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INDIAN SOCIETY OF ENGINEERING GEOLOGY

(IAEG India National Group)

A Biannual Newsletter

ISEG NEWS

Bridging Communication Gap.....Dissipating Information

www.isegindia.org
www.joegindia.com

NHPC Ltd
Pioneers in Hydropower Development

SJVN Ltd

Geological Survey of India
(Ministry of Mines, Govt. of India)

Mineral Exploration Corporation Limited
(A Mini Ratna Company of Govt. of India)

MESSAGE FROM SECRETARY

Dear Colleagues,

The new Council has assumed charge in the month of January 2016. It has been a rewarding experience thus far in being associated with the society. I will continue to serve this institution to the best of my ability. We are fortunate to work under the leadership of Shri. R.N. Mishra, CMD, SJVN & President of the Society. He is a keen observer who with his vast experience shall bring cutting edge to the Society especially in bringing together engineers and geologists.

In this year we shall focus on many important issues concerning the geotechnical and scientific community. First issue is geotechnical investigations and testing for large civil engineering structures. When an individual attends seminars or conferences or gives presentations he becomes a supporter of investigations and says that many things in favor of the same. However, the same person when chairing a Progress Review Meeting or attending the same, is more concerned about the submission of DPR. This may not be true in every case but is a fact in many incidents. It is acceptable that a person

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EDITORIAL

Dear Members,

"Familiarity breeds contempt", So says a well known and often repeated adage. It is a fact of life that more acquainted we get with a person or thing, more insignificant it becomes to us and finally we lose interest in it. Thus, change is the way of life.

The year started with the new ISEG council assuming charge of the Society. Serving the Society as Joint Editor for last three years had been a great learning experience for me. Now being elected as an Editor in the new Council had given me a chance to further use my abilities for the development of the Society.

ISEG News in its twelfth year of publication has become an important means of communication within the Society as well as with the outside world. The new look of the ISEG News and features such as "Biography of Eminent Engineering Geologist" launched by the previous council were greatly acclaimed by the members. Therefore, the same shall be continued in near future also. I'm sincerely indebted to Shri M. Raju, Past Secretary and DG, GSI who had constantly provided biographies for publication in the newsletter. In this issue also he has contributed the biography of J.B Auden. I hope members will appreciate it.

This year "Journal of Engineering Geology" which was started in 1966 shall complete fifty years of its publication. ISEG is planning to celebrate this occasion by taking out a Golden Jubilee issue of the Journal by the year end. I request all members to contribute in form of articles for publication in the journal. It shall be our endeavour to make the

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50 Years Golden Jubilee

1966– 2016

JOURNAL OF ENGINEERING GEOLOGY

BIANNUAL HIGHLIGHTS

November 2015 to April 2016

ISEG organised a One day National Workshop on "Climate Change in Indian Sub- Continent with Special Reference to Himalayas." on 2nd April 2016 at Hotel Vibe The Lalit, Faridabad, Haryana, India. Lectures were delivered by Seven eminent scientists/ researchers drawn from reputed organisations such as GSI, DRDO, TERI & NIDM. More than 100 delegates attended this one day workshop.

A General Body Meeting of ISEG was held on 02 April 2016 immediately after the workshop. The GBM was Chaired by Shri R.N. Mishra, President, ISEG. Shri Imran Sayeed, Secretary ISEG conducted the proceedings of the meeting. Several important issues were discussed during the GBM. The minutes of GBM are available on ISEG website www.isegindia.org.

MESSAGE FROM SECRETARY

(Continued From Page 1)

has to perform or act according to the role assigned but the importance of investigations needs to be appreciated as well. Attitude towards investigations need to change for betterment of the same. Instead of suggesting two or three test locations or four to five samples we need to think in terms of tens of samples. Sincere efforts are required to introduce new technology in investigations. Having said that it may also be understood that conditions in investigation stage are tough and difficult. In some projects really commendable exploration and drilling has been carried out. On the other hand more and more innovations are to be brought out in formulations of project layouts. Planning for structures needs to be done with an open mind and strictly based on results from explorations rather than trying to tailor the site to our needs. Please remember that nature cannot be always tamed but several alternatives and solutions may be available if planning and engineering are flexible.

The other main concern is use of modern technology in construction. While we can see a lot of innovations in urban structures such as metro, flyovers etc both in design and construction methodology why is that primitive technology still prevails in many river valley schemes? Does it mean that because they are in far flung areas, competent personnel are not available or not willing to work in remote locations? Sincere introspection is required here also to bring best talent in river valley schemes.

The society had organized one day National Workshop on "Climate Change in Indian Sub-Continent with Special Reference to Himalayas" on 2nd April 2016 which was attended by about 100 delegates. The faculty was drawn from GSI, DRDO, TERI & NIDM. I am sure after attending the workshop, our understanding about Global Warming and related issues has increased. General Body Meeting of the society was held in the evening and minutes of the same are placed on ISEG website.

It is proposed to take up consultancy assignments on behalf of the society by suitable professionals. Details in this regard will be discussed in next Council meeting before finalization of the scheme.

With regards and thanks,

(Imran Sayeed)
Secretary, ISEG

EDITORIAL (Continued from Page 1)

journal accessible to larger section of authors and researchers. With this aim in mind, a web portal www.joegindia.com was launched couple of years back. This web portal has facility to upload the articles for review and publication in the journal. In the Golden Jubilee year, ISEG is planning to further upgrade this web portal by adding journal in electronic form with facility to download the softcopy of articles free of cost by all life members. For non-ISEG members the same facility shall be available after a nominal payment. We are sincerely working on it and I hope by the time Golden Jubilee issue is launched, the above facility shall be available.

During the GBM held on 02nd April 2016, it was decided that the hard copies of the journal shall be discontinued gradually. However, for the time being till the Golden Jubilee edition is published hard copies shall be distributed to senior members only. In compliance to this directive, hard copies of previous two issues have been posted to about 300 senior most members in order of life membership numbers. A large number of members collected their copies during EGNM-2015 also. Life Members of the Society who wish to get the hard copy of the journal may request to Secretary/ Editor by sending their current address of correspondence. Nevertheless, the Society shall continue to post the hard copies of the Newsletter to all its members. The softcopies of latest and previous issues of the same are available on ISEG web portals www.isegindia.org and www.joegindia.com.

The credit for the new look of Journal of Engineering Geology, ISEG NEWS and JOEG website goes to Shri Imran Sayeed, Past Editor and now Secretary, ISEG. He has always been a motivational figure for up gradation of the ISEG publications. My sincere gratitude to him for providing constant guidance and support.

I hope members will appreciate this maiden issue of ISEG News from the new Council.
With regards,

Rahul Khanna
Editor, ISEG

AN INTRODUCTION TO ISEG COUNCIL FOR 2016-17 TERM

Ramesh Narain Misra
President
CMD, SJVN Ltd., Shimla

B. Tech. (Civil), Allahabad University
M..Tech. (Water Resource Engineering), IIT-Delhi
FIE, FIPHE

Shri Misra has a career spanning over 37 years in Power Sector. He started his career in NHPC in the year 1979 as Executive Trainee and rose to the position of Executive Director. He joined SJVN Ltd. as Director (Civil) on 21st May 2010 after serving NHPC for 31 years. As Director (Civil), he is credited with timely completion of 412 MW Rampur Hydro Power Project. Since January 2015, he a Chairman and Managing Director of SJVN Limited. In his leadership, SJVN has been awarded with Gold Trophy and Citation of SCOPE Excellence Awards under Institutional category (Mini Ratna). The awards were presented by Hon'ble President of India, Sh. Pranab Mukherjee in a function held at Vigyan Bhawan, New Delhi to mark the Public Sector Day. Shri Misra has been honoured with "CEO with HR Orientation" Award by World HRD Congress. He has also been conferred "Udyog Ratna Award" and "Pride of India Award" by Institute of Economic Studies. He has vast experience in project implementation, investigations, planning, Environmental aspects, project appraisal, commercial aspects and contract management of large projects. He has also actively contributed in diversification of SJVN into Thermal, Wind and Solar Energy. He has to his credit more than 35 technical papers published in various journals and presented in National & International Conferences/Seminars.
Email: rnmisra1957@gmail.com

