

## **Ghat ki Guni Tunnel**

The current year will be one of inaugurations for Jaipur, with several long-pending infrastructure projects finally being thrown open to the public. It is no coincidence that 2013 is also an elections year.

Three major projects – Ghat ki Ghuni Tunnel, Ramnivas Bagh underground parking and Gurjjar ki Thadi underpass – are set for inauguration by Prime Minister Manmohan Singh and UPA Chairperson Sonia Gandhi during Congress Chintan Shivir from Jan. 18-20, 2013. Urban development officers say the tunnel will be opened on January 19 while the dates for the other two projects are yet to be finalized. Later in the year, a 9.0 km Metro corridor from Mansarovar to Chandpole will be opened.

The three projects slated for inauguration this weekend are all behind schedule. Over the last couple of months, they had been left unattended despite nearing completion. Sources said the Congress-led government was looking for an occasion and nothing could have worked better than have the Prime Minister or UPA Chairperson to inaugurate them just ahead of the polls.

The underpass project was taken up by the Jaipur Development Authority in Oct. 2009 with an April 2011 target for completion. When it got delayed indefinitely, the civic body blamed it on the Metro construction work in the area.

The two-level parking project was stuck in public litigation for five years before it was cleared in January 2010. The JDA started work and promised to deliver it by April 2012. The project, which has seen three postponements, is expected to ease much of the parking problems in a walled city that attracts an average 27,000 cars and 64,000 two wheelers every day.

The tunnel, 2.8 km long, is expected to streamline traffic on the Eastern Gateway to the city connecting to Agra Road on NH 11. Once slated for completion in June 2012, the project entailed greening on either side of the tunnel but Chinese-made, green plastic plants have been brought in the JDA to give the area a green look. The plastic plants will be cleverly camouflaged with some tall natural plants.

“Our country does not have advanced tunneling technology and while such projects take seven to eight years to be completed, we managed to finish it in two and a half years,” said Kuldeep Ranka, commissioner, Jaipur Development Authority.

The government plans to inaugurate the Metro corridor just in time before the polls. The agreement was signed on August 5, 2010, with a target of June 2013, leaving the Delhi Metro Rail Corporation, the executing body, with just 34 months for planning, awarding contracts, construction and commissioning. Officials say work on this corridor is being

completed in a record time of two years, the fastest for any Metro system after the one in Mecca.

In the first phase, the Metro will get an east-west corridor from Mansarovar to Badi Chaupar. But owing to the impossibility of meeting the 2013 deadline, as tunneling through the old city would have delayed the project, it was subdivided into further phases.

“These are all long-term infrastructure projects that take time to complete. Despite delays in acquiring land and environment clearances, we managed to finish them in record time. It has nothing to do with elections,” Ranka said.

*Source: Indian Express, 18.1.2013*

### ***Dam Might Takes China Places***

Up a sweeping jungle valley in a remote corner of Cambodia, Chinese engineers and workers are raising a 100 m high dam over the protests of villagers and activists. Only Chinese companies are willing to tame the Tatay and other rivers of Koh Kong province, one of the Southeast Asia's last great wilderness areas. It's a scenario that is hardly unique. China's Giant state enterprises and banks have completed, are working on or are proposing some 300 dams from Algeria to Myanmar.

Poor countries contend the dams are crucial to bringing electricity to tens of millions who live without it and boosting living standards. Environmental activists and other opponents counter that China, the world's No.1 dam builder, is willing and able to go where most Western companies, the World Bank and others won't tread anymore because of environmental, social, political or financing concerns.

China is the one financier able to provide money for projects that don't meet international standards,” said Ian Baird, an Assistant Professor of Geography at the University of Wisconsin who has worked in Southeast Asia for decades. “You go to China if you want to have them financed.” The consequence, critics say, is a roll back to an era of ill-conceived, destructive mega dams that many thought had passed. The most recent trend is to dam entire rivers with a cascade of barriers, as China's state-owned Sinohydro has proposed on Colombia's Magdalena River and the Nam Ou in Laos, where contracts for seven dams have been signed.

Viewed by some in the developing world as essential icons of progress, dams in countries as far apart as Ecuador, Myanmar and Zambia have spearheaded or reinforced China's rising economic might around the world. They are tied to or put up in tandem with other infrastructure projects and businesses, and power generation equipment ranks as China's second-largest export earner after electrical machinery and equipment.

