



ISEG NEWS

Bridging Communication Gap.....Dissipating Information



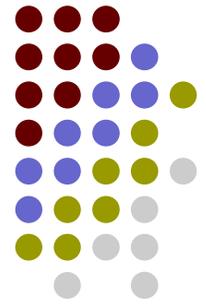
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Geological Survey of India



Mineral Exploration Corporation Limited



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Editorial



Dear Colleagues,

We have got all round positive feedback on the new look ISEG News dated April 2013. This has boosted our confidence immensely and has motivated the editorial team for achieving higher targets. In this newsletter we have started a new feature on method of working of renowned engineering geologists, scientists and geotechnical engineers. In this series the first one to appear is about Karl Terzaghi. It needs to be appreciated how much importance he gave to the study of geology.

We have announced International Conference "EGNM 2015" as a part of Golden Jubilee celebrations of Indian Society of Engineering Geology in the year 2015. ISEG would like to have suggestions regarding more events during the year for Golden Jubilee Celebrations.

Of the many aspects of the subject one interesting thing is the overlap in functions between engineering geologists and geotechnical engineers. Steps have been taken internationally to address and resolve this.

.....Continued on Page 3

Message From Secretary



Hello from your Secretary:

Indian Society of Engineering Geology, the Indian Group of International Association for Engineering Geology and the Environment (IAEG), formed in the year 1965, is heading towards its Golden Jubilee Celebration in the year 2015, on completion of 50 years of service. The aims of the Society shall be mainly to promote the study of the subject of Engineering Geology and allied Sciences and their application and to disseminate knowledge and provide a forum for discussion of all disciplines by holding periodical meetings, seminars and symposia. Further, it is also a bounden duty of the Society to publish a Journal of Engineering Geology. Many pioneers in the field of Engineering Geology discipline toiled to maintain the pride and dignity of the ISEG all these years. And now, it

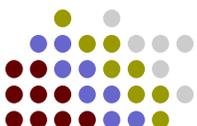
is our duty to carry out the responsibility in an exemplary way.

It is a fact that now many such societies have come up dealing with the subject of Engineering Geology. However, it is also a fact that the Journal of Engineering Geology, the only Journal of the country on the exclusive theme of Engineering Geology, maintains the best practices to publish standard and original research. In order to maintain international standards in the publication, an exclusive website for the Journal has also been developed, which can facilitate on line interactions between the Editor and the Author. Considering its legacy and transparent transactions, authors are invited to send their studies in the form of

.....Continued on Page 3

If you can measure what you are speaking about and express it in numbers, you know something about it.

-Lord Kelvin



Indian Society of Engineering Geology

BIANNUAL HIGHLIGHTS

May to Oct., 2013

1. National Workshop was successfully organized by ISEG at Hyderabad on June 14, 2013. It generated good attendance and lively debates. The event brought into focus engineering geological issues while working in hard rock areas in peninsular India. General Body meeting of the society was held on the same day.
2. 2nd Council Meeting was held at MECL Office, New Delhi on 29th July 2013. Broadly, holding of International Conference in 2015, New look Newsletter and Journal was discussed. Visit to China by some of the Senior members of ISEG as a delegation was also discussed. Their contribution in attending the event by sparing their valuable time and self sponsoring is appreciated.
3. Exclusive Journal Website joegindia.com was inaugurated on the same day.
4. Organizing Committee was formed for organizing Seminar on Uttarakhand in association with CBIP, New Delhi on December 20th 2013.
5. Delhi-NCR Chapter of ISEG headed by Shri R N Mishra Convener has started functioning.
6. First Circular for International Conference "EGNM 2015" released.
7. ISEG poster displayed at IAEG event in Sept 2013 at China.

Congratulations!

Dr. Gopal Dhawan, President- ISEG has been given additional charge of Managing Director of Bharat Gold Mines Limited (BGML) by Government of India. Under his leadership as Chairman and Managing Director, MECL Ltd has attained the status of Miniratna Company during October, 2013.



Dr. Gopal Dhawan, President-ISEG released the new look version of newsletter of Indian Society of Engineering Geology ISEG News at the headquarter of MECL at Nagpur during May, 2013.

RIVER DIVERSION ACCOMPLISHED AT 720MW MANGDECHHU HYDROPOWER PROJECT, TRONGSA, BHUTAN



Mangdechhu HE Project (720MW) is located near Trongsa town in Bhutan in under active construction by Mangdechhu Hydro Power Authority (MHPA), a joint venture between Government of India and Royal Government of Bhutan. The project achieved a major milestone by diverting the water of river Mangdechhu through 682m long diversion tunnel on 23rd June, 2013.

On the occasion of this important event, Honorable Prime Minister of Bhutan inaugurated the diversion tunnel in the presence of His Excellency Ambassador of India in Bhutan. Senior officials from India & Bhutan were present on this occasion.

The project envisages construction of 114 m high concrete gravity dam with 13.5Km long Head race tunnel and an underground Powerhouse. NHPC Ltd is providing Design & Engineering consultancy service for this prestigious hydropower project in Bhutan.



Editorial (Contd. From Page 1)

A Joint Task Force in USA has outlined the areas of function between Geologists, Engineering Geologists, Geotechnical Engineers and Engineers. Another new issue is licensing of professionals which needs to be appreciated in the light of experiences where such a practice is followed. According to National Association of State Boards of Geology in America nearly 50% of the applicants for Geologist's License are unqualified! The risks of having unqualified geologists include possibility of errors causing loss of life and property, higher costs of supervision, cost of repairing incomplete and incorrect work and lower cost/benefit ratios due to inefficient work. The same applies to a greater degree for engineers also. Should ISEG take a lead in licensing of engineering geologists in our country is the question?