Dr. V.K. Sharma
Vice President
Dy. Director General, GSI, Lucknow

M. Sc. (App. Geology), IIT-Roorkee (Formerly University of Roorkee)
Ph.D, Lucknow University

Joined Geological Survey of India as Geologist in 1981 and worked in different capacities specializing in engineering geology, landslide investigation and landslide susceptibility mapping essentially in Himalayan terrain. Supervised geotechnical investigations and exploratory programmes for various dam projects, tunnels. Supervised geotechnical investigations and exploratory programmes for various dam projects, tunnels, communication routes, nuclear waste disposal sites, river linking projects and thermal power plants etc in Northern, North-eastern and Central Regions of GSI. In the wake of Uttarakhand disaster in June, 2013, steered the post disaster studies to suggest reconstruction and rehabilitation plan to government of Uttarakhand. Member of technical delegation of Govt. of India to Uganda for development of hydro power potential of River Nile in African Rift System. Visited USA and participated in technical session of Heritage Stone Task Group of IAEG held at Baltimore. He was associated with Czech Geological Survey, Prague under UNESCO sponsored training programmes. Life member of ISEG, served as Editor, Journal of Engineering Geology during the term 2009-10. Credited with over ninety research papers published in reputed peer reviewed National and International Journals, Seminars, Symposium and Workshops. Currently, Regional Mission Head of Mission-IV supervising all fundamental and multidisciplinary geosciences program that subsume climate change, landslides, hydro-projects, geo-environment and Himalayan tectonics etc. of Northern Region.
Email: vksharma _gsi@yahoo.co.in

Arindom Chakraborty
Joint Secretary
Manager (Geology), Engg. Geology Division, NHPC, Faridabad

M.Tech (App. Geology), IIT Roorkee (formerly Univ. of Roorkee), 2000
MBA (Spl. - Business Development), Sikkim Manipal University, 2009
Certification in Project Management, PMA, 2009

About 15 years Experience in the field of Geological/Geotechnical Investigations for hydropower Projects. Currently working with NHPC Limited as Manager (Geology). Worked for PFR & DPR stage Geological investigations of Tawang Stage-I (600MW) and Tawang Stage-II (800MW) HE Projects, Arunachal Pradesh, Preconstruction and construction stage geological investigations of Subansiri Lower HE Project (2000MW), PFR of eight Hydropower Projects in Subansiri Basin, Arunachal Pradesh, FR & DPR stage Investigation of Subansiri Middle HE Project (1600MW), Preconstruction stage geological investigations of URI-II (240MW), DPR and construction stage investigations of Nimmo-Bazgo (45 MW), Construction Stage geological monitoring of Chutak HEP (44 MW) & Kishanganga HEP (330 MW), DPR stage Geological Investigations for Dhauliganga Intermediate HEP (225 MW) & Goriganga-IIIA HEP (165 MW), Consultancy assignments for hydropower projects in Kerala and Maharashtra, A Compilation on Geological Problems faced and remedial measures taken during construction of Hydropower Projects (R&D project assigned by M.O.P, Govt. of India).
Email: achakrabortynhpc@gmail.com, arindom2000@yahoo.com

Alok Kumar
Treasurer
Superintending Geologist, GSI, Lucknow

M.Sc. (Geology), Lucknow University

Joined the esteem organisation in 1984 and since then working in various capacities with enriching experience in the field of Engineering Geology, Map Compilation, Curatorial work, Geotechnical Laboratory and Core Library. Remained associated with the Engineering Geology division at GSI, NR between 1992-2007 with short and intermittent breaks. Contributed in field and desk work for various Water Resource development projects in Uttar Pradesh. Presently, supervising the execution of the work in Core Library at Regional Headquarters in Lucknow. Worked in Northern and North Eastern regions of GSI and PPM Cell at Central Headquarters, GSI, Kolkata as technical secretary at DG Operations. Rendered services for comparing and conducting important technical workshops, seminars and conferences in Hindi in the parent organisation and other forums of national importance including ISEG.
Email: alokkumargsi@gmail.com

Ashok Kumar
Vice President
Dy. Director General, GSI Training Institute, Hyderabad

M. Sc. (App. Geol.), IIT-Roorkee (Formerly Roorkee University)
M. Phil (Geol), Punjab Univ.1979

Having 29 years of professional experience in geotechnical investigations of hydel, irrigation & communication projects in India, Nepal and Bhutan. Supervised geotechnical investigations in WB, Orissa, Bihar, Jharkhand, Sikkim, Uttar Pradesh and Andaman & Nicobar Islands besides landslide studies in Sikkim & Darjeeling Himalayas. Carried out regional geological mapping and mineral investigations for 4 years (1981-1985) in Arunachal Pradesh. Also have 2 years experience in coal exploration in Raniganj Coalfield (West Bengal) from 1979 to 1981 in Mineral Exploration Corporation Ltd. Currently looking after various geoscience related training courses of Geological Survey of India Training Institute, Hyderabad. Before GSI Training Institute, headed the Policy Support System Division of GSI, Northern Region, Lucknow for over one year (2014-15).
E-mail : akumar259@gmail.com

K. C. Joshi
Vice President
Director, GSI, Lucknow

M.Sc. (Geology), Lucknow University , 1978

More than 23 years in earthquake geological studies including systematic seismic microzonation studies, Macro seismic survey of most of the major and moderate earthquakes since 1991, Earthquake triggered landslide studies and Seismotectonic evaluation. Presently posted at Earthquake Geology Division, Northern Region, Geological Survey of India, Lucknow.
Email: k _cjoshi@rediffmail.com

Imran Sayeed
Secretary
General Manager (Geotech), NHPC Ltd, Faridabad

M. Sc. (Geology), AMU, 1981
M. Phil (Geology), AMU,1995
PG Diploma in Hydrogeology, AMU, 1982
Graduate Certificate (Geotechnics), Missouri University of Science & Technology, USA , 2014

More than 30 years of experience in engineering geological and geotechnical work for hydropower, road and railway tunnels in NHPC Ltd. Prepared DPR's of several hydropower projects viz., Kotli Bhel-1A, 1B & II, Lakhwar Vyasi, Mangdechhu and Parbati stage-II. Preconstruction stage investigations of Dibang Project in Arunachal, Mangdechhu HE Project & Chamkarchhu HE Projects in Bhutan. Associated with construction stage geotechnical work of Uri stage-I in J & K, Dhauliganga in Uttarakhand, Parbati stage II & III in HP and Mangdechhu Project in Bhutan. D & E consultancy work awarded by MHPA for Mangdechhu HE Project, Bhutan. He has published several research papers in national and international journals and given technical lectures in various conferences including International Symposium of Geological Society of America Charlotte, N.C.,USA during October '2012. Presently working as General Manager (Geotech) with Engg. Geology & Geotechnical division of NHPC supervising geological and geotechnical works of investigation, construction and O&M projects, Geotechnical and Remote Sensing Laboratories and Construction Material Survey work of the division.
Email: india.seg@gmail.com

Akhouri Bishwapriya
Joint Secretary
Superintending Geologist, GSI, Patna

M. Sc (Geology), Delhi University, 1998

Joined GSI in 2000 has more than ten years of experience in Mission IV activities including engineering geology, natural disaster involving landslides, mass wasting processes, extensive river bank erosion, earthquakes etc. Have worked in several hydroelectric projects namely Tehri, Koteshwar, Maneri Bhali, Sarju valley, Tons valley projects of Uttarakhand; Lakheri, Bansagar, Pahuj, Bhaoni in Uttar Pradesh and Punasangtchu, Stage II and Damcchu-Chhukha Bypass road alignment project in Bhutan for investigations carried out in Pre-Feasibility, Detailed Project Report and Construction stages. The detailed macro seismic survey in the aftermath of Sikkim (2011), Nepal (2015) & Manipur (2016) earthquakes in parts of Bihar. Detailed Seismic Microzonation studies of Patna agglomeration to assess the seismic vulnerability of the state capital (2012-14) involving multidisciplinary approach. Landslide studies in parts of Pithoragarh district after the natural disaster of June, 2013 & National Landslide Susceptibility Mapping in Uttarakhand as a spin off high priority programme.
Email: akhouri123@rediffmail.com, akhouri123@gmail.com

Rahul Khanna
Editor
Manager (Geology), NHPC Ltd, Faridabad

M. Tech (Applied Geo.), IIT-Roorkee (formerly Univ. of Roorkee), 1996
PG Diploma in Computer Application, IET, University of Lucknow,2001

Professional experience of about 19 years. Started career in 1996 as Project Scientist at Remote Sensing Applications Centre, Lucknow prior to joining NHPC in 2001 at Siang Basin Projects, Arunachal Pradesh. Involved with geotechnical investigations for preparation of DPR's of Siang and Subansiri Basin projects. Posted at Dibang Multipurpose Project (3000MW), Arunachal Pradesh for DPR stage investigation and post DPR works. Involved in preparation of PFR's of 10 projects of Dibang valley under Prime Minister 50,000 MW initiative. Worked at Parbati HE Project, stage-III (520MW) involved with construction stage geotechnical work. At Corporate Office involved with Construction stage geotechnical work of Parbati-II (800MW) & Parbati-III (520MW) projects, BIS related work, CMS work of Shwezaye hydroelectric project, Myanmar, Completed NPP Project awarded by CEA/CPRI. Presently working in Engg. Geology & Geotechnical division for Design & Engg. Consultancy work of Mangdechhu HE Project, Bhutan (720MW), Prepration of updated DPR of Dibang and rock mechanics testing.
Email: isegpapers@gmail.com, rahulgeo05@gmail.com

