits about 300,000 tonnes of carbon dioxide a year, about 0.6 percent of Norway's total.

"Technically it should be possible to build" a carbon capture plant, Johnny Stuen, technical director for the Klemetsrud waste project, told Reuters.

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The future of Darjeeling tea, known as the "champagne of teas" for its distinctive aroma, is in doubt as erratic rains compound other problems facing the industry, estate owners say.

Since 2012, worsening drought — and landslides caused by downpours — have weakened bushes and washed away soil in the famous tea region in the foothills of the Indian Himalayas.

Poor rains have also led to more pest attacks, with red-spider mite, tea mosquito bug and blister blight causing major damage to the crop, local tea experts say.

Yields have fallen to an average of 8,500 tonnes a year since 2010, down from about 10,000 tonnes a year between 2000 and 2009, according to the Indian Tea Association (ITA).

"Darjeeling tea is facing a big disaster," Arun Singh, head of Goodricke Group Ltd, which has more than 10 tea estates in the region, told the Thomson Reuters Foundation.

"Our crops decline every year due to climatic factors," he said.

The Darjeeling hills, in West Bengal state, host 87 tea estates employing some 70,000 people. Annual turnover is about 4.7 billion Indian rupees (\$69 million) a year.

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German banking giant Deutsche Bank on Tuesday announced it would stop financing coal projects as part of its commitments under the Paris Agreement to tackle global warming.

"Deutsche Bank and its subsidiaries will not grant new financing for greenfield thermal coal mining and new coal-fired power plant construction," it said in a statement.

Existing exposure to such projects will be gradually reduced, it added.

The lender said the decision was in line with the pledges it made at last year's Paris climate conference, along with 400 other public and private companies, to help fight global warming.



This file photo taken on Nov 27, 2009 shows a honeybee hovering over a flower in Kathmandu. A wing-deforming virus shortens the lifespan of wild honeybees, already contending with a startlingly long list of existential threats, researchers said on Feb 1. Spread by microscopic mites, the microbe disrupted bee foraging and cut short their lives, experiments have shown. (AFP)

## Discovery

**Bees hit by 'wing virus':** A wing-deforming virus shortens the lifespan of wild honeybees already contending with a startlingly long list of existential threats, researchers said Wednesday.

Spread by microscopic mites, the microbe disrupts bees' foraging and curtails their lives, experiments confirmed for the first time.

"Deformed wing virus strongly reduced the chances for workers to survive to foraging age," scientists reported in the Royal Society journal Proceedings B.

It also "reduced the life expectancy and total activity span" of infected bees, they found.

Bees around the world — especially in Europe and North America — have been decimated in recent years by a mysterious blight called "colony collapse disorder", in which entire populations disappear or die out.

Research has pointed an accusing finger at agricultural pesticides, viruses, fungi, parasites, malnutrition because of fewer flowers — or some combination of the above.

More than just the survival of the bees is at stake.

Scientists recently calculated that 1.4 billion jobs, and three-quarters of crops, depend on pollinators, mainly bees.

All told, there are some 20,000 bee species that fertilise more than 90 percent of the world's 107 major crops.

At the same time, the United Nations estimates that 40 percent of invertebrate pollinators — mostly bees and butterflies — are at risk of extinction.

Scientists led by Kristof Benaets from the Laboratory of Socioecology and Social Evolution in Leuven, Belgium, set up an experiment using radiofrequency identification (RFID). (AFP)

**Oldest soft tissue remains:** The rib of a long-necked, plant-eating dinosaur that lived 195 million years ago has yielded what may be the oldest remains of soft tissue ever recovered, scientists said Tuesday. The find promises a chance to extract rare clues about the biology and evolution of long-extinct animals, a team wrote in the journal Nature Communications. Such information is mostly missing from preserved hard skeletons, which form the bulk of the fossil record. "We have shown the presence of protein preserved in a 195 million-year-old dinosaur, at least 120 million years older

## Environment

## Environmental entrepreneurs bid to save polluted lake

## Lake Baikal's 'green startups' sprout

IRKUTSK, Russia, Feb 1, (RTRS): Denis Klimentyev, an eco-entrepreneur in eastern Russia's Irkutsk region, produces camelina oil, used in cooking, and sells it to supermarkets as part of a co-operative also supplying herbal teas and jams made from wild forest fruits.

Klimentyev wants to set up an independent distribution network for locally produced organic products, encouraged by the training he received two years ago at a school for green startups in economically depressed areas around Lake Baikal, the world's biggest freshwater body.

"Until February 2014, I thought I was all alone (here) ... an idealist and enthusiast willing to produce something no one really needs or knows about," he said.

Many of the green businesses nurtured by the School of Environmental Entrepreneurship have been launched by ex-employees of failing businesses, such as pulp mills or chemical plants, which were once the backbone of small towns in the area.