I take this opportunity to encourage and request once again all members of ISEG and our readers to take time out of their busy schedules and contribute by short articles for newsletter and technical papers for the journal. Visits to the newly opened website which will be updated quarterly are also encouraged

With kind regards

Imran Sayeed
Imran Sayeed
 Editor

Message From Secretary (Contd.. From Page 1)

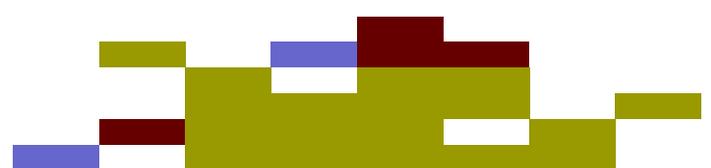
technical papers, news and views etc., to be published in the Journal of Engineering Geology.

As a part of our moral responsibility, ISEG in association with the CBIP, is jointly organising a National Workshop on Natural Disasters with special reference to Uttarakhand on 20 December, 2013. Like any other ISEG Workshops, let us make it a grand success and certainly, we will bring out some important action points from the Workshop which can help in mitigating the disasters. Please join the Workshop.

Regards

M. Raju

(M. Raju)
Secretary, ISEG
 geolraju@gmail.com



HYDROPOWER POTENTIAL OF CHENAB BASIN, KISHTWAR (JAMMU & KASHMIR), INDIA

Pradeep K. Gupta, General Manager (Geo-Tech)
 Prashant Rai, Deputy Manager (Geology)
 Engg. Geology & Geotechnical Division,
 NHPC Limited, Faridabad, Haryana, India.

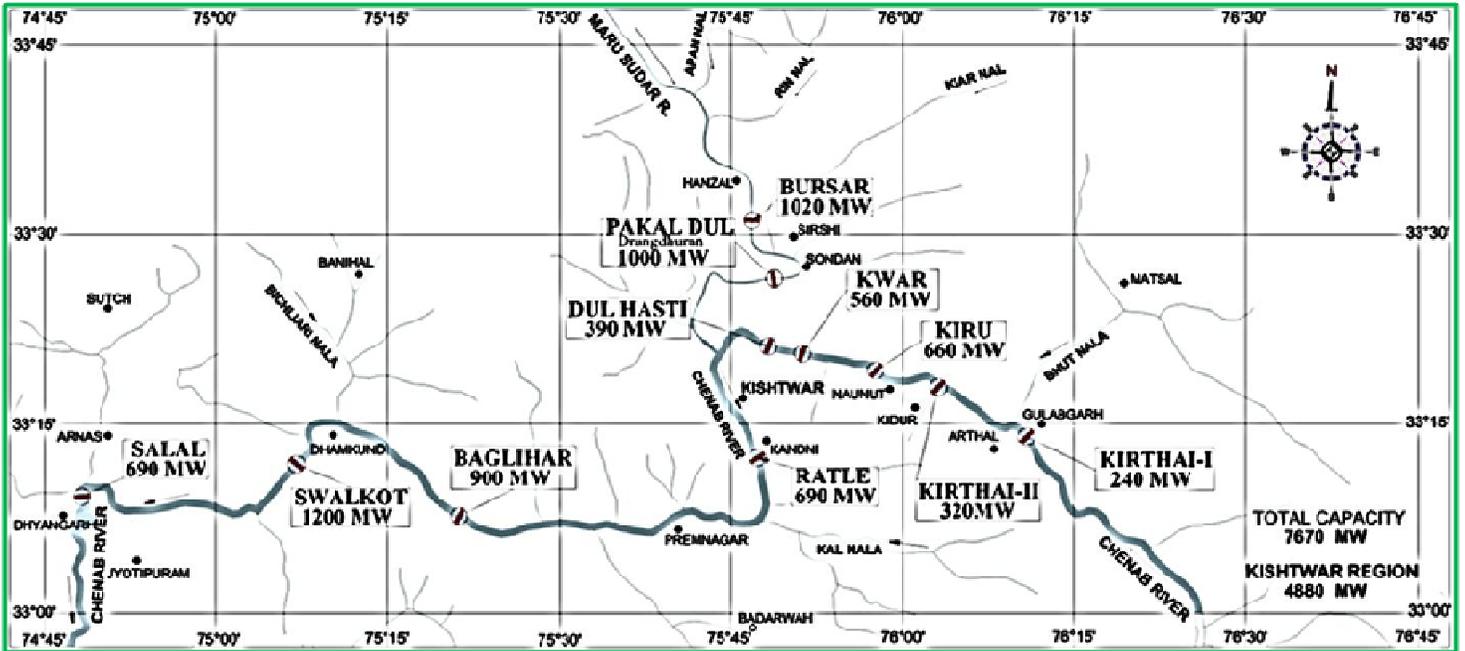


Figure 1 : Map showing Power Potential along Chenab river basin in Jammu & Kashmir, India

The Chenab is a mighty river of Jammu and Kashmir in India and Punjab in Pakistan. It forms in the upper Himalayas in the Lahaul and Spiti district of Himachal Pradesh, and flows through the Jammu region of Jammu and Kashmir into the plains of the Punjab in Pakistan.

The two rivers Chandra and Bhaga originates from north and south faces of Barakcha pass respectively at El. ±4891M in the Great Himalaya of Lahul region of Himachal Pradesh. The Chandra and Bhaga meet to form the Chandrbhaga river at Tandi (El. ±2820M), the district headquarter of Lahul and Spiti in Himachal Pradesh. It becomes the Chenab when it joins the Marau River at Bhandera Kot, 12km from Kishtwar Town in Jammu and Kashmir. The total length of the river in Indian territory i.e. from the source of Chandra to Akhnoor is about 585km.

