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## News & Views

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### **Himalayan rail route linking Tibet with India feasible**

Trans-Himalayan Railway connecting Tibet with India and Nepal is economically and technically feasible as Beijing looks to make Tibet an economic and cultural hub connecting China with South Asia, according to Chinese officials.

“The construction of a railway crossing the Himalayan mountains is now economically and technologically feasible,” Zong Gang, Deputy Director of the Science and Technology department at Beijing University of Technology, told a forum run by the China Tibetology Research Centre.

The Himalayan Railway would start from Zigaze, a city in Tibet, run to Gyirong, a land port on the Chinese border, and extend into Nepal, although it would not be a high-speed railway, state-run China Daily quoted Chinese researchers.

China built a railway running for more than 1,100 km to connect the highland region of Tibet with the rest of the country in 2006 and extended it to Zigaze with an additional 250 km rail link connecting the city to Tibetan provincial capital Lhasa.

China now mulls a rail link to the both Nepal and Yadong, a Tibetan country close to Sikkim border. Chinese officials say that in future it can be connected to India.

*Source: Hindustan Times, 6.8.2016*

### **TBM for Lucknow metro project**

The TBMs set to bore the Lucknow Metro are in transit. The two 6.52m-diameter Terratec EPBMs will bore the city’s Phase 1A north-south line. The project consists of twin 1,812m-long tunnels. The TBMs will be launched and received at ramps.

The 36-month, USD 1bn contract, which was awarded to Tata-Gulermak JV in April 2016, also includes the construction of three new underground stations at Hussainganj, State Secretariat (Sachivalaya) and Hazratganj.

The machines will be equipped in a soil configuration with tools that can be changed for 17” disc cutters to bore through diaphragm walls, and in case of unexpected obstacles.

The first TBM will arrive in November at the Sachivalaya worksite while the second will arrive in December. A spokesman for the manufacturer said: “The machines will initially be launched on twin 780m drives towards Hazratganj, where they will bore through local

geology consisting of stiff to hard clayey silt and medium to dense silty sand, with an average overburden of 4m to 10m.

“Following the initial drives to Hazratganj – where the machines will pass beneath historic buildings in the Capital Plaza of Hazrat Ganj – the machines will return to the shaft at Sachivalaya and be deployed on their next, 613m-long, drives towards Hussainganj. From there, they will continue on a further 419m – crossing underneath the Haide Nalah canal – to the cut and cover ramp near Charbagh station.”

The tunnels will be lined with universal segmental rings in a 5+key configuration. The segments will be 275mm thick by 1,400mm long. Work on Phase 2 of the metro is due to begin in 2018.

*Source: Tunnels and Tunnelling, 3.11.2016  
(www.tunnelonline.info/news)*

### **Foundation stone laid for chardham highway project**

Prime Minister Mr. Narendra Modi laid the foundation stone for the Chardham (four important places of worship by Hindus) Mahamarg Vikas Pariyojna in Uttarakhand’s Dehradun on 27 Dec 2017. The Chardham Mahamarg Vikas Pariyojna, or the Chardham highway development project, is an ambitious initiative to improve connectivity to the Chardham pilgrimage centres in the Himalayas. The project’s main objective is to develop around 900 km of national highways. These highways will be built in Uttarakhand at an approximate cost of Rs 12,000 crore.

The project will make travel to the Chardham (Gangotri, Yamunotri, Kedarnath and Badrinath) safer and more convenient. The project involves widening the existing, geometrically deficient highway that connects the four abodes. Apart from widening, the road transport and highways ministry plans to improve the stretches to two-lane carriageway with paved shoulders, protect landslide hazard zones, construct bypasses, long bridges, tunnels and elevated corridors to ensure safety for the users. A team of experts is already on the job to identify zones that are prone to landslides. Environment friendly techniques are being incorporated in the design to make these zones safer. Road Transport and Highways minister expects the project to be completed by 2018.