One of the school's experts, environmentalist Marina Rikhvanova, is a former director of local green group Baikal Wave, which fought for 25 years to protect the lake. It holds a fifth of global freshwater resources, and is home to more than 1,500 unique species of plants, fish and marine mammals.

As well as running biodiversity conservation programmes, Baikal Wave played a major role in two international environmental campaigns.

One targeted the Baikal Pulp and Paper Mill, which was built in 1966 by the Soviet government, then owned by Russian billionaire Oleg Deripaska from 2002 until 2010 when it was re-acquired by the state. Activists said it had polluted the lake for more than 40 years with chemical substances.

The other protest was against plans to lay the East Siberia-Pacific Ocean pipeline to bring oil from Russia to Asia within half a mile of the lake's shores.

Both campaigns achieved their aims: the mill was closed down by the government in 2013, and the pipeline route was changed.

But in 2015, under a recent Russian law, Baikal Wave was declared

a "foreign agent", designating it as a rights group funded from abroad. Following state-imposed fines for not having registered as such, it closed down in 2016.

Most of the group's employees and experts have since set up new environmental initiatives in the region.

The school for green entrepreneurs was established in 2012 in Baikalsk, a small town on the lake's shores, by Elena Tvorogova, a director of the charitable foundation "Revival of Siberia", with support from En+ Group, a metals, mining and energy company owned by Deripaska.

The Baikal Pulp and Paper Mill shut down a year later, causing the loss of 300 jobs, on top of 1,400 earlier lay-offs.

For the first few years, the school mainly supported strawberry-growing ventures run by former staff at the mill and other local residents, selling the fresh fruit in the region or processing it into jam.

Now the school runs short courses twice a year, mainly in Baikalsk, for around 50 participants each time who live around the lake.

As a result of the nine sessions held so far, 101 business ideas have been worked out by people aged from 14 to 58 — and 20 of those have come to life as eco-enterprises.

## Fairs

The school supports them by running trade fairs and promoting their products in catalogues and on websites, and presents their ideas to potential investors.

The school receives funding from En+ Group and a number of local businesses, while experts from Russia's biggest bank Sberbank help with training.

"We are not only trying to bring up a new generation of social and environmental entrepreneurs in the region — we are also attempting to think about the future of 'mono-towns' in Russia," said Tvorogova.

Thousands of "mono-towns" still rely on a single factory or enterprise, a legacy of Soviet times. If that business closes, it can have a dramatic negative impact on the local economy and residents' quality of life.

With labour and social mobility still very low in Russia, former employees end up living off social welfare, while many young people move

to cities to look for work.

"We are also trying to give new skills, knowledge and opportunities for young people here, so that they don't leave the area for larger cities, and can contribute to the sustainable development of their regions," Tvorogova said.

Andrey Ilyin runs the "Eastern Siberian Centre for Energy Saving", which promotes energy-efficiency solutions for households, trains local people to economise on energy, and sells insulation materials for construction.

"We are a new generation of entrepreneurs — the ones that are not only after quick profits, but also have social and environmental goals, which is truly good, not only for us but for the development of the region," Ilyin explained.

Fellow alumni Olga Lopatkina and Petr Lopatkyn have set up a small chocolate production business using honey from bee-keepers in the Baikal area. "We think our business is also about social impact, so we hope it's useful and necessary in today's Russia," said Lopatkina.

Other projects incubated by the school range from production of plant oils, herbal teas, mushroom products and crafts, to organic gardening and recycling.

The school is now looking at ways to solve a new environmental problem in the area — the invasion of Lake Baikal by green algae (spirogyra).

The problem has been caused by high use of phosphate-based detergents as new hotels and housing blocks have sprung up around the lake in the past few years to accommodate a rise in tourists, who can number up to 1 million in the summer.

Most private homes and guest houses struggle to treat their waste water as municipal plants are overloaded and domestic equipment often malfunctions for the same reason, meaning that sewage is discharged directly into the rivers and canals that feed Lake Baikal.

"We are looking at opportunities to set up or support local businesses which would encourage residents to harvest the algae from the lake shores, and produce something useful from it — bio-compost, paper and packaging, or organic fertilisers," said Rikhvanova.

than any other similar discovery," study co-author Robert Reisz of the University of Toronto Mississauga, told AFP.

"These proteins are the building blocks of animal soft tissues, and it's exciting to understand how they have been preserved," he added.

Reisz and a team scanned a rib bone of Lufengosaurus, a common dinosaur in the Early Jurassic period. Fully grown, these lizards measured about eight metres (26 feet). The researchers used a photon beam



Benaets



Reisz

at the National Synchrotron Radiation Research Center in Taiwan to examine the insides of the bone, specifically its chemical contents.

They found evidence of collagen proteins within tiny canals in the rib and concluded they were "probably remnants of the blood vessels that supplied blood to the bone cells in the living dinosaur."

Most previous studies had extracted organic remains by dissolving away other parts of the fossil, the team said. (AFP)