Chenab basin has the tremendous power potential during its course in the state of J&K. Numbers of hydropower schemes have been identified on Chenab and Marusudar river as shown on the map (Figure 1). The Chenab has a general gradient of approximately 1:100, whereas river in the Kishtwar region has a general gradient of approximately 1:60. The total power potential of the schemes constructed/under construction/under investigations are around ±7670MW. However, the major power potential on Chenab & Marusudar falls around Kishtwar region (±4880MW). As such the Kishtwar area can be developed as “Hydropower Potential Hub”.

Geologically the Kishtwar area falls within Kishtwar Window Zone and exposed rocks of Dul and Lopara formation (mainly Quartzite, Phyllite and Slates) with Pias Granite as an intrusive body. Kishtwar Window Zone is surrounded by Salkhalas (Schist & Gneisses) towards the west and Crystallines towards the east. Salkhalas & Dul formation is separated by N-S trending regional fault known as Kishtwar Fault whereas Dul/Lopara formation and Crystallines of Higher Himalayas is separated by MCT. The area represents typical Lesser Himalayan type of rugged topography comprising high ranges and deeply dissected valleys, escarpments and cliff faces.

The power potential of the Chenab basin is being developed by J&K Govt. (JKPDC), NHPC Limited, CVPPL and private developers. NHPC & its JV CVPPL has many projects with them which either have been commissioned (Salal 690MW, Dul-hasti 390MW by NHPC Limited, Baglihar 450MW by JKPDC) or are under pre-construction/investigation stage (Pakal Dul-1000MW, Kwar-560MW, Kuru-660MW by CVPPL and Bursar Project, 1020MW by NHPC Limited).

The schemes around Kishtwar do not have much environmental and R&R issues except the Bursar Project, part of which (left bank of Marusudar river) falls in Kishtwar High Attitude National Park. However, the schemes like Pakal Dul have geological challenges where 10km long twin tunnels are to be executed from two ends only. Kuru and Kwar Projects are very compact & attractive schemes and can be executed



without much geological uncertainties. Developers and the clearing agencies are taking up these projects on fast track for tapping the hydropower potential of the Kishtwar region.

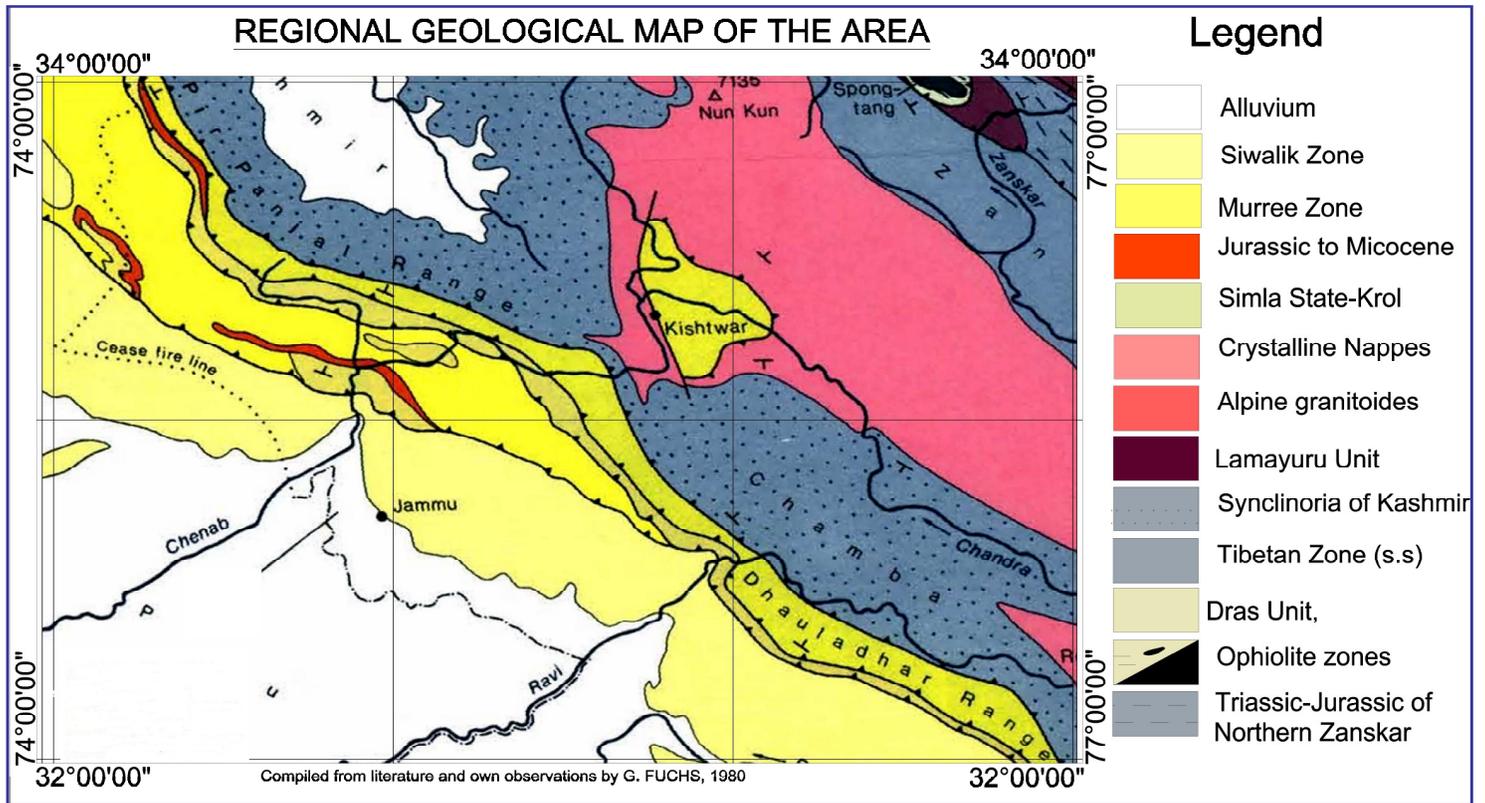


Figure 2 : Regional geological map of Kishtwar area, Jammu & Kashmir, India

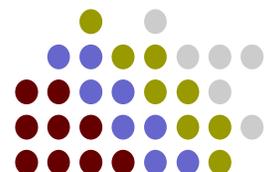


Indian Society of Engineering Geology (ISEG)
and
Central Board of Irrigation and Power (CBIP)
are jointly organizing a workshop on
“Natural Disasters with Special Reference to Uttarakhand”
on December 20, 2013 at New Delhi.