*Source: The Financial Express Online, 27.12.2016*

### **Rishikesh-Karnprayag rail link project to start soon**

Work on the 125 km Rishikesh-Karnprayag rail link, easing access to Chardham (four important places of worship by Hindus) pilgrimage centres, is set to begin soon. In-principal clearance for the first phase of the project has already been given by the Union ministry of forests, environment and climate change. Formal clearance will be granted by the ministry after compliance of the conditions mentioned in the in-principal clearance letter, additional principal chief conservator of forests Vinod Singhal told.

One the clearance for the project is granted, the ministry will transfer around 300 hectares of forest land to the railways. According to the Forest Conservation Act, forest land is given for non-forestry projects after fulfilment of certain conditions. The ministry of railways is doing

its best to comply with the conditions so that work on the 125 km railway line between Rishikesh and Karnaprayag kicks off early. Hopefully, it will begin by December, sources said. The process for grant of forest and environment department's clearance for the second phase of the railway line project is also under way.

Once the project is complete, the journey from Rishikesh to Karnaprayag will become comfortable and take two to two and half hours less time. On the route passing through five districts of Uttarakhand including Dehradun, Tehri, Pauri Chamoli and Rudraprayag, there will be as many as 12 stations, the first being in the forest post area of Dehradun.

The line will have 105 km or 85% of the project inside tunnels. A 15.1 km tunnel, longest in the country, is set to come up between Devprayag and Lachmoli on the route. The project will also include 16 bridges with the longest of them being 460m. There will be as many as 12 stations.

As per Rail Vikas Nigam Ltd (RVNL), the project executing agency, and state tourism department officials, it will reduce the time taken between Rishikesh and Karnaprayag, which bifurcates road for Badrinath and Kedarnath, to a maximum of 2 hours from the present over seven. Besides this, there will be huge cut in travel cost of pilgrims. Officials said it would also speed up the transportation of defence personnel and equipment to border areas.

“This project will also support the state’s efforts in stopping migration and open the gateway for penetrating railway lines further into the hills,” former minister of state for railways, Satpal Maharaj, during whose tenure the rail link was first mooted, said.

*Source: Hindustan Times, 19.9.2016 & Times of India Online, 18.10.16*

## **Scientists turn carbon dioxide into stone to fight climate change**

Scientists have turned carbon dioxide into stone in a matter of months by pumping it deep underground, offering a revolutionary new way of storing the greenhouse gas to tackle climate change.

The pioneering experiment in Iceland mixed CO<sub>2</sub> emissions with water and pumped it hundreds of feet underground into volcanic basalt rock, where it rapidly turned into a solid.

“We need to deal with rising carbon emissions. This is the ultimate permanent storage—turn them back to stone,” said Juerg Matter, lead author of the study, which was published in the journal *Science*. Previous attempts to inject CO<sub>2</sub> into sandstone soils or deep saline aquifers have struggled, as they relied on capping rocks to hold the gas down—triggering fears it could eventually leak.

In contrast, the Carbfix project at Iceland’s Hellisheidi plant, the world’s largest geothermal facility, which powers Reykjavik, sought to solidify the CO<sub>2</sub>.

The plant produces 40,000 tons of CO<sub>2</sub> a year, just 5% of the emissions of a similarly sized coal plant, but still significant. In 2012, they began pumping 250 tons of CO<sub>2</sub> mixed with water underground.

Scientists had feared it could take hundreds or even thousands of years for the mildly acidic liquid to solidify. But 95% of the injected mixture, which they had tagged with tracer chemicals in order to check, it didn't leak out and became chalky white stone within two years. "It was a very welcome surprise," said Edda Aradottir, who heads the project for Reykjavik Energy.

Encouraged by the success, the company has scaled up the project and from this summer will be burying some 10,000 tonnes of CO<sub>2</sub> each year, Aradottir said.