AN INTRODUCTION TO ISEG COUNCIL FOR 2016-17 TERM

Dr. Gopal Dhawan
Past President
CMD, MECL, Nagpur

M Tech. (App. Geology), IIT-Roorkee (formerly University of Roorkee)
Ph.D, Indian School of Mines, Dhanbad

In his 36 years long career, he was associated with engineering geological & geotechnical studies of numerous hydroelectric projects of NHPC in India and abroad. He was one of the pioneers in India who applied modern rock mass classifications (RMR & Q systems) in Engineering Geological Mapping. As Executive Director (Geo-Tech & PID), NHPC (Jan 2008-May, 2012), he headed Engg. Geology & Geotech, Project Investigation Divisions at Corporate office, Faridabad along with various Survey & Investigation Projects of NHPC. During his tenure in NHPC he was involved with exploration for hydroelectric projects & geotechnical investigations and study of geothermal energy in the country, especially in Himalayan terrain, North Eastern region and the neighbouring countries viz. Nepal, Bhutan and Myanmar. Since May 2012 he is leading Mineral Exploration Corporation Ltd. as Chairman and Managing Director. Under his leadership ISEG celebrated its Golden Jubilee by organising an international Conference EGNM-2015 at IIT-Delhi. Dr. Dhawan has published and presented around 30 technical papers/keynote addresses in various National and International Journals, Symposia, Seminars etc. He is a recipient of "Jawaharlal Nehru Birth Centenary Research Award" (2004) by CBIP, India and "Outstanding Contribution Award" (2008) by ISRMTT, India for his contributions in the fields of Engineering Geology, Rock Mechanics & Tunnelling Technology. He has been awarded "Outstanding Leadership Award" for Excellence in Mineral Industry (2014) by Mining Engineers Association of India.
Email: gdnoida@gmail.com

Dr. Saibal Ghosh
Council Member
Superintending Geologist, GSI, Kolkata

M.Sc. (Applied Geology), IIT, Kharagpur
M.Tech. (Applied Geology), IIT, Kharagpur
Ph.D., University of Twente, Netherlands

He joined GSI in 1994. He has been associated with geotechnical investigations of various hydroelectric projects in the north-east (Assam, Meghalaya, Arunachal Pradesh and Mizoram) and in the eastern Himalayas of India (Sikkim, Darjeeling) & Bhutan as a consultant engineering geologist and landslide expert for the last 18 years. He has published several research articles in various national and international peer-reviewed journals.
Email: saibal_ghosh@rediffmail.com

Dr. S, N. Patil
Council Member
Professor & Head, Department of Applied Geology
School of Environment & Earth sciences,
North Maharashtra University, Jalgaon

Ph.D., Geology

Dr. Patil is teaching Geology at North Maharashtra University, Jalgaon since 2007. Presently involved in five nos. ongoing research projects on variety of subjects such as Environment Impact assessment studies, Geomedical Health Hazards, Artificial Recharge etc. funded by UDC, DST-New Delhi and Irrigation Department, Jalgaon. He has published a number of research papers in national and International journals. He has rendered his services as associate Editor of Hydrological Science, AOGS published by World Scientific Publishers, Singapore.
Email: sanp2@rediffmail.com

Dr. P.D. Nemade
Council Member
Principal & Professor, SBPCE, Indapur, District-Pune

B.E. (Civil Engg.), Pune University, 1990
M.Tech. (Environment Engg. & Management), IIT, Kharagpur,1999
PhD, IIT– Mumbai, 2010

Working as Principal and Professor, Department of Civil Engineering, S.B. Patil Collage of Engineering, Indapur, District Pune since January 2010. More than 21 years of teaching experience at B. Tech level. Recipient of "Promising Engineer Award" from Institution of Engineers, India, Nasik local Chapter on occasion of Engineers Day (2003). He had published several research papers in national and International peer reviewed journals. Provided consultancy services in the area of cement, aggregates, Mix Design, Concrete, Water & Wastewater quality for local Government authority. He has also worked as Head of Civil Engineering Department at J.T.M. College of Engg, Faizpur, Jivram Nagar
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Mahesh Chandra Upadhyay
Council Member
Director, Geological Survey of India, Lucknow

M.Sc. (Geology), Vikram University, Ujjain,1978

Joined GSI in August 1981 at Laddakh Project, Srinagar as Assistant Geologist got promoted to Geologist Jr. through Geologist's exam 1980. Worked in Project INFLOW in Indus area of Ladakh , followed by Quaternary area of Punjab and Deccan trap area of M.P . Then onwards associated with various important engineering Projects in M.P. like Narmada Sagar , Omkareshwar, Maheshwar, Man, Mahi, Jobat, Gambhir, Sindh , Samoha Pick Up weir Various aqueducts like Narmada, Orr, Madri, Worked in North Eastern India and carried out geotechnical investigations at hydroelectric projects like, Tawang, Kameng, Lohit, Thoubal, Presently working as Director in Engineering Geology Division, State Unit U.P. and Supervising geotechnical investigations at important projects like, Kanhar, Sonbhadra district and Bhaunrat project, district Lalitpur
Email: mcupadhyay27@yahoo.com

M. Raju
Past Secretary
Director General, GSI, Kolkata

M.Sc. (Geology), Andhra University

After joining GSI in 1980, working in Engineering Geology for last 36 years has carried out geotechnical investigation of large number of water resources projects in the Himalayas and peninsular India. He has contributed to geotechnical studies at Srisailam left bank underground hydroelectric project, a major assignment in which massive excavation was involved for locating underground powerhouse complex and pressure tunnel system. The work was highly appreciated by consultants of the world bank and OECF, Japan the funding agencies. Given noteworthy contribution for Nagarjunasagar left canal hydroelectric project, Yeleru reservoir project , Telegu Ganga project dam foundation etc. Associated with geotechnical investigations of Vishnu Prayag HE project and other river valley projects located in Alaknanda and Dhauliganga valleys in the Himalayas. Also associated with engineering geological investigations in neighbouring countries like Bhutan and Nepal. He has worked out a novel method of landslide hazard zonation by using geocoded IRS imagery to meet the critical demand for study of landslides both at regional and site specific level in the north-eastern hilly terrain. Shri Raju has also been associated with Mission-IV activities of the Geological Survey of India, stationed at Central Headquarters, Kolkata
Email: geolraju@gmail.com

G.C. Kandpal
Council Member
Director, GSI, Lucknow

M.Sc. (Geology), Kumaun University, Nainital, 1990

He joined Geological Survey of India in 1983. Initially he devoted time in the geological mapping in Malwa and Satpura hill ranges in Madhya Pradesh. Thereafter he remained associated with Engineering Geology and Landslide Studies in different parts of Himalayas. During his deputation to Bhutan he worked on different projects as per the request of Royal Government of Bhutan. He had also contributed in studies on Earthquake Geology like Active Fault Mapping and Seismic Microzonation. During his posting in Shillong, he supervised projects in Seismic Hazard Studies in parts of North Eastern Region. Presently he is supervising the training activities of Geological Survey of India, Northern Region as Director, Regional Training Institute and Regional Mission Head –Mission-V. He reviewed nominations submitted for inscription as UNESCO Geo-heritage sites during year 2007 and 2008. He had been the Expert Panel of International Union of Geological Sciences and IUCN in regards to the "Review of Nominations of UNESCO Geo-heritage Sites". He has published several papers in the National and International Journals.
Email: gckandpal@yahoo.co.in

Dr. Pranay V. Singh
Council Member
Assistant Manager (Geology), NHPC Ltd., Faridabad

M.Sc. (Geology), University of Lucknow, 2004.
Ph.D. (Geology) ,University of Lucknow, 2013

About 7 years experience in the field of Geological/ Geotechnical Investigations for hydropower Projects. Presently, working with NHPC Limited as Assistant Manager (Geology). Associated with Construction stage Geological mapping of Subansiri Lower HE Project (2000MW), Arunachal Pradesh, O&M stage Geological mapping and preparation of Compilation report of Chamera-III HE Project (231MW), Himachal Pradesh. Associated with Regional Geological Mapping of Dibang Multipurpose Project (3000MW), Arunachal Pradesh. O&M stage geological work of Bairasiul (180MW), Chamera-I (540MW), Chamera-II (300MW) and Chamera-III (231MW) of Himachal Pradesh and Sewa-II (120MW) of Jammu & Kashmir and also visited the projects as Dam Safety team member.
Email: pranayvsingh@gmail.com