For details please logon to ISEG websites:
isegindia.org and joegindia.com

“Somewhere, something incredible is waiting to be known.”
— Carl Sagan



“ISEG THREE GORGES DELEGATION” – A REPORT

Yogendra Deva
Programme Coordinator &
Past Secretary, ISEG

The long planned ISEG Three Gorges Delegation participated in the International Symposium and 9th Asian Regional Conference of IAEG at Beijing on 24-25 September 2013, and the follow-up Post-Symposium excursion to the Three Gorges Hydroelectric Project during 26-29 September. The Symposium on “Global View of Engineering Geology and the Environment”, organized by the IAEG China National Group, was preceded by the IAEG Council Meeting on 23 September that drew over 50 Member countries from across the globe. An informal meeting of the IAEG Asian National Groups over luncheon, attended by China, India, Korea, Japan, Vietnam, Hong Kong, Singapore and Iran, was also organized. The President and Secretary General of the IAEG were also present. While the delegates included the following, the IAEG India National Group (ISEG) in the IAEG Council Meeting, and in the IAEG Asian National Groups luncheon, was represented by the author.

Dr. Y.P. Sharda, SNC Lavlin, New Delhi
Mr. M. J. Ahmed, ACES, Dubai
Mr. Pradeep Pofali, HR & Geotechnical Consultant, Vadodara
Mr Inturi Ramarao, Manu Energy, Hyderabad
Mr. R.N. Raju, Manu Energy, Hyderabad (returned back due to medical problems)
Mr. Yogendra Deva, Indo Canadian Consultancy Services Ltd., Noida, Delhi-NCR

In a whole day programme, the IAEG Council Meeting deliberated upon an elaborate agenda the main highlights of which included financial report, annual reports of the Vice Presidents, reports of Commissions, National Group annual reports, meetings in 2015, etc. For 2015 IAEG Executive and Council Meetings, the main bidders are Bulgaria and Japan. Follow-up sideline discussions with some of the key IAEG office bearers strongly suggest that the international community is still keen on India as the preferred venue for the 2015 IAEG Executive and Council Meetings.

The two-day Symposium witnessed three parallel sessions, each with a minimum of two keynote addresses. The 899 page hard bound Symposium publication carries 136 papers including over 40 keynote addresses/ papers. From India, while Dr YP Sharda and the author presented their papers, the ISEG President Dr Gopal Dhawan could not deliver his keynote address due to his inability in attending the Symposium as he happened to be preoccupied with another prestigious government sponsored international training programme. In general, the Symposium turned out to be a big success.

The excursion to the Three Gorges Project comprised fifteen



Photograph 1 IAEG Council Meeting



Photograph 2 Symposium in progress

members from India, France, Russia and China, including the IAEG Secretary General Faquan Wu. The group reached the city of Yichang from Beijing in the afternoon of 26 Sep by air and, en-route the Three Gorges Hotel, was taken on a technical visit to the geotechnical laboratory of the Institute of Environment and Geoengineering, China Three Gorges University. In the evening, the group was shown a colourful one-hour cultural extravaganza on the concept, planning and execution of the Three Gorges HE Project.

The two-day excursion began by a visit to the 2335 m long and 185m high concrete dam of the Three Gorges Project on the mighty Yangtze River, with the mammoth installed capacity of 22,400 MW (32 Units of 700 MW each) in the three dam-base powerhouses. The cloudy weather with light intermittent drizzle,



Photograph 3 "ISEG Three Gorges Delegation". L-R: Y. Deva, Y.P. Sharda, Wu Faquan (IAEG Secretary General), M.J. Ahmed, P. Pofali, I.Ramarao

however, played spoilsport and deprived the group of good view and snaps of this iconic masterpiece – the ‘Mecca’ of civil engineering. The two-lane five-step ship lock – an uncommon civil structure, however, was within a close reach and turned out to be one of the most fascinating parts of the visit. While, Mesozoic strata are abundantly exposed in valley faces, the dam is founded on granitic basement rocks. Among the main engineering geological problems, stability of 170m high rock cut-slopes of the ship-lock was crucial and involved installation of 130,000 anchor bolts. Unfortunately, a technical visit to the project components was not on cards. The tourist center at the project houses many impressive and innovative features, including escalators along the hill slopes, an oversized (about one m) rock core of granite from the dam foundation, and a tetrahedral block of concrete used in dam construction.

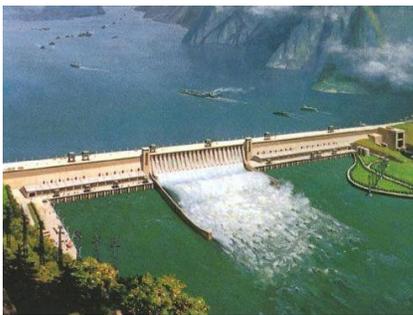
The dam visit in the fore-noon was followed by a six-deck ship cruise along the vast reservoir of the Project that has a high-tech waterway navigation system. The excursion included



Photograph 4 Rehabilitated Wushan County

several technical and sightseeing programmes with focus on slope stability investigation & stabilization, the massive rehabilitation, and sightseeing at prime tourist spots. The rehabilitation of the mind-boggling 1.2 million people at about 40% of the project cost has seen emergence of beautiful towns along the reservoir periphery that are equipped with all modern infrastructure and facilities. In total, about 1500 landslides, rock falls and distressed zones were treated along the reservoir periphery. The visited sites included the three gorges (Xiling, Wu and Qutong), Lianziya dangerous rockmass, Xintan landslide, Badong large-scale integrated field testing site (CUG), Twelve and Goddess Peaks, Baidicheng City (Baidi Temple), Badong and Wushan New Counties, etc.