*Source: Hindustan Times, 11.6.2016*

### **Subway – all aboard the microbe train**

Have you ever wondered what kind of microbes you encounter every day on your daily subway commute? A team of scientists in Boston decided to check the kind of bacteria the city's subway system was infested with according to a study tweeted by biologist Jonathan Eisen. The scientists were rather surprised by their findings: that there was very little possibility of any disease being spread by the city's T subway system. Scientists said most of the surfaces from where the samples were taken – seats, poles, ticketing machines, touch screens – had microbial content of that of a healthy hand, instead of pathogens that could trigger diseases.

"From what we found, the bugs you encounter riding the T are not any worse than what you would expect from shaking someone's hand," said Curtis Huttenhower, a computational biologist at Harvard. "Sure, a lot of microbes are involved, but it's nothing to worry about."

The study, published in the American Society for Microbiology's journal, also include microbes that live in our mouths or noses on some of the poles (attributed to coughing or sneezing), and some vaginal microbes on seats (which can be transferred through clothing). "Even though the subway can seem like a 'dirty' environment, it's not strikingly different from a conference room at work," Huttenhower said.

*Source: Indian Express, 3.7.2016*

### **Need to detoxify**

We encounter toxins everywhere - at home, in school, at the workplace, on the road, etc. Toxins enter our system through pesticides, chemicals in the water, pollutants in the air, soaps, shampoos, furniture polish, etc. They are omnipresent. But the toxins affect each one of us differently. The effects can be acute or chronic, depending on the circumstances, dose and length of exposure. For example, if a person eats poorly, travels extensively, leads a highly-stressed life, does not exercise (due to lack of time) and suffers from toxic overload, he or she is more easily affected by pollutants in comparison to a person who eats sensibly and lives a healthy life. This means that while we have little control over our problems, we can rev up our machinery to tackle issues better. If we eliminate foods that contribute to toxicity (sugar, wheat flour and junk food), and eat those that cleanse the body, our health will improve.

There are various methods to detoxify one's body Consumption of herbs, vitamins, minerals and vegetable juices helps, correct breathing (pranayam), aromatherapy, exercises, etc, also help in detoxification.

**Juices that help:** Drinking vegetable juices is the best way to improve the nutrient density in our diet without adding too many calories. Raw vegetable juices are the richest source of vitamins, minerals and enzymes.

Juices also help you consume large quantities of raw food. For instance, you probably won't have the time or the inclination to eat one kg of raw vegetables every day. But you can enjoy their health benefits by consuming them in the form of a juice. In addition, they provide extra nutrients to help your body detoxify. Drinking vegetable juices enables your body to assimilate the nutrients found in food. Raw vegetable juices contain enzymes, which act as a catalyst in a number of metabolic reactions that take place in the body, thus improving absorption. Cooking destroys these enzymes and most vitamins.

**Calcium-rich juices:** Take five carrots, eight to 10 leaves of spinach and one apple. Wash thoroughly. Push them through the juicer. Add black salt and lime juice to taste.

**Iron-rich juices:** Wash and blend a few leaves of mint, coriander, spinach and curry leaves to make a fine paste. Add water to make it drinkable. Add black salt and lime juice to taste.

*Source: Hindustan Times, 23.6.2016*

## **Enjoy nature but protect it to save our future**

The greenery of nature is always soothing to look at. You will be feeling no solitude in this society, if you love wandering through the woods. It's fun to hear grasshoppers that symbolize the sound of the forest. The silence or peace of the forest triggers many constructive and positive thoughts.

You will be amazed to look how dung beetles carry huge weights and how the colours of birds camouflage them among the trees. It's energizing to see the leaves dancing when breeze caresses it. The silence also enables you to appreciate the tranquility of nature in the Himalaya. It revitalizes you to take in the air from virgin forests.

