

NEWS & VIEWS

Foundation Laid for LPG Cavern Storage Facility in South Indian state Andhra Pradesh

The foundation for the Rs.333-crore liquefied petroleum gas cavern storage facility, first of its kind in South and South East Asia, was laid near the harbour channel in Visakhapatnam, A.P., India by the Minister for Petroleum and Natural Gas, Ram Naik, on Feb. 19, 2004.

The facility planned to be completed by June 2006 will store 60,000 tonnes of LPG in a hard rock cavern at a depth of 162 metres below the ground level.

Mr. Naik announced a Rs.1, 650-crore project to build strategic storage of five million tonnes of crude oil in underground rock cavern storages in Mangalore on the west coast and Visakhapatnam on the east coast. He estimated the value of the imported crude to be stored in these facilities at Rs.5,000 crores. "The Vizag cavern storage facility is the safest mode of storing LPG. It is a step towards creating a buffer stock of LPG."

The South Asia LPG Company Private Limited (SALPG), a 50:50 joint venture between the Hindustan Petroleum Corporation Limited and Total, French oil major, is executing it.

Source: The Hindu, Online Edition, 20.2.2004

Earthquake Risk Reduction by Lakes Along Active Faults

The basic concept of this article is to dissipate the strain energy of earth plates near the active faults frequently in form of many earthquakes of lower intensity, rather than the uncontrolled release of strain energy as a shallow earthquake of high intensity. This appears economically feasible by building a series of large lakes at suitable distances along the active faults. The seismic data compiled over the period showed that expected earthquakes of high intensity have not occurred in Himalayas in neighbourhood of dam reservoirs in India since 1970. The coefficient of friction against incremental shear stresses is negligible at the great depths along faults. The shear resistance along fault near ground surface may also be reduced by seepage pressures of lake water and deposition of clay particles along the same. More research is needed in other regions.

*Source: Bhawani Singh, D. Shanker, Mahendra Singh,
N.K. Samadhiya & R.N. Anbalagan,
Indian Institute of Technology Roorkee, India
3rd International Conference on Continental Earthquakes,
III ICCE, APEC, Beijing, China, July 11-14, 2004*

Harmony in Micro and Macro

By the ancients (Vedas), man has been called the world in miniature; and certainly this name is well bestowed, because in as much as man is composed of earth, water, air, and fire, his body resembles that of the earth; and as man has in him bones, the supports and framework of his flesh, the world has its rocks, the supports of the earth; as man has in him a pool of blood in which the lungs rise and fall in breathing, so the body of the earth has its ocean tide which likewise rises and falls every six hours, as if the world breathed; as in that pool of blood veins have their origin, which ramify all over the human body, so likewise the ocean sea fills the body of the earth with infinite springs of water. The body of the earth lacks sinews, the world being perpetually stable, no movement takes place, and no movement taking place, muscles are not necessary. But in all other points they are much alike...if the body of the earth were not like that of a man, it would be impossible that the waters of the sea - being so much lower than the mountains - could by their nature rise up to the summits of these mountains. Hence, it is to be believed that the same cause which keeps the blood at the top of the head in man keeps the water at the summits of the mountains.

*Source: Leonardo da Vinci (1452-1519)
as quoted by Biswas (1970)*

Four Indian Firms in Fortune 500 List

Four Indian companies – Indian Oil, Bharat Petroleum, Hindustan Petroleum and Reliance Industries – have made it to the list of 500 top companies worldwide compiled by prestigious ‘Fortune’ magazine.

All have improved their position since Fortune 2003 list but none is listed among top 50 Asian companies. Indian Oil with revenue of more than \$25,316 million occupies 189th position. Its revenue, the magazine said, has increased by 12.5 percent since 2002 and profits at \$1,631 million are up by 19.9 percent. The company employs 37,158 people and its assets have been estimated by the magazine at \$13,956.6 million.

Way behind is Bharat Petroleum whose revenue of \$12,053.70 million gives it a ranking of 450 among top 500. It had not made the list last year. Its revenue is up by 16.1 percent since 2002 and profits at \$442.8 million have gone up by 38 percent.

Just behind it, Hindustan Petroleum occupies 462nd position with revenue of \$11,750.50 million which gives it a profit of \$430.2 million. Its revenue since 2002 has gone up by 12.9 percent and profits by 41.8 percent.