The excursion ended in the evening of 28th at Wanzhou port, from where the group drove down 240 km to Chongqing by bus for night halt and departure for respective destinations the next morning.



Three Gorges Dam on river Yangtze

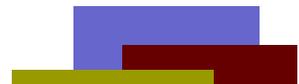
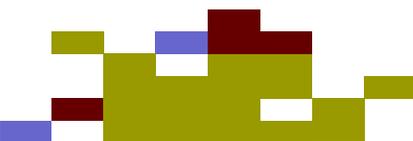
THREE GORGES DAM

The Three Gorges Dam is constructed on River Yangtze which has always been a mixed blessing for the Chinese people. Fertile silt deposited due to annual floods maintain productive agriculture on its bank. However, occasional floods are very devastating as they bring great human suffering and death. Mao Zedong in his poem **"Swimming"** written in 1956 envisioned a giant dam on this mighty river that could prevent destructive flooding. It is about overcoming adversity. The poem is engraved on the 1954 Flood Memorial in Wuhan. It says:

*"A bridge will fly to span the north and south,
turning a deep chasm into a thoroughfare.
Walls of stone will stand upstream to the west to hold back
Wushan's clouds and rain till a smooth lake rises in the narrow gorges.
The Mountain Goddess if she is still there
will marvel at a world so changed."*



War Memorial, Wuhan





Announcement

First Circular

International Conference on Engineering Geology in New Millennium

DATES

Pre Conference meetings: October 26, 2015
International Conference: October 27, 28 & 29, 2015
Post Conference Project visit: October 30 & 31, 2015
Sight seeing tours: October 30 & 31 and November 1, 2015

VENUE

New Delhi, India

MESSAGE FROM THE PRESIDENT



Dear Colleagues,

Having been established in October 1965, Indian Society of Engineering Geology (ISEG) will be completing glorious fifty years of its engagement in the allied domain of geology and engineering geology in October 2015. In order to commemorate the golden jubilee, I am pleased to announce that an International conference titled "Engineering Geology in New Millennium" will be hosted by ISEG in October 2015 in New Delhi. While an active participation and support from International Association of Engineering Geology and the Environment (IAEG) is being solicited, I take this opportunity to invite all the geologists, engineering geologists, geotechnical engineers and other geo-scientific practitioners to join us in the celebration and participate in the conference. Regular updates and subsequent circulars will be available in ISEG websites isegindia.org and joegindia.com

With kind regards,
Dr. Gopal Dhawan
 President, ISEG

THEMES

1. Ambit of engineering geology, international viewpoints, Indian references, historical developments, roles and functions of engineering geologists.
2. Engineering geological education, undergraduate and graduate level study, pure and applied geology, geology in civil engineering, geology in geotechnical engineering, cross disciplinary and collaborative research, opportunities, new approach in engineering geological education.
3. Recent developments in explorations, new techniques in investigations, exploratory drilling tools, geophysical surveys, geological & geophysical logging, accelerated investigation programs.
4. Application of rock mechanics tests in investigation and construction stages, importance of lab and insitu testing, International standards and methods, Indian Standards, ASTM and British standards: similarities and differences.
5. How to use test results? Recent techniques of derivation of engineering properties from rock mass classifications.
6. Engineering geological monitoring in construction stage projects, tackling geological problems, role of best construction practices, recent advances in open air and underground excavations and support techniques, slope stability.
7. Soil Mechanics: Slope stability, rock fill & earthen dams and embankments.
8. Investigation and construction methodology for long tunnels, use of TBM's, success stories and pitfalls.
9. Geological input in contract documents, understanding obligations of owners and contractors, risk assessment and sharing, use of specialized agencies, do's and don'ts for engineering geologists while handling contracts.
10. Exploration and testing for natural construction materials, quarrying, environmental aspects, disposal of tunnel waste, reclamation.
11. Blasting techniques, importance in deep open excavations, blast design for safe and speedy tunneling, methodology for excavation and support of large caverns. Effects of blasting on engineering properties.
12. Rock support elements: Theory & practice, recent advancements both in soil & rock stabilization.
13. Geological case histories for CFRD and RCC dams.
14. Role of rock mechanics and engineering geology in mining, case studies for mining industry, mining methodology, environmental issues of open cast and underground mining.
15. Geo environmental studies for large civil engineering projects, sustainable development, environmental aspects of river valley schemes.
16. Seismotectonic studies and earthquake engineering.
17. Geo hydrological studies in hilly terrain, ground water modelling for underground projects, use of new techniques, assessment of water ingress.
18. Ground water contamination, cities and country side expansion and water balance studies.
19. Landslide studies and mitigation, hazard zonation, exploration technique, monitoring, engineering solutions, long term measures.
20. Urban engineering geology: Geotechnical evaluation of cities, metro tunnels, underground space technology, waste water treatment plants.