P. Narasimhan
Council Member
Assistant Engineer, Highways Department, Govt. of Tamilnadu

B.E. (Civil Engineering)
M.E.(Environmental Engineering)

Working as Assistant Engineer at Highway Department in Government of Tamilnadu. .
Email: er_narasim@yahoo.com

Dr. Pankaj Jaiswal
Council Member
Superintending Geologist, GSI, Kolkata

MSc. (Geology) , University of Delhi,1998
Ph.D., University of Twente, Netherlands

He joined Geological Survey of India, Lucknow as a Junior Geologist. From 2001 to 2006 worked under different landslide projects in Uttarakhand. From 2007 to 2011 worked on his Ph.D. research under sandwich programme in collaboration with GSI, NRSC in India and Faculty of Geo-information Science and Earth Observation (ITC), University of Twente in The Netherlands. His research focuses on the quantitative estimation of landslide risk along transportation corridors using information derived from historical records. Presently, he is supervising projects on landslides in Geohazards Research and Management Cell, GSI, Kolkata. His area of expertise includes landslide susceptibility modeling, risk analysis, rainfall threshold modeling and development of landslide early warning methodology. He has published several scientific articles in national and international journals and conference proceedings.
Email: pankaj.jaiswal2@gmail.com

HONOUR FOR SHRI R.N. MISRA PRESIDENT ISEG & CMD, SJVN LTD.

Hon'ble President of India, Shri Pranab Mukherjee felicitated SJVN with Gold Trophy and Citation of SCOPE Excellence Awards under Institutional category (Mini Ratna). The awards were received by Shri R. N. Misra, Chairman & Managing Director. The awards were presented in a function held at Vigyan Bhawan, New Delhi on 11th April 2016 to mark the Public Sector Day. Shri Anant G. Geete, Hon'ble Union Minister of Heavy Industries & Public Enterprises presided over the function, while Shri G.M. Siddeshwara, Hon'ble Union Minister of State for Heavy Industries & Public Enterprises was the Guest of Honour.

Hydro Power is the core strength of SJVN and the Company has the distinction of implementing India's largest 1500 MW Nathpa Jhakri Hydro Power Station in Himachal Pradesh. The Company's other two projects namely 412 MW Rampur HE Project in Himachal Pradesh and 47.6 MW Khirvire Wind Power Project in Maharashtra are already in operation. SJVN is implementing 12 other projects in Nepal, Bhutan, Arunachal Pradesh, Himachal Pradesh, Uttarakhand, Bihar, Gujarat and Maharashtra. SJVN which has already diversified in the field of Wind Power, Thermal Power and Power Transmission is presently generating 2000 MW of electricity.

Every year, the Public Sector Day is jointly organized by Standing Conference of Public Enterprises (SCOPE) and Department of Public Enterprises (DPE). The Public Sector Day is celebrated with a view to portray the public sector's contribution to India's economic and social growth.

PS: As Short CV's and photographs of two Council Members namely Dr. Mridul Srivastava and Dr. Niroj Kr. Sarkar could not reach the Secretariat by the time Newsletter was sent for printing. Therefore the same shall be published in the next issue.

Editor

SHRI M. RAJU, PAST SECRETARY- ISEG ELEVATED TO POSTION OF DIRECTOR GENERAL OF GSI

Congratulations!

Shri M. Raju Past Secretary, ISEG and earlier Additional D.G. has assumed the charge of Director General, Geological Survey of India w.e.f. 1st June 2016. He succeeds Shri Harbans Singh who Superannuated from the above post on 31st May 2016. Best wishes from all ISEG members.

TRIPARTITE AGREEMENTS SIGNED FOR MINERAL EXPLORATION IN THE COUNTRY

The Govt. of India, under the recently amended MMDR Act-2015, opened up auctioning of mineral blocks in a transparent manner by the respective State Governments and to make available more new blocks through detailed mineral exploration as per mineral (evidence of mineral contents) Rules, 2015. To facilitate adequate funding, the Govt. has created National Mineral Exploration Trust (NMET) and the Mineral Exploration Corporation Ltd (MECL) which is lead by Dr. Gopal Dhawan, Past President, ISEG as Chairman & Managing Director has been declared as the Nodal Agency. Accordingly, Tripartite Agreements with four States viz. Maharashtra, Chhattisgarh, Madhya Pradesh & Orissa have been signed and similar agreements will be signed with all State Governments. Recently these agreements were exchanged during various ceremonies.

Signed tripartite agreement being exchanged between Sh. Narendra Singh Tomar Hon'ble Union Minister of Steel & Mines and Sh. Rajendra Shukla Minister of Mining, Energy and Public Relations of Madhya Pradesh state.

Dr. Gopal Dhawan, CMD, MECL & Past President, ISEG exchanging signed tripartite agreement with Sh. R.S. Kalamkar, Director, DGM, Govt. of Maharshtra .

Do you wish to be Patriot? - then tune yourself in love with your country and the people."

- Swami Ram Tirtha

CONFERENCE REPORT ON ENGINEERING GEOLOGY IN NEW MILLINNIUM



Introduction and Background:

Indian Society of Engineering Geology was inaugurated on 15th October 1965 by the then Union Minister for Irrigation and Power Shri A.N. Khosla. Thereafter, the society has never looked back and has brought together Engineering Geologists and Geotechnical Engineers engaged in construction of large river valley projects, hydroelectric power projects, infrastructure projects and from mining industries. As the society grew, its ranks were swollen with joining of a number of civil engineers, scientists and academicians apart from professional engineering geologists. As per statures of the society the membership is open to all science and engineering graduates. Therefore in a nutshell, the society has rendered yeoman's service and has completed the tricky job of bringing together two different but related professionals on one hand and all professionals and researchers on the other. This has immensely benefitted the growth of engineering geology, geotechnical engineering and environmental science in the country.

An International Conference "Engineering Geology in New Millennium" was organized by Indian Society of Engineering Geology (ISEG) from 27th to 29th October 2015 at Indian Institute of Technology, Delhi, Hauz Khas, New Delhi to commemorate 50 years of existence of the Society and service to the nation. ISEG is affiliated to International Association of Engineering Geology (IAEG) and is known internationally as India National Group of IAEG.

Engineering Geology in New Millennium (EGNM 2015) was accordingly planned as a milestone to depict the growth of the subject as well to show the way forward considering new developments in engineering geology particularly in view of phenomenal growth of Information Technology and Computer Science at the turn of the century. The preparations for the conference started in October 2013 exactly two years in advance when the 1st Circular for the event was issued. Thereafter 2nd circular was also issued in August 2014 coinciding with submission of abstracts. The Advisory Committee was formed and the Organizing Committee which was already functioning after the issue of 1st circular was expanded to cover different areas. This really set the ball rolling as the process of evaluation of abstracts, sending acceptance letters and full paper submission started in right earnest and continued right up to publication of full proceedings volume just before the conference inauguration. Other preparations like selection IIT Delhi as venue and engagement of Event Management Company were also completed by the Organizing Committee.

The Conference was financially sponsored and supported by several companies including major PSU's, Power Producers, Private Organizations, Consulting Firms and Government Departments. A souvenir cum abstract volume was published on the occasion which contains message from the President of India and other dignitaries, 236 abstracts received for the conference and advertisements. Conference of this magnitude is not possible without the support of sponsors and advertisers. The organizing committee is indebted to all the sponsors, advertisers and supports for their encouragement and expresses deep thanks to all of them. The event was jointly organized by MECL, GSI, IIT Delhi and CBIP for which ISEG expresses its gratitude. A number of delegates from twenty-five different countries and from different organizations in India attended the conference. The OC is highly thankful and expresses its gratitude to all the countries and organizations. ISEG hosted the IAEG Executive Committee and IAEG Council meetings on 25th October and 26th October 2015 respectively at IIT Delhi preceding the International Golden Jubilee Conference.

On the sidelines of the international conference, ISEG in collaboration with Rocscience Inc also organised a "Workshop on Numerical Modeling in Rock Engineering" at Civil Engineering Department, IIT Delhi from 25th to 26th October 2015. The workshop which was organised as precursor to EGNM provided a background on the numerical modeling for rock engineering problems using two and three-dimensional finite element tools. The participants were provided with RS2 and RS3, state of the art 2- and 3-dimensional geotechnical software which are being used around the world. The workshop was attended by Engineering Geologists and Civil Engineers representing organisations such as GSI, NHPC, THDC, L&T, RITES, WAPCOS, CIMFR, ITD Cementation etc.