"Green is the prime colour of the world, and that from which its loveliness arises" writes dramatist, poet and writer of the Spanish golden Age Pedro Caldreon de la Barca. It's according to Professor TM Das of the University of Calcutta (which Michigan University agrees with) *a tree living for 50 years will generate \$31,250 worth of oxygen provide \$62,000 worth of air pollution control, control soil erosion and increase soil fertility to a tune of \$31,250.* This figure doesn't include the value of fruits, lumber or beauty derived from the trees.

These both stress on the importance of nature. Mother nature provides us all essential facilities and services to survive. Forests have been called the 'lungs of the earth' because growing trees take carbon dioxide out of the air and replace it with oxygen. However, nature is being degraded. It's necessary to protect our life-sustaining nature in order for the human race to survive. Otherwise, nature has its own destructive ways of hitting back at us.

*Source: Hindustan Times, 19.9.2016*

## **The nun in the blue-striped sari**

Years ago, MF Hussain, the iconic Indian artist, drew three striped lines on a swathe of white canvas. There was no face; just the folds of the sari covering what would be a head, draping shoulders hunched in a mother's stoop, an interpretation perhaps of the Pieta statue by Michelangelo now in St. Peter's Basilica in the Vatican. To every Indian, as to most others across the globe who saw it, it was instantly recognisable as Nobel Laureate Mother Teresa of Kolkata, the woman who took dying men and women from the streets of the city to her home, or the person behind the orphanages which cared for newborn babies abandoned on some other town's pavement or refuse dump.

And as Pope Francis, himself radically interpreting Christ's compassion (in action) and love in a modern world, canonises Gonxha Agnes Bojaxhiu born in the distant town of Skopje, now in Macedonia, as Saint Teresa of Kolkata, India sees it as an honour to its own tradition of renunciation and service.

In fact, Mother Teresa made the Khadi sari with its three blue line border as iconic as herself. A symbol of compassion (in action) and love. Much as Mahatma Gandhi had made the homespun a symbol of the poor of the land. India never had better ambassadors. The khadi he wore was spun by himself. The khadi she wore was woven by victims of Hansen's disease, deemed by others to be unclean and historically doomed to places where they would not be seen by others.

What Prime Minister Narendra Modi said in his 'Mann Ki Baat' on 28<sup>th</sup> august, 2016, reflects best the sentiments of the Indian people: "She was born in what was then Albania. Her language also was not English. But she moulded herself (to Indian conditions) and served the people of India. It is natural for every Indian to take pride in the moment in which such a Mother is declared a Saint."

She had learnt English for she first wanted to be a teacher, and she soon learnt Bangle in her adopted land. Mother Teresa herself not only imbibed Indianness but she went further and proclaimed Indian values that she admired, to the world. She praised the Indian attitude of listening to each other and contrasted it with the hurried rat race of the West. According to her, the Indian ethos of being with someone, listening without a clock and without anticipation of results, teaches us about love. Because the success of love is in the loving - it is not in the result of loving.

For 17 years she taught in Loreto St. Mary's School, Calcutta (now called Kolkata). This totally Indian nun taught in Bengali because the medium of the school was the local language and she called herself "the happiest nun in the world". Teresa gave here all to this vast country. And the Indian people gave back love in equal measure. She became the quintessential Mother, a title given by the people only to a very few in recent times. The state bestowed on her the highest civilian honour 'Bharat Ratna' in 1980.

The moment of her canonization can be summarized in her own words quoted by Rukmini Chawla, her biographer, on the back cover of her book: "I see God in every human being when I wash a leper's wounds. I feel I am nursing the Lord Himself. Is it not a beautiful experience". Mother Teresa was God's gift to India. By imbibing Indianness, cultivating asceticism, taking the love of God from India to the rest of world, she became India's gift to

the world. (Her Blissful Spirit is alive due to the fact that Her Mission has grown three times in 135 nations after Her death).