REGISTRATION FEE

Every Delegate including the authors of the technical papers attending the International conference shall pay a Registration fee as per rates mentioned below by demand draft or by on line transfer of funds towards ISEG:

- ISEG Members : INR 7000/-
- Non- ISEG members : INR 8000/-
- Foreign Delegates : USD 300/-
- SAARC Delegates : USD 150/-
- Students : INR 5000/-
- Students from SAARC countries : USD 100/-
- Students from other foreign countries : USD 200/-

Government taxes as applicable at the time of conference shall be levied. Registration fee includes Conference kit, lunch & refreshment on three days of the event. The fee may be paid directly to the ISEG vide (a) Demand Draft, drawn in favour of the 'Indian Society of Engineering Geology', payable at UCO Bank, Lucknow or (b) Payments may also be made through on line bank transfer. Bank details are : Name of the Bank: UCO Bank, GSI Branch, Aliganj, Lucknow
 Name of account : "INDIAN.SOC.OF.ENG"
 Account No.: 9033020000045; IFSC Code No. : UCBA0002024

IMPORTANT DATES

Commencement of Abstract Submission : July 1, 2014
Closing of Abstract Submission : October 31, 2014
Intimation of Abstract Acceptance : Before December 31, 2014
Closing of Full paper Receiving : March 31, 2015
Intimation of Full Paper Acceptance : April 30, 2015
International Conference Dates : October 27, 28 & 29, 2015

ADDRESSES FOR CORRESPONDENCE

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Support : Rs 0.5 lakhs

Government organizations, Public Sector and Private Companies involved in Engineering Geological Investigations, Rock Mechanics, Infrastructural project constructions, Tunneling, Mining and Mineral Exploration and Geohazard Management are welcome to Sponsor/co-sponsor the conference by paying the above tariff. International Sponsors are also welcome, same rates will be applicable in US dollars. Sponsors will be entitled to 5,3,2 and 1 delegate free, display of banners & backdrop, free advertising depending on category of sponsorship.

INDIAN SOCIETY OF ENGINEERING GEOLOGY
 Indian National Group of International Association of Engineering Geology and the Environment (IAEG)
Golden Jubilee Celebrations



Report on National Workshop on Contemporary Practices in Engineering Geology and Geohazards

June 14, 2013 at Hyderabad



National Workshop on “Contemporary practices in engineering geology and geohazards” was organized by Indian Society of Engineering Geology (ISEG) at Hyderabad on June 14, 2013. The event was inaugurated by Shri M. Venkateshulu, Engineer-In-Chief I & CAD Government of Andhra Pradesh in the presence of Dr. S.K. Wadhwan and Shri S.Balakrishna Dy. Director General, Geological Survey of India. ISEG was represented by S/Shri M. Raju, Secretary, Imran Sayeed, Editor, Shri Prashanta Mishra and Dr Saibal Ghosh Joint Secretaries and Council Members S/Shri S.Kannan, Akhouri Bishwapriya and Dr. K.R.K. Prasad. The workshop was well attended with delegates drawn from various organizations such as Senior officers from GSI Southern region Hyderabad, NE Region, Central region Nagpur along with delegates from different organizations such as NHPC, NTPC, NIRM, EIL, EPIL, GMR and others. The participation by a large contingent of younger engineering geologists and geotechnical engineers gave a refreshing atmosphere in the workshop. Special technical presentation on Irrigation projects in Andhra Pradesh was made by Shri. M. Venkateshulu, Engineer-In-Chief.

Seventeen technical papers were presented by the authors which were succeeded by lively question and answer sessions generating healthy debates. At the end of a extremely busy day, Dr. S.K. Wadhwan, Dy. Director General, GSI Chaired the Valedictory Session. Later General Body Meeting of ISEG was also held from 6:30 to 7:30 pm. The recommendations of the workshop which will go a long way in improving the engineering geological work methodology in the country are as follows:

1. Experienced engineering geologists may be involved in project development and DPR preparation right from the inception stage so that best sites are selected and investigations are optimized.
2. Use of satellite imageries particularly for development of topographic plans for large areas such as reservoirs or long tunnels need to be encouraged as they would give sufficient time for preliminary layout formulation and geological mapping.
3. Proper sequencing of investigations and testing is necessary for preparation of bankable DPR.
4. Sufficient time and budget may be given considering international norms and practices for preparation of DPR. For instance, the international practice of allocating 2-5% of cost of civil works for preparation of DPR needs implementation.
5. Rock mass classification/characterization may be religiously followed in construction stage and supports provided accordingly. Collapses and cavity formations after a time lag should be avoided.
6. Proper engineering solutions and quick decisions can help in overcoming geological problems during construction.
7. Engineers and geologists need to work in close coordination while dealing with geotechnical issues. This association should commence from the beginning of the project and should continue in post construction stage also.
8. Timelines are most important and need to be strictly followed. Lapses, if any should be addressed in right perspective.
9. Landslide susceptibility mapping with details of all active and paleo-landslides in the environ of engineering projects be introduced as a part of investigations.
10. At least one or two key papers in state of art investigation and construction techniques focusing on a particular method must be presented by experts in all ISEG conferences.
11. One of main aims of national Workshop is not only knowledge gaining but knowledge sharing also. All individuals, organizations are working towards the same goals should complement each other rather than being competitors.

Adieu To Dr. K.R.K. Prasad on his Retirement from GSI



Dr. K.R.K. Prasad, ISEG Council Member, who was functioning as the Director, Engineering Geology Division at GSI, Southern Region, Hyderabad has been superannuated from his service in the month of July, 2013. Dr Prasad has worked for several projects located in peninsular India. ISEG wishes for his content and happy post retirement life.



ISEG Membership

- Admission fee (one time)
New Members : Rs. 1000/-
 - Institutional/Associate Membership (Annual) : Rs. 2000/-
 - Individual Membership
(i) Annual Membership : Rs. 500/-
(ii) Life Membership
For age < 35 years : Rs. 5000/-
For age 35-50 years : Rs. 4000/-
For age > 50 years : Rs. 3000/-
- Membership Forms available at www.isegindia.org

IAEG Membership

Annual Membership

Members with Bulletin : 29 Euros
(Receive Newsletter also)

Members without Bulletin : 4 Euros
(Receive Newsletter only)

Associate Members : 150 Euros
(Receive Bulletin + Newsletter)

Note : The dues may be paid in INR by demand draft in favor of "Indian Society of Engineering Geology", payable at Lucknow.