In energy-starved Cambodia, trade with China has risen to 19% of GDP from 10% five years ago, according to an Associated Press analysis of International Monetary Fund data.

The year-old \$280 million Kamchay Dam in Cambodia's Kampot province was the largest ever foreign investment when approved as well as a political flag-carrier for Beijing. It has been hailed by both governments as a "symbol of close Chinese-Cambodian ties."

Cambodia's electricity demand grew more than 16% a year from 2002 to 2011, with shortfalls largely met through costly oil imports, said Bun Narith, a deputy director general in the ministry of industry, mines and energy. Only 14% of rural homes have electricity, one of the lowest levels in Southeast Asia.

"We have no choice," Bun Narith said. "Hydropower is the priority, and the Chinese have the initiative and capability, both financial and technical."

The 20 hydro dams build, being constructed or under study in Cambodia, the bulk of them by the Chinese, would lift Cambodia out of literal darkness and make it energy self-sufficient, he said. "We should have a win-win policy, a balance between environment and energy. After all, electricity is also a basic human need."

Electric rates have fallen in Kampot town since the opening of the nearby Kamchay Dam, but they remain high. "Everybody believed that after the dam is completed, there will be extra power to use in Kampot and the price will be much cheaper, but in fact there is not much change," taxi driver Prum Virak said.

He said his house is without power three to four hours every day. The price of electricity has dropped to 920 riel (23 cents) per kilowatt-hour from 1100 riel six months earlier when power was being imported from Vietnam. In Myanmar, where China may build as many as 50 dams, one re-ignited an ethnic insurgency in 2011 and fanned a wider, smoldering anti-Chinese backlash. Mega-dams in Africa and Latin America have also sparked sometimes violent protests. The Myitsone dam in Myanmar would have displaced thousands and flooded the spiritual heartland of the Kachin ethnic minority, which cited the project as one reason for again taking up arms.

The government abruptly cancelled it earlier this year; a warning shot that China must clean up its image, if not its act, to avoid both political and economic fallout, analysts say.

The rise of china as a dam-building power began in the early 2000s as its companies beat out then dominant Western competitors and just as anti-dam lobbyists were celebrating victories over the World Bank, until then the leading international dam financier. In the US, where the golden era of dams peaked in the 1960s, scores are being decommissioned.

The industry, shepherded by the World Commission on Dams, was moving toward setting higher, mandatory standards to mitigate the negative impacts of large dams - environmental degradation, uprooting of communities, depletion of aquatic life - and maximize their positives: flood prevention, irrigation of farmlands, relatively clean energy for homes and industry.

“The Chinese are now definitely diluting the standards debate. We are back to talking about basics,” said Grace Mang, who monitors China’s dam industry for the US-based environmental group International Rivers Mang. “The Chinese are seeking a Chinese way of operating at international environmental standards rather than have international standards imposed on them.”

Brian Richter, of the US-based Nature Conservancy, said improvements won’t come until sustainable standards can be verified by an independent body.

“The industry as a whole recognizes that there’s a need, but the playing field has shifted and the Chinese companies are by far the dominant players,” he said, “The future depends on them, for better or worse.”

(Dam reservoirs and lakes are likely to reduce the highest seismicity significantly due to easy slipping along the boundary faults in the nearby dry region after many decades.)

*Source: Hindustan Times, 23.12.2012*

## **The New London Underground**

The bunker has been around for a while. But now, it’s not just those who fear war or an apocalypse who want their own bunkers. In the posh areas of London, underground bunkers are the latest status symbols of multibillionaires. L.N. Mittal’s ‘Taj Mittal’ in Kensington Palace Gardens has an underground complex of Turkish baths and a swimming pool lined with marble from Makrana in Rajasthan – the same quarry that supplied the building materials for the Taj Mahal. His neighbor, real-estate tycoon Leonard Blavatnik, has a bunker that boasts a swimming pool, a gym, a private cinema. Jon Hunt, the founder of Foxtons, popular London real-estate agents, asked architects to come up with a plan for an underground bunker that would outdo his neighbours. His plan involved digging up a 22 m hole beneath his garden to host a tennis court, pool, gym and a private museum for his collection of vintage Ferraris.

Not surprisingly, Hunt’s neighbours – including the Indian high commissioner on one side and the French ambassador on the other – are aghast. Hunt’s project has been mired in legal challenges since. One common objection is that while the presence of a large concrete block under a house may be stabilizing, it may prove disastrous to other houses in the vicinity. When Goldman Sachs boss Christoph Stanger started construction of an underground playroom for his children, his house started to sink and it dragged adjacent buildings down with it.