The three day Golden Jubilee Conference commenced on 27th October 2015 at IIT Delhi in which a total of 347 delegates were registered. The same included 65 foreign delegates and 22 student delegates. ISEG offered complementary registration to about 127 delegates that included representatives from Sponsors of the events and also members of the Organizing Committee.

Inaugural Ceremony :

The Chief Guest for the Inaugural Session was Shri Balwinder Kumar, Secretary, Ministry of Steel & Mines, Government of India who inaugurated the conference and the exhibition as well.

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Dr Gopal Dhawan, President of ISEG and Chairman of Organizing Committee welcomed Shri Balwinder Kumar, Chief Guest, President of IAEG, Prof Scott Burns and Secretary General IAEG, Dr Faquan Wu. Dr Dhawan also welcomed all other dignitaries and delegates to the conference. He said that Engineering Geology in New Millennium has been coined to get papers in latest advances in Engineering Geology and for lasting solutions. Shri Balwinder Kumar said that it is heartening to note that so many experts have travelled from far off places and other countries to discuss engineering geology issues. He said apart from benefiting the infrastructure development in the country the conference will also serve for technological improvements and betterment in mining industry. Dr Scott Burns, President IAEG, praised the hospitality extended to IAEG representatives by their Indian counterparts and organizers. He said IAEG is a unique organization which brings engineering geologists, geotechnical engineers and related specialists together around the world as it has a global presence. Dr Wu Faquan, Secretary General IAEG, said that they are looking for greater cooperation amongst all the national groups. He said that he is pleased to visit India once again. Shri Y. Deva, Vice President, Asia IAEG, also thanked the participants from foreign countries and said that IAEG representatives made it to India in spite of initial hiccups. The Vice President Asia said that fruitful discussions have taken place in the day long Executive Committee and Council Meetings of IAEG. Shri M. Raju, Secretary Organizing Committee and Addl. Director General, GSI proposed vote of thanks for the inaugural session. Following Publications were released during the inaugural ceremony:

1. Souvenir cum Abstract Volume.
2. Key note Address Volume
3. Golden Jubilee Publication of ISEG
4. Journal of Engineering Geology (Volume 39 no 2 and Volume 40 no 1)
5. Proceedings Volume of the International Conference "EGNM 2015"- A special publication of ISEG.

Technical Sessions :

The conference spread over three days from October 27th to 29th was divided into 32 technical sessions for oral presentation of 125 papers and 28 keynote lectures from noted experts. Besides 17 poster presentations were also planned in two sessions. It is pleasing to note that 90 percent of the presentations were made by delegates with only 10 percent absentees due to unforeseen circumstances or other work load in their organizations. Papers were received from as many as fifteen different countries.

The papers were distributed in eight themes as follows:

1. Investigation Techniques and Exploration
2. Rock Mechanics
3. Construction Stage Engineering Geology and Geotechnical Aspects
4. Geotechnical Engineering and Soil Mechanics
5. Geotechnical Studies and Engineering Design of Large Caverns
6. Mining
7. Geo-environmental, Hydrology and Ground Water
8. Landslide Studies, Hazards and Seismicity

In addition to the above considering the importance of certain topics and their relevance in Indian context, 28 keynote Lectures were delivered under the following Special Themes as well as in combination with regular conference themes mentioned above. Keynote speakers were from India and other counties such as USA, New Zealand and from Europe.

Initially ten themes as mentioned below were identified for receiving abstracts and finally on the basis of response and receipt of full papers eight themes were identified. It is noteworthy that 225 abstracts were received which have been complied in Souvenir cum Abstract Volume and distributed to all delegates.

Special Theme: Hydropower in India

Three keynote lectures were presented by highly experienced experts from Hydropower Shri R. N. Mishra CMD SJVNL, Shri S.P. Sen, an expert in hydropower and Dr. Robert Gold Smith spoke about development of hydropower in India. Shri S.P. Sen dwelt upon the difficult subject of use of TBM in Himalayan projects which is also very relevant for hydropower development in India.

Theme I - Investigation Techniques & Exploration:

Under this theme 19 full papers were received which were divided into three technical sessions. Papers relating to new geophysical techniques, remote sensing, influence of geology on layout and on assessment of natural construction materials were presented and appreciated by the audience. There was a highly enlightening talk on "New Frontiers in Geotechnical Engineering: Challenges and Opportunities" by Shri A.B. Pandya, Chairman, Central Water Commission, New Delhi. He said that due to complex geological conditions in the Himalayas it has been a great challenge to design safe and economical structures.





Shri Bimalendu B. Bhattacharya spoke about emerging potential of Geophysics.

Theme II - Rock Mechanics:
Eighteen full papers were received under the theme "Rock Mechanics". They were divided into two sessions along with one keynote address by Dr Rajbal Singh. All the presentations were quite interesting. Highlights of rock mechanics sessions were involvement of new research, innovative ideas and empirical relationships for Himalayan rock conditions.

Under the Rock Mechanics & related subjects four Keynote lectures were presented by Dr. Ning Liang , Dr Helen Reeves from U.K. and Dr Wu Faquan Secretary General , IAEG and Dr Rajbal Singh expert in Rock Mechanics. Dr Liang gave comprehensive insight into failure mechanism of rock masses. Dr Reeves spoke about innovations in engineering geology due to use of computers. Dr. Faquan gave an in-depth analysis of deformation in tunnels and Dr Rajbal Singh gave a detailed account of rock mechanics testing for design of large civil engineering structures.

Theme III - Construction Stage Engineering Geology and Geotechnical Investigations:
This theme was attractive for the delegates and included twenty seven full papers. The presentation were divided into six different sessions. Topics of various papers covered mainly construction stage geological problems and solutions. Presentations on new methods such as Tunnel seismic prediction, use of geo-informatics, pre-construction stage geotechnical evaluations, 3 D wedge analysis and adjustment of rock mass classification in deeply buried tunnels. Lot of question and answers and interaction during tea or lunch breaks was visible soon after these sessions.

Keynote lectures under these themes constituted presentation by Dr. Paul Marinos, a well known author in rock mechanics & geotechnical engineering who gave excellent presentation on tunneling in weak ground. Dr Joe Roby spoke about about application of TBM in Himalayas which was an interesting lecture about use of TBM in Himalayan tunnels.

Theme IV – Geotechnical Engineering and Soil Mechanics:
Excellent papers were received under the above theme also. Overall eleven papers were divided into two sessions. There were excellent key note lectures on Problematic soil foundations a very burning and relevant topic for geotechnical engineers and on soil strength. Under Geotechnical Engineering & Soil Mechanics innovative with in depth analytical lectures were given by Dr. Carlos Delgado on problematic soil foundation and by Prof. V. Osipov on shear resistance as a multifactor parameter of soil strength.

Theme V – Geotechnical Studies and Engineering Design of Large Caverns:
Nine full papers were received under this theme and were presented through one oral and and poster sessions also. Papers related to underground oil storage caverns were presented in thoroughly professional manner by the delegates together with one presentation on numerical modeling as well.

Theme VI – Mining:
An exclusive session was devoted for mining as seven full papers were received. The papers covered both surface and underground mining operation w.r.t. stability. Environmental aspects were also covered. This session was also well attended and received by the audience.

Theme VII – Hydrology, Groundwater and Geo-environment:
Under the above theme twelve papers were received. Two sessions were successfully completed with interesting presentations regarding, sedimentation, GLOF studies, groundwater contamination etc. Keynote lecture associated with theme was quite informative and presented by Dr Rajinder Bhasin from NGI Norway and was based on his research in rainfall induced landslides.

Dr Ann William Vice President Australia & New Zealand region, IAEG gave a highly informative talk on "Ground Water drawdown and effect on Urban Areas". Dr Runqiu Huang gave detailed lecture on "Landslides and GLOF's in Eastern Tibet and their response to Global Climate Change".

Dr Ricardo Oliveira spoke about "Role of Environment in Project Optimization" which is much sought after & important topic now a days in project development.

Theme VIII - Landslide Studies, Hazards and Seismicity :
This theme was most popular and attracted twenty nine full papers. In addition eight key note lectures by well known experts were also in the program. This involved six sessions to complete the presentations. Interesting topics were chosen by the authors ranging from landslides, stability, rock slopes, analysis, seismicity, tectonics, etc. Lecture on Urban landslides by Prof. Scott Burns was very interesting with several other presentations by Indian experts such as Dr Prabhas Pandey and Dr Sujit Dasgupta.

The video recordings of all Keynote Lectures and Inaugural and Valediction programmes have been hosted on the website of the IAEG (www.iaeg.info). The videos shall be available on the website for one year, i.e. till October 2016. The videos can also be accessed at the ISEG websites.

Technical Papers were also presented in two Poster Sessions on 1st and 2nd day of the Conference. More than 20 posters from various



authors were presented from 11am to 4pm. This event in particular generated great interest in lunch break also.