Source: Hindustan Times, 14.7.2004

Tunnelling in Russia

Construction of this 15.3 km long railway Severomouisky tunnel has enriched domestic tunneling with experience of implementing advanced techniques and

equipment to projects built under adverse geological conditions, particularly in fault zones and in unstable soils.

Construction of 3km long 14.2 m diameter round cross-section Lefortovo road tunnel designed to allow for 4000 vehicles per hour was completed in Moscow. This is another proof of high intellectual and industrial standards used in this country for transport infrastructure construction projects.

Same time, Moscow first light rail metro line was open for traffic in the Southern Butovo.

In Kazan, creation of the metro network is under construction on the basis of up-to-date tunnelling complexes and high-precision waterproof reinforced concrete lining; first line is to be put into operation in 2005. Metro systems are also being built in Krasnoyarsk, Novosibirsk, Chelyabinsk and Ekaterinburg.

Aliance K and Krot of Moscow proceed to develop domestic utility tunnel boring machines. The companies have created several types of shields to drive tunnels lined with precast and pressed cast-in concrete, the shield having been used at some Moscow projects including the tunnel under Bolshaya Dmitrovka Street and Filyovsky collector boosting tunnel.

Source: ITA News # 5

Gibraltar Crossing

In the frame of the cooperation between ITA and the Spanish SECEG and Maroccan SNED in charge of the study of the Gibraltar crossing, a workshop will be organized in January 2005 in Madrid on the theme of "Systematic ground probing and treatment in mechanized tunnelling". Invited experts will meet and share their knowledge on the subject.

At the end of last year, the Moroccan Transport Minister, Mr Karim Ghallab and the Spanish Minister of Development Mr Francisco Alvarez Cascos have agreed on the construction of a fixed railway link between the North of Morocco and the South of Spain under the Strait of Gibraltar. The 38.7 km long link will be built in a twin-tube tunnel, 27.7 km of which will be built under. The Strait of Gibraltar is approximately 300 m deep. On the 12th of December 2003, the two ministers met and approved upon an action plan for the period 2004-2006 granting 27 million euros to be elaborated by the NATIONAL COMPANY FOR STUDIES OF THE STRAIT (SNED-Morocco) and the SPANISH COMPANY FOR A FIXED LINK (SECEG-Spain). 84 % of the amount will be destined to continue studies concerning the alignment and at what depth the tunnel should be built. The committee hopes to have the technical and social-economical studies ready in 2008.

Moreover, SECEG and SNED have issued in July this year a tender for a new investigation campaign. The tender consists in performing 7 boreholes for geological investigation totalling 1750 m located under the sea at a maximum water depth of 300 m, each borehole will have a maximum length of 350 m.

Source: ITA News # 5

Delhi Metro's first underground section inaugurated

The first underground section of the Delhi Metro opened on 19/12/2004 with Prime Minister Dr. Manmohan Singh describing the occasion, as the “red letter day” for Delhiites and asserted development of a world-class public transport was a national priority.

Inaugurating the 4km underground stretch from Delhi University to Kashmere Gate, he said the government proposed to launch a national urban renewal mission to give special attention to the public transport.

“We have to develop a public infrastructure. We have to invest in public transport, in roads with space for bicycle and pedestrians, in sanitation and public parks”, he said. The Prime Minister said the metro rail project could not have been conceived if its architects had not dared to think big. “I urge all our planners, both urban planners and those engaged in planning for rural development to think big.”

Complimenting the Delhi Metro Rail Corporation for adhering to time and cost targets, Singh, the first person to buy a ticket and travel on the underground corridor, said: “This is an example which other infrastructure projects should emulate.” Singh said cities in the country had to become more livable, which would only be possible with rapid public transport. He said the metro would go a long way in making Delhi ready to host the commonwealth Games in 2010 and “hopefully” the Olympics in 2016.

The Prime Minister thanked the Japanese government for its cooperation in the construction of the Delhi Metro and hoped this would be “the harbinger of increased cooperation between India and Japan on infrastructure development.”

In a class of its own

The Mobile connectivity in underground sections, disabled – friendly access and an automated accident avoidance system-these are the features of Delhi's rapidly growing Metro network.