That hasn’t stopped people from applying for basement extensions, en masse. After all, one must keep up with the Joneses. Bunkers have always been hot. After the world wars the cold war saw a renewed interest in the construction of underground blast shelters. In the US, the Terra Vivos underground project boasts of 19 underground community shelters designed to withstand 50 megaton nuclear blasts, 50 mph winds, 10 days of 1250°C fires and a level-10 earthquake. Another company, Survival Condo Project, has taken over cold-war missile silos and is converting them to 14 storey fallout shelters. Each floor is being sold for \$2-4 million.

It explains why a bunker has become a best cellar in post neighbourhoods.

*Source: Times of India, 25.11.2012*

## **China Shale Plans**

At a time when India is preparing to offer blocks under its first round of shale gas bidding, its top intelligence agency, RAW, has informed New Delhi of Beijing's over \$95 billion plans to develop huge shale gas resources from 20,000 wells in China.

In a report to the Prime Minister's Office (PMO), ministry of external affairs (MEA), the National Security Advisor (NSC) and the petroleum ministry, RAW has cited estimates by China's Ministry of Land and Resources saying that Beijing holds about 134.42 trillion cubic metres of shale gas reserves of which 25.08 are recoverable.

"The Chinese government plans to achieve shale gas production of 6.5 billion cubic metres (bcm) annually by 2015 and 60-100 bcm by 2020."

Shale gas refers to natural gas trapped within sedimentary rocks. India is mapping shale resources and will have exploration rules in place by 2013. Then blocks will be auctioned.

Unlike China that does not allow foreign energy companies to directly bid for its blocks, India intends to allow foreign oil and gas companies to bid in its first round of licensing. A draft shale gas policy was recently floated by India's petroleum ministry for talks with industry and other stakeholders. China allows foreign firms to jointly explore shale gas resources with local firms.

As per the RAW report, Royal Dutch Shell in tie up with China National Petroleum Corporation (CNPC) plans to spend at least \$1 billion per annum to exploit China's potentially vast resources of shale gas and hopes to leverage the operational and technological expertise gained in North America. Shell also plans to relocate its global business unit for coal bed methane to China later this year.

*Source: Hindustan Times, 1.10.2012*

## **Being Underground**

*At 150, the London tube remains a model for efficient urban public transport*

Earlier this week, the oldest subterranean train system in the world, London's metro, or as they call it, the tube, marked its 150<sup>th</sup> anniversary. It was in 1863 that lawyer Charles Pearson's idea to create a railway that allowed the working classes living in Paddington to travel all the way to central London's business district, in a relatively short span of time, came to fruition. The line, called the Metropolitan, transformed mass transit and urban housing by allowing people to move to the suburbs if they wanted, without losing out on employment opportunities. In its 150 years of operation, the tube has come to

represent the metropolis that is London, in all its messy, sprawling, frustrating, iconic glory. London is its underground, and the underground is London.

There is the ubiquitous signage all along the network, announcing station names in a red circle. The Delhi metro borrows from the design, as it does from the public address system, with its sonorous “Mind the gap” and “Stand clear of the closing doors”. The underground is also enmeshed in the city’s culture. J.K. Rowling gave Hogwarts headmaster Albus Dumbledore a scar on his knee that depicted a map of the tube, and recently James Bond failed to prevent the dastardly Silva from bombing a station in Sky-fall. Musicians, including Paul Mc-Cartney, have often joined the ranks of the buskers lining tube stations.

The stations themselves are a microcosm of the bustling city above ground and most have a motif relevant to their history or location in their tile-work. Tower Hill station for instance, includes a section of London’s original Roman wall. So many stations became a place of refuge for the city’s inhabitants during the Blitz, as immortalized in Ian McEwan’s Atonement. The tube is as integral to London folklore as the royal family, and arguably, in the 21<sup>st</sup> century, more relevant.

*Source: Indian Express, 12.1.2013*

## **Delhi can do a Sao Paulo to Cut Summer Heat, says UN Report**

Can Delhi do a Sao Paulo to keep its summer heat under control? Probably, yes.

A new United Nations report releases on 15.10.2012 says having a green belt biosphere around the cities can reduce the ‘urban heat island effect’ to a huge extent.