A technical exhibition had also been organised during the conference. Several stalls were setup by sponsoring organisations such as MECL, GSI, NHPC, SJVNL, NMDC and Rocscience Inc. The above enclosures evoked tremendous response from the delegates. Especially the stall set by ISEG for selling its old publications and latest journals was a great success wherein a large no of delegates also got registered for the spot Life Membership of the ISEG and annual membership of IAEG for 2016 term especially available during the conference.

Closing Ceremony :
The closing ceremony was also well attended and Chaired by Dr Scott Burns, President IAEG who said that he was very pleased to attend the conference and associated deliberations. President ISEG and Chair Organizing Committee also said that the conference was conducted with unprecedented popularity.

Veteran Members of ISEG were felicitated during the Valedictory session. Dr Gopal Dhawan, President ISEG and Chairman, Organising Committee honored the senior members with shawls. The IAEG Best paper awards for the year 2013 and 2014 were also announced by the Editor, ISEG. These awards have been revived by the OC to commence the Golden Jubilee Year of the ISEG. The honors were given to the authors of the best technical papers / articles published in Journal of Engineering Geology and ISEG News.

Dr. Scott Burns, President IAEG also released the latest issue (October 2015) of the ISEG News. The same was distributed among the distinguished gathering. Subsequently results of the New Council of the ISEG for term 2016-17 were announced by Shri. M. Raju, Secretary, ISEG and Organising Secretary EGNM. He thanked the present council members and the members of the Organizing committee for excellent organization of the conference.

The Conference was followed by field tour to the two major hydropower projects viz. Tehri and Nathpa Jhakri hydroelectric power projects located in the Himalayas.

Resolutions:
After detailed deliberations during the technical sessions and valedictory session of the conference following resolutions of EGNM 2015 were unanimously passed.

1. Education in Engineering Geology at Master's level needs to be strengthened.
2. Training in Special areas, such as, Geotechnics, underground works, slope stability to be incorporated by respective organisations as a part of their annual training programmes.
3. If necessary, international exposure be provided in the above areas.
4. Preparation of DPRs with comprehensive geotechnical assessment should be made compulsory for all projects having civil engineering structures.
5. At present this practice is vigorously followed only in respect of hydroelectric projects and some river valley schemes.
6. Adequate time period and budget provisions need to be kept for investigation and preparation of DPRs.
7. A group needs to be formed to interact with media and general public and communicate to them about necessity of dams and projects like interlinking of rivers for the country.
8. The safety of high structures should be brought out and made transparent in simple terms so that, questions are not raised about the vulnerability of structures.
9. Underground space technology needs to be encouraged in all metropolitan cities to develop infrastructure facilities like metro, parking spaces, waste water treatment plants, shopping complexes etc.
10. Environmental safeguards need to be given high priority in river valley development schemes.
11. Use of latest softwares in stability analysis an advance construction technology need to be encouraged in all construction projects.
12. The Conference generated lively debates and interaction amongst delegates and the above Resolutions are based on the feedback received.
13. It is possible to construct high dam in the Himalayas with proper investigations and environmental safeguards. Structures which are beneficial to nation for hydropower generation, flood control, drinking water supply, irrigation and tourism need to be encouraged for overall development of the country.

Shri Imran Sayeed, Editor ISEG delivered vote of thanks for the conference and on behalf of OC thanked the Chief Guest, Dignitaries from IAEG and Indian experts, delegates, veteran members, sponsoring organizations, advertisers, exhibition participants, Chair and Co-Chairs of technical sessions, keynote speakers, and members of OC.

Imran Sayeed
Secretary , ISEG

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.

JOURNAL OF ENGINEERING GEOLOGY

50 GLORIOUS YEARS OF JOEG

1966-2016

GOLDEN JUBILIEE ISSUE

Journal of Engineering Geology (JoEG) is the oldest journal on the subject of engineering geology in India and perhaps the only journal in this field. It is brought out on biannual basis and carries papers on Engineering Geology, Geotechnical Engineering, Geohazards (Seismology, Landslides, etc), Environment Geology, Rock Mechanics, Soil Mechanics, Groundwater contamination and Geological Engineering. It was launched in the year 1966 soon after formation of the society. Till 2015, a total of fifty six issues have been brought out by the Society. The papers published in the journal offers a variety of topics of discussion, but, case studies on various aspects of major Indian river valley projects are in overwhelming majority. It is Society's endeavour to encourage paper submission from mining industry, academicians, researchers and working professional. Society will encourage papers from modern themes such as Urban Infrastructure, Underground Storage Space, Tunnelling for road and railways, Metro-tunnelling, Modern Exploration methodologies, Water Resources, Geotechniques etc.

The year 2016 marks the completion of fifty years of this flagship publication of the Society. In order to commemorate the occasion, the society is bringing out an special Golden Jubilee Issue of the Journal. Technical papers and research articles are invited on the above mentioned themes for publications in the journal. The full papers may be submitted on line at journal's website www.joegindia.com or mailed directly to Editor, ISEG through e-mail on iseg2015@gmail.com or isegpapers@gmail.com.

Secretary, ISEG

ISEG DELHI-NCR CHAPTER

During the 1st Council Meeting held on 17.01.2016 at New Delhi, following ISEG members were nominated for the council of ISEG Delhi NCR Chapter for the tenure 2016-17:

Convener	Sh. N. K. Mathur	Ex-General Manager (Geotech), NHPC Ltd, Fbd
Co- Convener	Sh. Pradeep Singh	Superintending Geologist, GSI, Delhi
Treasurer	Sh. Vivek Sharma	DM (Geology), NHPC Ltd., Faridabad
Council Member-1	Sh. Ranjit Rath	AGM, EIL, New Delhi
Council Member-2	Sh. A.K. Chaddha	General Manager, SJVNL, Shimla
Special Invitee	Sh. A. P. Singh	Director, Explore India, Noida
	Sh. Tarun Singh	Research Scholar, IIT-Delhi
	Sh. Shakti Prakash	Environmental Specialist, EGI Consulting, Delhi

Imran Sayeed
Secretary, ISEG

Geologists have a saying - rocks remember.

- Neil Armstrong

ONE DAY NATIONAL WORKSHOP ON "CLIMATE CHANGES IN INDIAN SUB-CONTINENT WITH SPECIAL REFERENCE TO HIMALAYAS"

Imran Sayeed
Secretary, ISEG
General Manager (Geotech)
NHPC Ltd, Faridabad

After organizing the Golden Jubilee International Conference "EGNM-2015" at IIT, Delhi in a very successful manner during October 2015, Indian Society of Engineering Geology under the aegis of newly elected Council organised a one day National Workshop titled "Climate Changes in Indian Sub-Continent with Special Reference to Himalayas" on 02 April 2016 Saturday at Hotel Vibe The Lalit, Faridabad. Sponsored by NHPC and SJVNL, the workshop was conducted with a purpose of creating awareness regarding the Climate Changes and its impact on the Indian sub-continent.

The workshop was inaugurated by Shri. K.M. Singh, Chairman cum Managing Director, NHPC Ltd. Shri. A.K. Dubey, Member (Hydro), was the Guest of Honor. The inaugural session started with a welcome address given by Sh. Imran Sayeed, Secretary, ISEG followed by Presidential address by Shri. R.N. Misra, President, ISEG. Shri. A.K. Dubey, Member (Hydro), Central Electricity Authority also addressed the gathering. The Abstract Volume of the workshop was formally released by the dignitaries.

During the technical session, seven eminent scientist/ researchers working in the field of climate changes in the Indian sub-continent, Himalayas and Antarctica from reputed organizations viz. Dr. M.R. Bhutiyani, DRDO; Dr. Krishna Achuta Rao,, CAS, IIT Delhi; Ms. Suruchi Bhadwal, TERI; Shri. S.A.I. Mujtaba, GSI; Dr. Sandip Roy, GSI; Shri. Prakash Shrivastava, GSI; and Dr. Surya Prakash, NIDM delivered their lecture. The workshop attended by more than 100 nos. of delegates from various organizations viz. NHPC Ltd., SJVN Ltd., GSI, CEA, DRDO, NIH and Geo-Tech professionals.

The presenters discussed a large gamut of important and relevant aspects of climate change and global warming during the workshop. Dr. Bhutiyani discussed about the issues related to rising of temperature in the Himalayas, increasing carbon dioxide levels and change in precipitation pattern. He focused on adaptation policy and need to focus research on adaptation to climate change. Three important issues emerged out i.e. hydropower sector is most affected, people should be aware about climate scenario and adaptation the changing climatic conditions. Prof K. Achuta Rao discussed about the causes of the climate changes by means of detection-attribution studies and showed climatic model simulations to draw conclusions on what caused the temperature changes. Ms. Surichi Bhadwal discussed about the impacts of climate changes on the Himalayas. Dr. Surya Prakash discussed about the natural hazards noticed in the last few years such as Uttarakhand flash flood and Leh flash flood etc. Shri Mujtaba presented the application of Optically Stimulated Luminenescene dating technique in Paleoclimatic studies. Other Geoscientists from GSI gave a very relevant presentations on glacial retreat studies undertaken in the Antarctica and Arctic regions.