The future – ready urban transport system also incorporates features and technology from as many as a dozen countries, including Australia, Germany, France, Japan, S. Korea, and Spain. While the metro project is being executed with Japanese assistance, the coaches were imported from S. Korea. The signalling and fare collection work has been executed by a firm in France, tunnelling work was done by a German consortium and lifts and escalators were supplied by a Finnish company. An Australian firm executed a project related to the automatic doors of the train and a Spanish firm did the electrification.

Source: The Times of India, 20.12. 2004

Earth Scientists Nail that Humming Sound

Seismologists believe they have pinpointed the source of a mysterious low- frequency “hum” that emanates from the Earth, the British science journal *Nature* reported on

30.9.2004. The persistent noise, at between two and seven mill hertz, is caused by emission of energy near or at the earth surface. But the puzzle is that the hum can be recorded on days even when there are no major earthquakes, the likeliest source for such massive energy release. University of California at Berkeley experts Junkee Rhie and Barbara Romanowicz note that the hum originates mainly in the northern Pacific Ocean during the northern hemisphere winter, and in the Southern Ocean during Southern hemisphere. They suggest the hum is generated by interaction between atmosphere, ocean and sea floor.

Science Discovers Curry Cure Works

India's traditional diabetic remedy from its native curry leaf tree "really does work" and could potentially be the making of a multi-billion-dollar alternative drug, a landmark British Pharmaceutical conference has heard. The claims for the curry leaf tree (*Murraya Koenigii*) are made on the basis of research hailed by complementary medicine specialist as "good and qualitative".

The research, led by professor Peter Houghton of King's college London, is significantly supported by a grant from a leading US drug company, Merck Research Laboratories.

On 29.9.2004, Edzard Ernst, a British complementary medicine professor who has long argued for greater and closer links between Western researchers and Indian ayurvedic producers, told *TNN*, he was very "encouraged" by the curry leaf tree research.

Houghton, who presented his findings to the British pharmaceutical industry's premier gathering, said extract from the curry-leaf tree appeared to restrict the action of digestive enzyme called pancreatic alpha-amylase. The enzyme is involved in the breakdown of dietary starch to glucose.

A patient with diabetes does not produce enough insulin to cope with rapid rises in the blood glucose levels, Houghton explained. That is why slowing the rate of starch breakdown, by blocking alpha-amylase can lead to a more even trickle of glucose into the bloodstream from the intestine. This is what the curry leaf tree appears to do. Using folksy analogy, Houghton said it was rather "like restricting people coming out of a station gate in the rush hour so that they come out one at a time rather than seven at a time". Complementary medicine experts said that the new research was one of the first serious, big business-supported initiatives to try and unlock the "treasures" of Indian and Chinese plants.

Source: The Times India, 1.10. 2004

Sewage to Bus Fuel

A bus company in Fredrikstad, Norway, is working with its local sewage treatment company to produce high-quality biogas fuel for its vehicles. The treatment plant receives 14 million cubic meters of sewage water annually and produces 8000 tones of sludge. Biogas is produced in sludge digestion tanks, where bacteria cause sludge decomposition in absence of oxygen. Biogas consists of methane, water, carbon

dioxide, and several other minor substances; and need to be purified to produce 98% methane content for use in the bus. A pressure swing absorption process separates carbon dioxide from methane, while water is removed in a gas dryer. The treated biogas, which is equivalent to natural gas, is then compressed to 25-mega pascal. The gas is stored in 108 storage containers, each with a volume of 50 liters –total storage volume is 1350 cubic meter at a normal temperature and pressure. The buses are fuelled using a standard gas dispenser, next to the gas storage area. When operating at full capacity, the system will produce 100 cubic metre/hour at 250 bars, sufficient to fuel 12 city buses, covering more than 1.1 million km/year.

Source: TIDEE, Volume 2, Number 3, September 2003.

Learning to Exhale!

Relaxation strategies can be extremely helpful and useful. Relaxation can help you to better manage stress, tension and anxiety, help you perform at work and remain calmer in any situation. It can be used at work or at home, on the bus or while you are standing in a queue.

This method of relaxation is usually referred to as control breathing. It is most effective in reducing anxiety and helping you to keep calm. It is quick and easy to use anywhere and anytime. Make yourself comfortable and then breath slowly and evenly. Quietly say to yourself ‘in’ when you breath in, and ‘relax’ when you breath out. Repeat this over and over again. Focus as much as you can on these two simple words. Imagine that with every breath out, each time you say relax, you are becoming more and more calm and relaxed. If you get distracted or if your thoughts wander, refocus as often as you need to.