“The biosphere around Sao Paulo (in Brazil) reduces the ambient temperatures of adjacent areas by up to 10°C”, said United Nation Environment Programme’s (UNEP) cities and Biodiversity Outlook.

The national capital till late 1970s was circled by a thick green belt which checked the onslaught of harsh and warm westerly winds. But, the last 30 years has witnessed a slow and steady demolition of the green wall to build new urban landscapes - Gurgaon, Faridabad, Noida and Ghaziabad - next to the city.

Its impact is visible in central Delhi areas where ambient temperature is around 5°C higher than far off areas closer to existing green belts.

Cities like Sao Paulo were heating up because of the ‘urban heat island effect’ - increasing concrete adding to ambient temperature - and it was then the administration decided to develop a biosphere around the city.

The UNEP report, with special focus on Indian cities, also says that the country has a huge “burden” as well as an “opportunity” to make cities liveable as around half of India’s population is expected to live in cities by 2050, from present 34%.

“Cities can also serve as nodes for ecosystem recovery,” the report said, while giving example of Navi Mumbai, where mangrove forests have witnessed a remarkable recovery because of less pressure.

The study also said that built-up area in Indian cities has increased by 2.5 times in 20 years with huge adverse impact on local biodiversity. “Remaining green spaces in the cities have been transformed from their original states and species compositions to human-designed, landscaped and pesticide-intensive parks,” it said, adding that invasion of exotic species has increased.

The Ridge in Delhi is hit by invasive species resulting in loss of the local biodiversity.

*Source: Hindustan Times, 16.10.2012*

### **Norway Plans World's First Shipping Tunnel**

The Norwegian government has announced plans to build a ship tunnel through a mountain to cut out a section of treacherous water on its southwest coast.

Unveiling a 10-year transportation plan, the government said it would earmark 1bn kroner (USD 266M) for the construction of the Stad maritime tunnel, named for the peninsula notorious for high winds and heavy seas.

The tunnel has a planned height of 49m, width of 36m, and length of 1.8km. Construction is expected to begin in 2018 and take four years. If the project goes ahead, it will be the world's first shipping tunnel capable of handling large vessels. It is being pitched as a new route for vessels as big as container ships, along with ferries and smaller fishing boats.

*Source: Tunnels and Tunnelling International, 16.4.2013  
([www.tunnelsonline.info/news](http://www.tunnelsonline.info/news))*

### **Gurgaon Metro Phase II Project Launched**

Mott MacDonald is to provide the design for six new metro stations on Phase II of the rapid metro rail network in Gurgaon, India. The metro is being developed by Rapid Metro Rail Gurgaon to help meet the growing transportation requirements between Gurgaon and Delhi.

The INR 1500M (USD 27M) second phase of the project will see a 6.5km rail line extend the network southwards and include six elevated metro stations - DLF Phase I, Sushant Lok, Sec. 42 Crossing, Sector 54-53, AIT Chowk and Sector 55-56. The stations will be situated above existing carriageways and will include residential and commercial spaces. Phase II is expected to be completed by late 2016. Mott MacDonald will provide architectural, structural and building services design for the six stations. The project will seek to achieve LEED sustainability certification through the use of

renewable energy sources such as solar power, energy efficient design and rain water harvesting.

Somnath Nandan, Mott MacDonald's project director, said: "Mott MacDonald has been involved with Delhi Metro for over a decade and we are delighted to offer our multidisciplinary consultancy services on the Gurgaon rapid metro development. Located 30km south of New Delhi, Gurgaon is the financial and industrial hub of the Haryana state. This project is an important step in providing a sustainable solution to the city's traffic congestion by reducing dependency on cars, inefficient urban sprawl and increasing the use of public transport."

Construction of Phase I, which comprises a 5.1km rail loop connecting Cyber City, NH-8 and Sikanderpur station on Delhi Metro Line 2, began in 2008.

*Source: Tunnels and Tunnelling International, 23.5.2013  
(www.tunnelonline.info/news)*

## **China may Fund Tunnel Project**

China has demonstrated interest in extending investment for construction of Bangladesh's first ever tunnel under the Karnaphuli river in Chittagong.

Officials said a Chinese company, China Communication Construction Company (CCCC), recently placed a proposal to the Bangladesh Bridge Authority (BBA) in this connection. The Chinese company conducted a feasibility study jointly with Ove Arup and Partners of Hong Kong on the proposed tunnel at a cost of BDT 120M (USD 1.5M) and then showed interest in the tunnel project, they said.