In the concluding session, a panel discussion was held to summarize the deliberations. The members of the panel discussion were Shri. R.N. Misra, President ISEG & CMD, SJVNL; Shri. M. Raju, Addl. DG GSI; Shri. P.K. Gupta, GM, NHPC and Dr. V.K. Sharma, Dy. DG, GSI. During the panel discussion, it was decided, ISEG should associates with other organizations to gather information on climate change and related topics. There are manuals for various disasters available in foreign countries and there is need to develop the same for our country also. ISEG must come forward to make such manuals. Young professionals and experts can create awareness among common people through Nukad Natak, etc. which have a great impact on the society. ISEG shall continue to focus towards the climate change and other related issues in the interest of nation by organizing workshops and conferences. The workshop ended with a vote of thanks by Sh. Arindom Chakraborty, Joint Secretary, ISEG.

IAEG IN ASIA AND BEYOND

Yogendra Deva
IAEG Vice President for Asia

IAEG Executive Board
New Delhi; 25 October 2015

Damage due to 2016 Kumamoto Earthquake

The International Association for Engineering Geology and the Environment (IAEG) is taking rapid strides in its advancement. It's over sixty National Groups across the globe have remained active since the reporting on the association's activities in the last Bulletin of the ISEG News, released at the time of the EGNM 2015 – the Golden Jubilee Celebration Event of the ISEG at IIT Delhi in October 2015. In India itself, the IAEG conducted meetings of its Executive Committee and Council at IIT Delhi, just preceding the EGNM 2015. The meetings, successfully bid and won by the IAEG India National Group – ISEG, were convened for the second time in India after a gap of 32 years and witnessed large attendance by the Executive members and the National Groups. While all the twelve members of the Executive Committee were present in the marathon sessions on both the days, as many as 38 National Groups graced the Council meeting. Besides discussions on routine and specific matters, the next Asian Regional Conference in the year 2017 was awarded to Nepal.

The Executive Committee and Council meetings for the year 2016 would be held in Cape Town and, considering that the large number of issues under hot discussions, the ExCom members decided and convened an extra-ordinary two day meeting in London in May last. The members stole time from their busy schedules and met for the meeting in the last Saturday/ Sunday of the month. The deliberations covered proposed IAEG activities at the time of 35th International Geological Congress in Cape Town later this year, voting and decisions on the medals and prizes of the Association (Hans Cloos Medal, Marcel Arnould Medal and Richard Wolters Prize), restructuring of the IAEG fees, IAEG strategy encompassing mission, vision & objectives, formation of board level committees, introduction of another newsletter – "IAEG Connector", improved website of the Association, decisions on co-sponsoring of events, etc. It was great news for the ExCom that, thanks to Vice Presidents' efforts, as many as nine National Groups got added to the IAEG. These include Algeria, Egypt, Mozambique, Nigeria, Sudan, Cyprus, Tunisia, Nepal and Paraguay. Malaysia is also making best efforts to get in to the IAEG.

The IAEG National Groups in Asia remained engaged with their respective activities like seminars & symposia and technical programmes. There is no need to report on the grand Golden Jubilee Celebrations of the India National Group at IIT Delhi in October 2015 as the subscribers of this news bulletin are very well versed with it. The IAEG Japan National Group (JSEG) carried out investigations of the 2016 Kumamoto Earthquake by its specially constituted team of 40 Engineering Geologists who reported movements along active faults and right lateral slip displacement of maximum 2 m. The JSEG also held a forum of Civil Disaster Prevention for the people of Osaka City and annual technical symposium titled "Views and researches on the underground water and hydrogeological system". IAEG Korea National Group (KSEG) conducted well attended Spring & Fall Conferences and signed an MoU with the Korea Radioactive Waste Agency. The IAEG Singapore National Group (SRMEG) went in for all out efforts to provide technical and professional development involving short courses, seminars, social programmes like Networking Night, awarding book prizes & outstanding paper awards, etc. The SRMEG is also the proud winner of the bid for hosting 10th Asian Rock Mechanics Symposium (ARMS 10) in the year 2018 and the proud recipient of the recently constituted ISRM Best Performing National Group Award.

The IAEG now looks forward to its annual ExCom and Council meetings at Cape Town in August this year. The IAEG members can look forward to some amazing benefits!

IAEG Council
New Delhi; 26 October 2015

J. B. AUDEN

BIOGRAPHY

John Bicknell Auden was an English geologist and explorer, and an official with the World Health Organization. He worked for many years with the Geological Survey of India.

Auden was born in York, on 14 December 1903. J.B. Auden, was the second son of Birmingham and older brother of W. H. Auden. He spent his childhood in Birmingham and later studied geology at Cambridge University.

He joined the Geological Survey of India in 1926 and spent the next 14 years surveying the Himalaya on numerous expeditions into remote regions. He also functioned as Deputy Director in Geological Survey of India from 1952 to 1954 and retired in 1954. In 1940, he gained his pilot's license and began reconnaissance flights over the unmapped Bijaigarh shales of central India. In 1940 he was elected as president of the Geological Institute of Presidency College, Calcutta. From 1945 to 1951, he was engaged in investigating all major dam sites, hydro electric projects, irrigation works and water supply schemes of India.

In 1960 he joined the World Health Organization, where he worked until 1970. After retiring he lived in London, where he served for two years as vice-president of the Geological Society of London.

He was married twice, first to Margaret Marshall (the marriage ended in divorce), then, in 1940, to Sheila Bonnerjee, a granddaughter of Womesh Chandra Bonnerjee, first president and founder of the Indian National Congress; they had two daughters, Anita and Rita.

John Bicknell Auden
(14 December 1903 – 21 January 1991)

Auden's name is famous in the wider world because of John's younger brother, Wystan H Auden, one of the most celebrated British poets of the 20th century. Although they were separated by great distances for much of their lives, the brothers maintained close ties and shared intellectual pursuits; Wystan had an interest in geology and John wrote poetry. But in the world of geography and geology, John was well known and highly respected in his own right. His participation in a number of successful expeditions into uncharted regions of the Himalaya led to him being described as one of the greatest Himalayan geologists. His most celebrated exploits were in the remote Karakoram Range, now in Pakistan. In 1933, his first trek into the region saw the discovery of K2, the world's second-highest mountain.

Auden's Col is named after him; makeing a short cut that would save several days. J.B. Auden in 1939 charted a route from Gangotri to Kedarnath, crossing a pass at the head of the Rudragaira Valley and into the Bhilangana Valley. Auden, whose name the 5,400m col takes today, wrote in his 1940 report about the "laborious route along small cliffs", the "extremely tedious trudge" over the Khatling glacier and an icefall with a severity that cannot be indicated on a map.

At the outbreak of Second World War, and India's gaining independence changed the direction of his career. Auden had to abandon mapping of the Himalaya. The loss to Himalayan geology became a gain for the newly created engineering geology and ground water division to which Auden provided a sound edifice. Auden established Engineering Geology in Geological Survey of India in the year 1945. Auden's most admirable attribute, besides meticulous mapping and accurate field observations, was his unique quality to keep facts and fiction separate, be it mapping, traverses, engineering geology investigations or philosophical discourse on plate tectonics. His factual narration provided sound foundation for newer interpretations.

Auden's scientific contributions to the Himalayan Geology and his path-breaking work in the fields of Engineering Geology and Groundwater will always be remembered by the geological profession of this country. More importantly, he will be cherished for his sterling human qualities, his total dedication to work under trying circumstances and his catholicity of outlook.

Memories of this great geologist, his interest in the culture of India and his dedication to geological work are aspects which will set a model for the younger generation of geologists.