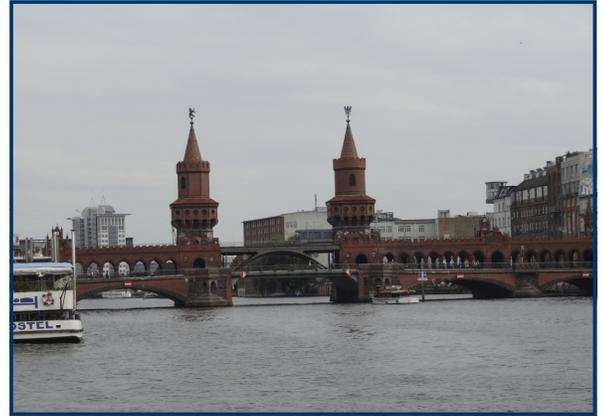
TRAVEL & TOURS

PRESIDENT, ISEG VISITS EUROPE

President ISEG Dr. Gopal Dhawan recently visited Europe (Germany and Switzerland) under "2nd Advanced Global Leadership Programme-2013" organised by SCOPE and IIM-Kolkata.

During this visit, Dr. Dhawan interacted Senior professor of ESCP-Berlin, EPFL - Switzerland and St. Gallen University, the world class B-schools. Official visit to ILO & WTO, Geneva, Bundesbank-Germany were very much rewarding. This tour has provided an opportunity to see some of the best industries of the world such DuisPort, Mercedes Benz, GERB, Huber & Suhner and Trunz Water systems.

The experience in advanced management and leadership during this tour will be definitely beneficial in the future endeavour to the society.



Bridge on Spree River connecting East & West Germany



Remains of Berlin Wall

ISEG POSTER AT IAEG SYMPOSIUM, CHINA

A colorful flex poster of ISEG printed in A-0 size was erected at the venue of International symposium of IAEG held at Beijing, China between 24-25, September 2013.

The poster highlighted the achievement and accomplishment of ISEG during its 48 years of existence. It gave glimpses of its activities and its contribution to the society.

It also carried an Invitation from the President, ISEG for the International conference scheduled to be held in New Delhi during October'2015 to mark the Golden Jubilee of ISEG.

INDIAN SOCIETY OF ENGINEERING GEOLOGY

Indian National Group of IAEG

Members of Engineering Geology in India

- Indian Society of Engineering Geology (ISEG) is a professional and a scientific forum comprising members from the fields of Geology, Engineering Geology, Geotechnical Engineering and Civil Engineering, working together for the advancement of geotechnical engineering and related scientific and developmental projects in India.
- Technical Division of Geological Survey of India worked an eventual synergy alignment in India in 1950's, soon after ISI was established in 1951.
- ISEG was established Engineering Geology in Geological Survey of India in the year 1962.
- ISEG was launched on October 13, 1962 at Kolkata. Its founder president was Dr. D.K. Ghose, the former of Indian geology.
- Since then the Society commenced its journey with the aim to promote the study of Engineering Geology, Geotechnical Engineering, Rock Mechanics and Geotechnical Geology etc in India.
- ISEG has successfully completed nearly five decades of glorious service to the nation and that is celebrating its Golden Jubilee in the year 2012.
- The ISEG, over the years, has effectively produced a global platform for discussing and drafting a host of geotechnical problems and state-of-the-art technologies and addressed the Society's undermembers in the field of Geology, Engineering Geology and allied areas.

ROCK MECHANICS IN ANCIENT INDIA

ENGINEERING GEOLOGY AND ROCK MECHANICS IN MODERN INDIA

FORTE OF ISEG

130th Birth Anniversary Special

PROF. KARL VON TERZAGHI
Terzaghi's Method of Working

Karl Terzaghi was a famous Soil and Rock Mechanic expert born in Austria but settled in USA. He was mechanical engineer graduating in 1904 but very early in his career he developed great interest in geology and soil mechanics and later did his PhD when he was in St. Petersburg in Russia. He has already become famous by then. He moved to USA in 1912 and then started his never ending work on several projects. It is said that he worked in 120 projects during his career as a consultant spanning from 1921 to 1958. His method of working was typically laborious and closely associated with the projects. He went deeply in every aspect and therefore could bring out popular research papers with his work from just one project. He evolved new theories based on few examples but his study was so intensive and thorough that his postulations were respected and successful. His measurements and analysis on force on retaining walls was published in 1919 in English and commands respect even now. His understanding of soil behavior was great and he greatly influenced the development of soil mechanics in 1920s and 1930s.

He was selective in taking assignments and would accept only challenging ones. He was very systematic and thorough in his report writing and documentation of the work is hall mark of his success. His hand written reports were typed by an outsider which means that he preferred absolute originality. He would study the geology of the prospective sites in great detail. In those days there was neither internet nor electronics and therefore he worked really hard to collect the geological reports. He would go to site and examine it in detail and collect the missing details. He would remain connected with the site throughout the construction phase. He had his own representative to oversee the implementation of design and collect site information. His appetite for work was never ending and deep. When he was involved in work he was cut off from rest of the world. He collected all the required data on every aspect such as soil characteristics, permeability and groundwater and other things. He was prepared to revise his find-



Karl Terzaghi : Born October 2, 1883 ; Died October 25, 1963

“Theory is the language by means of which lessons of experience can be clearly expressed.”
 - Karl Terzaghi

ings as when new information emerged. There are many lessons we should take from the work of Terzaghi. His single minded devotion for projects is exemplary and needs to be practiced.

Karl Terzaghi has given classification for rock mass in 1946 for steel arch supports. This was one of the first attempts to correlate description of rock mass with tunnel supports. It is believed that Q and RMR systems are great inventions in rock mechanics but Terzaghi's classification is mother of all and occupies a unique place. It was popular in India and elsewhere in the world for a long time. However, even now geotechnical engineers do make a rough and quick calculation using his classification.