"On receipt of the proposal from the Chinese company, we have requested the Chinese government to fund the project and got a positive feedback," said a BBA official. He said the Chinese government, however, tagged a condition with it - allowing it to invest in economic zone development alongside the tunnel project.

The Economic Relations Division (ERD) sent an official letter to the Chinese government a few months ago requesting it to fund the project.

The CCCC study found construction of the 3.4km tunnel across the Karnaphuli river feasible.

Communications Minister Obaidul Quader said the government wanted to construct the tunnel in view of the future need and the funding was under consideration of the higher authority.

"We want to construct the tunnel either with the government's own fund or foreign fund as its impact on the economy is significant," the minister told journalists after a presentation on the study at in Chittagong. The BBA organised the presentation.

Mr Quader, however, said efforts were made to arrange foreign funds and a government-to-government arrangement with China was also under consideration. He



said it would not be possible to start construction of the tunnel during the present government's tenure, but the government wanted to carry out other work in phases so it could be started in time.

"We are not always working on the only projects which can be completed or launched during our tenure. We are also targeting the next generation. If we are elected, we'll then start those," the Communications Minister added.

The CCCC in the presentation showed that the 3.4 km multi-lane tunnel would have a 4.9 km approach road on the eastern side and a 0.74 km approach road on the western side.

The tunnel consisting of two tubes -- each of them two-lane -- has been proposed to be constructed at an approximate cost of \$691.84 million.

The tunnel, 6.0-7.0 km upstream of the Chittagong airport, will connect with the Dhaka Trunk Road and also with the airport through the Patenga Road on the western bank. Usually, the construction period for this kind of tunnel is four years.

*Source: Tunnels and Tunnelling International, 3.6.2013  
(www.tunnelsonline.info/news)*

## **Invited Lecture**

Dr. Ing. Tomas Lokajicek, Senior Scientist, Institute of Geology, Prague, Czech Republic delivered an invited lecture on "Study of 3D elastic anisotropy of rocks under high confining stress by means of longitudinal and transversal ultrasonic sounding" in Dept. of Civil Engineering, IIT Roorkee on 14.3.2013. The lecture was organized by ISRMTT and IGS Roorkee Local Chapters.

Dr. Lokajicek was in Roorkee in connection to a collaborative project between CSIR-CIMFR Regional Centre, Roorkee and Academy of Sciences, Czech Republic.

*- Editors, JRMTT*

## **Natural Calamities and Astronomical Correlation: A Perspective for Disaster Mitigation**

Almost every part of our planet-earth has been experiencing the calamities of various orders ever since its genesis. These include major earthquakes, heavy flood, massive landslides, volcanic eruption, Tsunami, cloud burst etc. and its post repercussions are fearful for the mankind in terms of its own existence, medical sufferings and the sustainability of the infrastructure. The same is with the India and the area surrounding it. Recently, India has been hit by severe assault of natural disaster in the upper Himalayas specifically around Hindu shrine Kedarnath in north Indian Himalayan State Uttarkhand. This disaster started taking furious form on 16<sup>th</sup> June, 2013 when a huge glacier hit a natural lake namely Gandhi Sarovar which fell down after the cloud bursts leading to heavy flood situation. It claimed thousands of life and the loss of

infrastructure of affected areas resulted economical burden on government & emotional insecurity amongst the flood victims and their family members/dependents. Similarly, on 26<sup>th</sup> Dec, 2004 Tsunami occurred and affected the area of ocean falling between Indonesia and Bay of Bengal. The disaster was massive in nature, and caused huge deaths and devastations of all kinds. To add one more example of earthquake that occurred on 26<sup>th</sup> Jan, 2001 in Bhuj, the western Indian State, Gujarat. Various scientific agencies are working to predict such kind of natural calamities. But their success rate of prediction of the event and the location of devastation is very low. In fact, so far these calamities have not been able to be anticipated with reasonable accuracy. So, the people have to rely on the fate of the individual and their fear for such events can not be removed from their lives. Various disaster mitigation cells operate to reduce the pains of victims after the calamity has taken its action. Had the roads & buildings of these areas been constructed in a manner that could bear the devastating earth quake vibrations and rain hit landslides and erosion, it would have been a real contribution for the people of the areas under the threat. If some mechanism is built that can anticipate the maximum probability of occurrence of such event with the specification of location of happening of events, then it will be a boon for mankind.