Don’t forget, practice is the key. If you practice between 5 and 7 times each day, even if only for a few minutes, you’ll gradually master the skill.

Breathing deeply can relieve patients suffering from nausea after surgery. Voluntary breath control is probably the oldest known stress – reduction technique. It is major component of yoga, the ancient Indian self – help system of health care and spiritual development. Tai Chi, a Chinese movement art form; and the Lamaze method of natural childbirth. These and other method share a focus on the four distinct phases of breathing cycle: inhalation, pause, exhalation and pause. Once you gain control of your breathing in a non-stressful enviroment, you can more readily call up your relaxation breathing during the times of stress.

Source: The Times of India, Nov., 2004

Is There Any Link Between Following Two News Items?

Blasts Likely Meteor Shower

Several loud blasts believed to be caused by meteor shower echoed across the Indonesian capital Jakarta and nearby towns early on Dec. 19, 2004. Police said they

had found no evidence that the blasts were caused by bomb attacks. (*The Indian Express*, Dec. 20, 2004)

Lab that Rang False Alarm

What does a small laboratory in Portland with three “scientist”, a pick-up truck with an antenna and an Oscar- nominated film – maker have in common with thousands of Indians who were evacuated from their homes on Dec.30th morning amidst pandemonium?

It is this Portland-based company, Terra Research, with its motley group that had sent the warning to the Indian Embassy. “An earth – quake of intensity 7.5 to 8.1 was expected in the next 12 hours off the coast of New Zealand”, said the forecast.

Travelling via the Ministry of Science and Technology, it got translated into a terse warning: “A number of experts outside the country are suggesting that another tsunami may hit Indian Ocean today afternoon ...”. The group claims it is developing a “new science” that can predict earthquakes based on studying the earth’s “dark matter”.

The mind behind Terra Research, Larry Park, depends on his pick-up truck loaded with a rotating 3- foot disk to pick up vibrations that conventional seismograph can’t measure.

Is the technology known? “It is not. Nuclear science was also not known before it was put to use in the 40s”, said Michael McNulty, a filmmaker working with park for the last two years.

The earth’s “dark matter” transits “resonating energy” and when it finds a matching energy, it erupts. “ It works like tuning fork”, he explained.

Park, a computer engineer working on building a super- computer, chanced upon power surges cooking the electrical system for super computer. His investigations showed the energy was escaping from the faults in the earth’s crust as the plant was located in an earthquake zone.

Oregon state University geologist Chris Goldfinger said he had not heard of Park but his ideas seemed unlikely. Despite a few accurate predictions, “there’s nothing, to my knowledge, that worked twice in a row.” “It’s technical gobbledygook,” said Bill Steele, spokesman for the Pacific Northwest Seismographs Network at the University of Washington. Indonesia and Thailand ignored the warning but the India’s response took them by surprise. (*The Indian Express*, Jan 1,2005)

*Source: Dr. M. Perumal, Faculty Member,
IIT Roorkee, India*

Tsunami: ‘I Saw a Huge Wave, Taller Than Palm Trees, Coming Down’

(Story of a survivor who clung to pillar in Phuket)

Up to his chest in raging water, Boree Carlsson clung desperately to a pillar in a hotel lobby as a giant wave pounded Thailand's Phuket island on Dec.26, 2004. "I just couldn't believe what was happening before my eyes," said Carlsson, a 45-year-old Swede who had rushed into a hotel as the waves rolled into the Patong Beach. The giant wave flooded the hotel lobby in a matter of seconds and dragged furniture on to street. Carlsson had to wrap himself around a pillar to avoid being swept away.

"As I was standing there, a car actually floated into the lobby and over-turned because the current was so strong," said Carlsson, who works at another beachside hotel.

"The water was up to my chest and I was holding on to my friend's hand because he can't swim," he said. The giant waves triggered by an earthquake (M= 9) under the Indian Ocean tossed the cars around like toys and swept into luxury hotels in Phuket, a tourist magnet in Thailand's southern holiday playground.

Source: The Indian Express, 26.12.2004