Terzaghis' classification has been extensively used up to 1980s for railway tunnels, road tunnels and hydropower tunnels. His descriptions of rock masses on the other hand are useful even now to engineering geologists.

It is great coincidence that Dr. Karl Terzaghi was born on 2nd October, the same day as Mahatma Gandhi

: Imran Sayeed

Advertisement on ISEG websites

In order to maintain the website so as to meet the ever increasing demands of its Members, it is proposed to invite advertisements from related organizations to be published in the ISEG website

Rate
 An amount of Rs 20,000/- will be charged to this service for a total period of five years.

**Add US\$ 20 for overseas advertisements

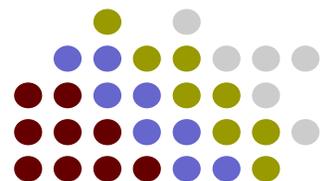
- Note**
1. The advertisement would be carried for five year from the date of its posting on the website.
 2. The advertisements would be posted as abridged version, i.e Logo and Tagline, if any.
 3. The advertisement logo would be hyperlinked to the advertiser's webpage/website.

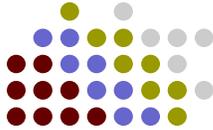
Advertisement material
 The material may be sent as soft copy along with a hard copy in colour.

Payment
 The fee is non-refundable, may be paid directly to the ISEG account as per details given below.

- (a) Demand Draft, drawn in favour of the 'Indian Society of Engineering Geology', payable at UCO Bank, Lucknow.
 - (b) Payments may also be made through Bank Transfer on line as detailed below.
- Name of the Bank: UCO Bank, GSI Branch, Aliganj, Lucknow
 Name of account : "INDIAN.SOC.OF.ENG"
 Account No.: 90330200000045
 IFSC Code No. : UCBA0002024

Like every cloud has silver lining, the logos will also be displayed in all subsequent issues of ISEG News, and on the cover page of Journal of Engineering Geology during the period of validity.





ISEG NEWS

(A Biannual Newsletter of ISEG)

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Adieu to Shri S. Kannan on his Superannuation



Shri S. Kannan, Council Member, ISEG and General Manager (Geology) at GMR Energy Ltd, after a 32 years long distinguished career of Engineering Geologist has superannuated on 30th September, 2013 from their hydro headquarter at New Delhi. He was with GMR Group since May 2007, looking after all geological works pertaining to hydro electric projects of the Group located at Himachal, Uttaranchal, Arunachal Pradesh and Nepal.

Before joining GMR, Shri Kannan worked with NHPC for more than 22 years in different capacities since March 1985. Just before leaving NHPC he was posted at Subsansiri Lower Hydropower Project (2000MW) in Arunachal Pradesh as Chief (Geology) since December 2004. Earlier, he has served at various hydropower projects of NHPC located in Dhauliganga and Goriganga valley of Uttarakhand and Teesta valley in West Bengal.

Shri Kannan has shifted with his family to Bangalore. ISEG give its heartfelt farewell to him and wishes for a great post retirement life with family and friends.

We all will certainly miss him a lot in NCR.

PRESIDENT, ISEG LAUNCHED WEB SITE FOR JOURNAL OF ENGINEERING GEOLOGY AT NEW DELHI

Dr. Gopal Dhawan, President-ISEG launched the newly developed web site of Journal of Engineering Geology, the prestigious Journal of Indian Society of Engineering Geologist (ISEG) during 2nd Executive Council meeting of ISEG held at M.E.C.L. Office, SCOPE Minar, Laxmi Nagar, New Delhi on July 20, 2013 in presence of distinguished Council members of ISEG and ISEG-Delhi/NCR Chapter.

Shri Imran Sayeed, Editor, ISEG gave a brief presentation on the various innovative measures being adopted under the able guidance of President and Secretary ISEG in the development of new look journal, ISEG Newsletter and the website joegindia.com. The future plan regarding publications of ISEG journal and newsletter were also discussed. Both the President and Secretary appreciated the efforts taken by editorial team in this regard.



OBITUARY

Late Shri B.M. Hukku



Born on 1st July 1932, Shri B.M. Hukku obtained his AISM degree from Indian School of Mines and joined Geological Survey of India as Assistant Geologist in 1955. He was promoted to Geologist (Jr.) in April 1960 and Geologist (Sr.) in August 1962. In October 1973, he became Director in GSI and took over the charge of Dy. Director General, Northern Region, GSI, Lucknow in August 1984.

Shri Hukku superannuated from active government service on 31 July 1990 after rendering 35 years of invaluable service to the nation. After superannuation also, he continued his service to the nation as an advisor to various water resources projects. He had an extraordinary experience of geotechnical investigations for more than 50 projects spread in India, Nepal and Sri Lanka. Prominent projects with which Shri Hukku was associated in India are Bhakra Dam, Satluj Dam Project, Banihal Raod Tunnel, Obra Dam, Salal Project, Meja Dam Project etc. In Nepal, he was involved in Karnali Dam Project, Sonauli - Pokhra Road Project and in Sri Lanka, carried out investigation of Kotmale Victoria Dam and Canyon

Power Project. He was member of several Technical Advisory Committees of various river valley projects.

Shri Hukku published several technical/scientific papers and was the author of many unpublished GSI reports. He was awarded Special Alumnus Award by Indian School of Mines for his invaluable contribution in Geology and in the field of Engineering Geology, he was honoured with Coggen Brown Medal and National Mineral Award.

He was a founder Life Member of Indian Society of Engineering Geology, an Indian National Group of International Association of Engineering Geology and the Environment (IAEG).

He breathed his last on 4th July 2013 at his River Bank Colony house in Lucknow. He left behind his three daughters and one son. The ISEG fraternity extends its condolences to the bereaved family. May his soul rest in peace.

—M. RAJU