Here, it is worth to mention that the scientific community of the whole world is trying its best for such advance anticipation of time & place of occurrence of calamity with accuracy. It will be good if other communities whether scientific or non scientific, irrespective of their approach of observation & analysis, come forward with a motive of conducting research to make predictions of higher accuracy in terms of time and place of events. Whether the method is scientific or not must not be the cause of hindrance for the people who are willing to contribute with their unique approaches. After all, the outcome of the work is more important when it comes to save & serve humanity. The approach presented herein may be unconventional, which is about examining the potential lying in the astronomical configurations of the celestial bodies in delivering desired results in the above mentioned matter. At this stage, the intension of the work is not to claim the anticipatory outcomes of astrology & its astronomical data, for predicting the exact time and place of occurrence of natural calamities. But the present stage of the study tries to investigate only the possibilities of astronomical variables to become a potentially successful tool of prediction of natural calamities. With this objective in mind, few cases of natural calamities (Uttarkhand cloud burst, Indonesian Tsunami, Bhuj earthquake, Uttarkashi earthquake & recent J&K earthquake) are discussed just to initiate the study in terms of statistical analysis of the correlation pattern existing amongst the astronomical data variable and the specific events.

In this study, the planetary positions in our solar system with nine planets namely Jupiter, Saturn, Mars, Mercury, Venus etc. and two shadows considered as planets, Rahu and Ketu ( has also been referred as head & tail of the Demon) in Indian astrology. So, the seven planets plus two imaginary planets, with their degrees and twenty seven constellations (nakshatras) have been chosen as thirty six variables, whose observations have been collected from N.C. Lahiri's ephemeris. There is a chart having twelve houses (termed as horoscope). Each house is of length of zero to 30 degrees. So, the total degrees of the twelve houses are 360 degrees. As, we all know that planets are moving through these houses (which actually exist in the space) in anti-clock wise direction, and they always keep moving in circular fashion (in mathematical terms) with a certain periodicity. Thus, the status of planetary motion and their combinations keep

changing with time in various nakshatras. This helps to think for collecting observations of planetary variables which are ever changing with time, and therefore, it seems to be quite logical to correlate this with the randomly occurring natural phenomena in particular time. The observations collected are in terms of the degrees of the planets in their respective houses (zodiac sign popularly known as rashi), the combinations of planets in different houses, and the placement of planets in the different nakshatras at and around the time of starting of the disastrous events. Here, it would be important to note that in the solar system, the earth is taken as the reference system (where observations are taken) and at the same time the Moon & the Sun are also included as planets (although they are not, but due to their direct influence on earth, and due to relative motion between earth and these entities). In addition to these observations some inferences have also been tried to draw based on the planetary characteristics assigned from ancient time. These inferences are in process of investigation, check and cross-check, and the same will be revealed in future articles. As a matter of fact, it is an important issue of immense significance with unlimited potential of research with huge dimensions of engineering, astrological, spiritual solutions. And therefore, its analysis & out comes for various applications will be the ultimate objective of the study. But this may take good amount of time for observations, analysis and subsequent systematic development of proposition of methodology to make appropriate predictions. In a broader prospect the overall intensions of the authors will be to find out the following:

- (i) to find out the common and specific factors present in different types of calamities,
- (ii) to find out the type of calamity,
- (iii) to anticipate the occurrence time of calamities,
- (iv) to spot out the location/ place where calamity would be expected to occur,
- (v) to quantify the devastation scale (intensity of damaging factor), and
- (vi) to identify the shear/fault zones in anticipated areas of threat so as to identify the range of devastation.

And the present study is a humble beginning with simple and small set of observational data. This initiation will only feed the data base that would contribute to satisfy the broader intensions & prospective of the research in the long run. At present the authors are involved with establishing the statistically meaningful correlations between the events and the planetary variables using astrological charts. It may be useful to readers to know that the correlations observed and its interpretation can be of various importances and nature depending upon the experience and expertise of researchers. For any kind of applications the safety related issues can be tackled with the treasure of advance information about the vulnerability of the area where huge mass settlement & infrastructure development is intended. As an example, a person with civil engineering background can use these inferences (alert information) for designing of foundation with better specifications, choosing the suitable site while tunneling through the rocky/hilly terrain, designing earthquake resistant high rise buildings with modified safety specifications in an area where anticipatory intensity of earthquake is known and so on and so forth. The inferences can also be useful for town planners for selection of safer location with minimum risk for developing town.