*Source: Hindustan Times, 4.9.2016*

### **The extraordinary tale of a ‘Superstar Guru’**

It was 1920. A young yogi with flowing hair landed on America’s shores, as a delegate to the International congress of Liberals in Boston. A century ago, India was very much the land of mystical hocus-pocus and half-naked fakirs for Americans. But the yogi, born Mukunda Lal Ghosh in Gorakhpur, Uttar Pradesh, would go on to change that perception to a large extent.

We know him better as Yogananda Paramahansa (1893-1952) and are familiar with his seminal spiritual work, *Autobiography of a Yogi*. A contemporary of Swami Vivekananda, he told America: “Everything else can wait but your search for God...” He spent over 30 years in America, spreading the science of Kriya Yoga and its tradition of meditation.

The story of this remarkable man is now the subject of a Hollywood film, *Awake: The Life of Yogananda*. Directed by Oscar-nominated filmmakers, Paola di Florio and Lisa Leeman, the docu-feature was released on Friday in India, ahead of International Yoga Day on June 21.

Filed over three years with the participation of 30 countries, it has been described as an “unconventional biography.” *Awake* examines the world of yoga, modern and ancient, in the East and the West. It features interviews with Beatle George Harrison, the late Ravi Shankar, holistic health pioneer Deepak Chopra and many others who were inspired by Paramahansa.

Indeed, Yogananda has often been called “the Father of Yoga in the West,” and the “First Superstar Guru”.

He counted several prominent personalities as his followers, like botanist Luther Burbank, Kodak camera inventor George Eastman and actor Dick Haymes.

In India, Mahatma Gandhi requested him to initiate him and some of his followers into Kriya Yoga.

His teachings and his work, both have withstood the test of time. Through his spiritual institutions Self-Realization Fellowship (SRF) and Yogoda Satsanga Society of India (YSS), Yogananda’s work continues to grow. The society has more than 500 centres around the world and disciples spread over six continents.

In fact, according to the Walter Isaacson biography, when Steve Jobs died in 2011, he had only one book on his iPad: *Autobiography of a Yogi*. The book was also given to the people attending Jobs’s funeral.

For Jobs or for the man on the street, Yogananda’s teachings are the medium that helps them realize that elusive “something else”. As Yogananda explained the essence of his teachings: “Man remains engaged in an unceasing quest for that ‘something else’ he hopes will bring him complete and unending inner happiness. For those individual souls who have sought and found God, the search is over; He is that something else.”

In an interview to IANS, di Florio said of the film's release, "It feels like Paramahansaji's teachings of India's ancient wisdom have come full circle. India hold a very special place in my heart. The opening of Awake in India marks a seminal moment."

Actor Anupam Kher, who has lent his voice to the film, described the experience as "cathartic" in earlier interviews, He said the film was especially important as it gave him a chance to "understand the theory of the guru".

The New York Times said it was heartening to "see interviews with Ravi Shankar, Deepak Chopra and George Harrison (who died in 2001). It's a bit more so to hear contemporary scientists marvel at Yogananda's understanding of neuroplasticity decades before Western science considered it."

The film is the story of one man and his purpose to free mankind of ego and suffering to make East meet West and offer both a lasting (inner) happiness. Who knows, may be self-realization can be found in a cinema hall?

*Source: Hindustan Times, 19.6.2016*

### **Book on underground storage technologies**

Dr. Atul Nanda, Head, Technology Group and Dr. Altaf Usmani, Manager, SubSurface Projects Division, Engineers India Limited along with Dr. Ranjit Rath (AGM, EIL & Member, IGS Delhi chapter) have authored and edited a Book on "Underground Storage Technologies". This book discusses various technologies currently used all over the world for underground storage of crude oil with particular reference to storage of crude oil in unlined rock caverns in our country. The book is available with ISBN No. 9789352543830.

*Source: IGS News, Vol.48, No.1, 2016*

### **Humour!**

Alcohol will preserve anything but a secret.

*- American Proverb*

God is neither Mr. nor Mrs. or Miss as God is "mystery".

*- A Saint*

It's hard to be humble when you're as great as I am.

*- Muhammad Ali*