It is the beginning stage of study. Therefore, only few case histories have been considered and the planetary data are analyzed for clues. A data base of prediction is in

progress. Following are the major events of disasters occurred during last two decades in the south Asian belt, which have been considered for analysis in the present study.

- (i) *Uttarkashi Earthquake* - Date of occurrence: 20.10.1991; Time: IST 2:53 am; Place: Uttarkashi, Uttarakhand state, India
- (ii) *Bhuj Earthquake* - Date of occurrence: 26.01.2001; Time: IST 8:46:00 am (7.7 M); Place: Centered around Bhuj, Gujarat state, India
- (iii) *Indonesian Tsunami* - Date of occurrence: 26.12.2004; Time: IST 6:28:53 am; Place: Ador (Indonesia) is taken as reference
- (iv) *Recent Earthquake at Indo-Pak Border* - Date of occurrence: 01.05.2013; Time: IST 12:27 pm; Place: Kishtwar, H.P. state, India
- (v) *Uttarkhand Cloud Burst and Landslides* - Date of occurrence: 16.06.2013; Time: IST 7:00 am; Place: Kedarnath and surrounding area, Uttarakhand state, India

Following are the observations and inferences.

- (i) In all studied cases, the common observation is that during calamity period three or more planets are found together in a single house of the astrological chart (this indicates that the public is geographically assembled at one place). The significance is that whenever there is a calamity, it operates on mass, and mass is shown by a group of more than three planets. This observation is a correlation factor in terms of the planetary configurations.
- (ii) So far, in all the cases Mercury has been found to be present in the group of planets in the same house or in the adjacent house with close proximity in terms of degrees.
- (iii) A triggering planet has been identified which has been found to be present in the group of planets. This particular planet triggers the beginning of the disastrous event. The basis of the selection of the triggering planet is not in the present scope of the work. Its basis will be revealed in future article on the subject. In case of Uttarakhand disaster, the triggering planet is identified as Venus, whereas it is Mars in Tsunami and in case of Bhuj earthquake it is again Mars.
- (iv) The analysis of the planetary configuration also suggests that the Kishtwar earthquake triggering process started approximately 2 hrs earlier than the observed time of occurrence.
- (v) The degrees of the triggering planet have been found very close to the degree of its interacting planet.
- (vi) Moon is also found to have been passing over the nakshatra of the triggering planet during the occurrence of calamity. This signifies the timing of event.
- (vii) During earthquake Saturn and Mars are found to have joint effect in some way directly or indirectly through nakshatra or aspect.

The inferences drawn above are a result of the correlation analysis of the planetary variables and events on small number of statistical trials. The idea is to draw some important clues whether the astronomical data may be helpful at all or not to be used as a research tool in future for making predictions of the natural disasters.

The analysis of the results throws some light of hope for establishing meaningful correlations but is a matter of rational analysis. This means that the researchers should have a sound knowledge of science and at the same time must be aware of the fundamentals of astrology. Then only the proper interpretation can be carried out, which

may prove to be beneficial. This small study indicates reasonably the further scope of research/ investigation. It is a need of time when the ancient knowledge and modern science must go hand in hand for better tomorrow.

- *D. C. Bala, IIT Roorkee & Subhash Mitra, IRI Roorkee*

## **India Emerges as the World's Leading Cotton Exporter from being a Large Importer**

India's farmers choose to plant hybrid cotton seeds with insect-protection Bt technologies on 90 percent of India's cotton acres. Within a span of seven years', 60 lakhs cotton farmers realized their dreams using superior hybrid seeds with insect-protection Bt technologies as India transformed from a large importer of cotton into one of the world's leading exporters. Partnering India's cotton revolution – Mahyco-Monsanto Biotech (MMB)

(Genetically modified food has genes of slow poison for both insecticides and consumers).

*Source: Hindustan Times, 28.1.2013*

## **Mobiles should be Charged 50%**

Want to extend the life of your cellphone's battery? Do not charge your mobile to 100%, say tech experts.

Mobile phones should be charged only about 50% in order to prolong their battery life, a tech expert has claimed.

According to technology expert Eric Limer, rather than ensuring phones are constantly charged or running down the battery completely, the best thing to do is keep batteries running at about 50%.

"It is smart to do one full discharge about once a month," Limer said, adding this resets the phone.

Leaving phones connected to a charger after they are fully charged can do damage to batteries, he added.

*Source: Hindustan Times, 3.7.2013*

## **Two Minutes Walk in Office May Cut Sugar, Fat Levels**

A study suggests that taking a two-minute stroll around the office every half hour could save millions from the misery of diabetes.

Leaving the desk for a walk-about can have a bigger impact on your health than a brisk 30minute walk before work, the Daily Express reported.

Anthony Barnett, Emeritus Professor of Medicine at the Heart of England NHS Foundation Trust, said life style changes can significantly reduce the risk of Type 2 diabetes, which is reaching epidemic proportions in Britain.

He said short bursts of regular exercise in people with sedentary occupations appears to be at least as good as longer, but less frequent, periods of exercise in improving sugar and fat levels.

Scientists at Otago University in New Zealand found that volunteers who regularly walked for just one minute and 40 seconds had lower blood sugar and insulin levels. Raised sugar and insulin readings are warning signs that Type 2 diabetes, a major risk factor for heart disease and stroke, could be setting in.

*Source: Hindustan Times, 4.7.2013*

## **Stem Cells : At a Glance**

*What are stem cells?*

They are undifferentiated, “blank” cells that do not yet have a specific function. They are self-sustaining, can develop into specialized tissues and organs.

*Where are they found?*

In bone marrow, nerve cells, surface of the eye, testicles, intestines, breast, muscle cells, bones, skin, blood cells.

*Why do stem cells work better than regular cells?*

Most of body’s specialized cells cannot be replaced by natural processes if they are seriously damaged or diseased. Stem cells can be used to replace diseased or dysfunctional cells.

*What are the diseases being treated using stem cells?*

Its mainly Alzheimer’s, bone regeneration, liver, Parkinson’s, stroke, heart, spinal injury, muscular dystrophy, vitilago, retinal problems. Trials are going on for corneal implants, spinal regeneration, muscular dystrophy and diabetics.

*What is the success rate?*

Overall, there is a 60% success rate in the use of stem cell therapy. However, the success rates vary widely with disease and patients.

*Source: Hindustan Times, 21.10.2012*

## **Indorock-2013: Fourth Indian Rock Conference**

Indian Society for Rock Mechanics and Tunnelling technology (ISRMTT) in association with Jaypee University of Information Technology (JUIT) organised Indorock-2103: Fourth Indian Rock Conference from 29-31 May 2013 at JUIT campus, Waknaghat, Solan Himachal Pradesh. The conference was inaugurated by Chief Guest Dr. V.M.Sharma, Director (AIMIL Ltd.) and Former Director (CSMRS). The concluding session was chaired by Dr.Rajbal Singh, President ISRMTT and Joint Director (CSMRS), New Delhi.

The conference included 9 themes. A special session on “Landslide hazard Mitigation” was also organised with the support of Department of Science and Technology (DST). The conference focussed on the following themes:

1. Landslide Hazard Mitigation and Slope Stability
2. Geophysical Investigations
3. Geological Investigations
4. Laboratory and In-situ Testing
5. Underground Design, Construction Techniques and Management
6. Rock Engineering
7. Recent Developments in Tunnelling Techniques
8. Numerical Modelling and Instrumentation
9. Case Studies and Other Relevant Topics related with Rock and Rock Masses

The conference was attended by 200 delegates from 50 organisations. A total of 70 technical papers including 9 keynote addresses pertaining to various conference themes were published in the conference proceedings. The conference was attended by tunnelling fraternity India, Bhutan, Italy, Norway, Germany etc.

One day training course on “Rock Engineering” was also conducted by Dr. Nick Barton on 29<sup>th</sup> May 2013. Dr. Barton also demonstrated evaluation of Q in the field. The training course also got overwhelming response from the participants. Delegates interacted with Dr. Barton and other tunnelling experts during the three days conference and training course.

The conference was supported by Department of Science and Technology (DST), National Hydroelectric Project Corporations (NHPC) Ltd., Himachal Pradesh Power Corporation Ltd. (HPPCL), Jindal Power Ltd., SatlujJalVidyut Nigam Ltd. (SJVNL) and WAPCOS Ltd. A technical exhibition was also arranged at the conference venue. M/s AECS Ltd., Noida; AECOM India Ltd., Gurgaon and Bakaert India Ltd. Showcased their products and strengths.

At the end of the conference recommendations were drawn based on the discussions and brief summary by the chairman of the respective sessions.