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J. b. Auden

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PUBLICATIONS

- Auden, J. B. (1933) On the age of certain Himalayan granites. Rec. Geol. Surv. India, 66(4), 461-471.
- Auden, J. B. (1933). Vindhyan sedimentation in the Son Valley, Mirzapur district. Office of the Geological survey of India.
- Gilbert, L. B., & Auden, J. B. (1933). Note on a Glacier In the Arwa valley. British Garhwal. Rec, Geological Survey of India, 66(3), 214-278.
- Auden, J. B. (1934) The geology of the Krol belt. Rec. Geol. Surv. India, 67(4):357-454.
- Auden, J. B. (1935) Traverses in the Himalaya. Rec. Geol. Surv. India, 69(2):123-167.
- Auden, J. B. (1935). The snout of the Biafo glacier in Baltistan. Rec. Geol. Surv. India, 68(4), 400-413.
- Auden, J. B., & Ghosh, A. M. N. (1935). Preliminary Account of the Earthquake of the 15th January, 1934, in Bihar and Nepal. Records of the Geological Survey of India, 68 (2).
- Auden, J.B. (1937). Snout of the Gangotri glacier, Tehri Garhwal. Records of Geological Survey of India, 72/2:135-140.
- Auden, J.B. (1937) The Structure of the Himalaya in Garhwal. Records geol. Survey of India Vol. 71, p. 407— 433.
- Shipton, E., Spender, M., & Auden, J. B. (1938). The Shaksgam Expedition, 1937. Geographical Journal, 313-336.
- Auden, J. B. (1938). Resumé of geological results, Shaksgam Expedition, 1937. Himal. J, 10, 40-48.
- Wadia, D. N., & Auden, J. B. (1939). Geology and structure of Northern India. Mem. Geol. Surv. India, 73, 118-137.
- Dunn, J. A., Auden, J. B., & Ghosh, A. M. N. (1939). Earthquake effects. Memoir Geological Survey of India, 73, 27-48.
- Auden, J. B. (1942). A Geological Investigation of Tunnel Alignments for the Jumna Hydro-Electric Scheme.
- Auden, J. B. (1941). An excursion to Gangotri. Himalayan Journal, 7, 96-102.
- Auden, J. B. (1942). Note on the Kalagarh Landslide-Mussoorie-Dehradun Motor Road. Rec. Geol. Surv. Ind, 77.
- Auden, J. B. (1948). Notes on earthquakes in relation to Damodar Valley Projects.
- Auden, J. B. (1949). A geological discussion on the Satpura hypothesis and Garo-Rajmahal gap. In Proc. Natl. Inst. Sci. of India (Vol. 15, p. 55).
- Auden, J. B. (1949). Note on the earthquake tremors at Shahkot, Sheikhupura district, Punjab, of September 1943. Records Geol. Surv. India, 78, 135-140.
- Auden, J. B. (1950). Some factors concerning the transport of sediments of rivers. In Proc. Nat. Inst. Sci. India (Vol. 16, No. 6).
- Taylor, G. C, Jr., and Auden, J. B. (1952) All-India exploratory well drilling programme and location of exploratory wells: India Geol. Survey rept., 13
- Auden, J. B. (1952). Some geological and chemical aspects of the Rajasthan salt problem. Bull. Nat. Inst. Sci. Ind, 1, 53-67.
- Auden, J. B., & Saha, A. K. (1952). Geological notes on central Nepal. Records of the Geological survey of India, 82, 354-357.
- Auden, J. B. (1954). Erosional patterns and fracture zones in Peninsular India. Geological Magazine, 91(02), 89-101.
- Auden, J. B. (1959). Earthquakes in relation to the Damodar Valley Project. In Proc. Symp. Earthquake Engg (Vol. 1).
- Auden, J. B. (1960). Note on gypsum near Lachhmanjhula and Sahasradhara, Uttar Pradesh. Rec. Geol. Surv. Ind., 86 (2).
- Auden, J. B. (1972). Review of the tectonic map of India published by ONGC. J. Geol. Soc. India, 13, 101-107.
- Auden, J. B. (1972). Discussion of KG Cox, The Karroo volcanic cycle: Geol. Soc. London Jour, 128, 334.

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"Let yourself be silently drawn by the stronger pull of what you really love."

-Rumi

DESCRIPTIVE ANALYSIS OF THE RIVER SILT SEDIMENTS OF HYDROELECTRIC PROJECTS

Dr. V. P. Chatterjee
Joint Director & Unit Head,
NCCBM, Ballabgarh, Haryana

In India there are many Hydroelectric Power Projects constructed on different rivers in different geological terrains. These rivers flow through different terrains containing different fractions of sediments. The impact of the sediments of varying composition and sizes have a great bearing on the efficiency of the turbines. Composition and constituents of the sediments depend upon the terrain through which rivers are passing. Concentration of sediments in the river water depend on many factors. Two major factors are : current of the river water and rock types present on the river banks through which the water is flowing. The sediments carried by the rivers are silt and sand but during high current they also carry medium to coarse size gravels and fine to medium size pebbles along with them. The Hydroelectric Power Plants constructed on these rivers always get certain percentage of sediments of various fractions of varied composition. The major component of silt sediment present in the water is quartz. Other minerals present in the silt sediments are mica (biotite and muscovite), feldspars (plagioclase, orthoclase and microcline), carbonate minerals, hornblende, clinopyroxene, iron oxide, garnet, tourmaline and heavy minerals. There is a large variation in grain size of the silt sediments. The coarser fractions present in the sediments also vary in size to a large extent. It totally depends in which season the sediment has been generated and through which terrain the river is flowing. In Mountain Rivers, during peak period oversize sediments are carried out by the river systems. Whereas, the rivers flowing in the plains do not carry oversize gravels or pebbles along with them. Granulometric analysis of the silt sediment indicates that the different fractions are rich in different size of grains. However, presence or absence of over size grains in the silt sediments depend on the current of the river water. Majority of the mineral grains present in the silt sediments are lath to needle shaped. Further disintegration of grains may take place, if the silt sediment remains in colloidal state within the aqueous conditions. Normally the mineral grains present in the silt sediments are highly fractured and partially altered. Further alteration of the minerals is expected in aqueous conditions. Heavy minerals, mafic calcite feldspars and iron oxide grains may dissolve in water due to collision. Normally, the heavy minerals present in the silt sediments are highly fragmented and granulated. Majority of studies on the silt sediments indicate that heavy minerals are reduced to smaller size (5µm to 15µm). Morphology of heavy minerals, mafics, calcite, feldspars and iron oxide grains indicates that these grains may dissolve in water due to collision. Heavy minerals present are loosely packed, highly fragmented and granulated. Majority of heavy minerals grains are brittle and fragile with corroded margins. Petrographic studies of the silt sediments just after the monsoon are recommended to establish the heavy mineral load in the silt sediments to avoid the excessive load on the turbine blades and efficiency of the turbines. Results of few studies carried out are given in table 1 & table 2 as example for ready reference.

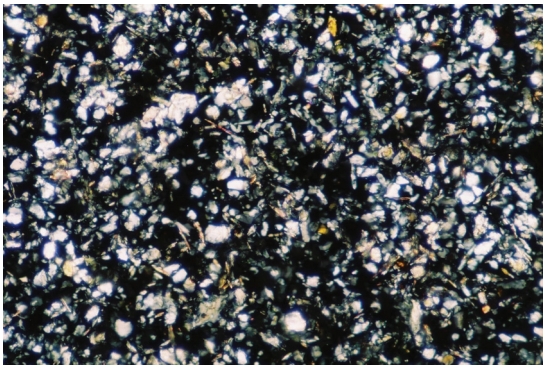

Plate 1. Distribution of quartz, plagioclase-feldspar, orthoclase- feldspar, chlorite, biotite, muscovite and iron oxide grains in the sample. 5X, Cross-nicols

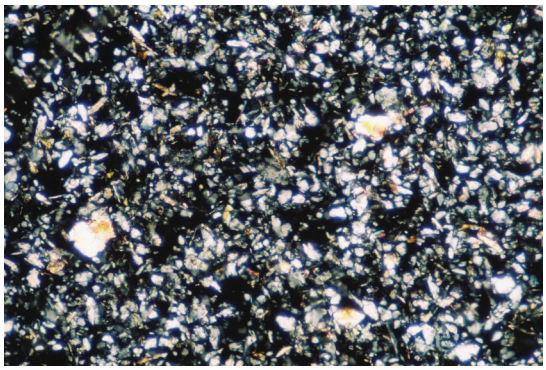

Plate 2. Distribution of quartz, orthoclase-feldspar, plagioclase-feldspar, muscovite, biotite, chlorite and iron oxide grains in the sample. 5X,Cross -nicols

Table 1 MODEL COMOPSITION OF DIFFERENT FRACTIONS OF THE SILT SEDIMENT (Results in %) – An Example

Sl. No.	Sample Fraction	Minerals											
		Qtz	Bt	Orth Flds	Plg Flds	Hb	Musc	Calc	Trm	Grnt	Mcl Flds	Fe Oxide	Heavy Minerals
1	300 to +150µm	53	11	7	6	4	3	3	1	2	2	3	5
2	-150 to +90µm	49	12	8	6	5	5	4	3	2	1	2	3
3	-90 to +75µm	50	10	7	5	4	5	3	6	3	2	2	3
4	-75µm	50	13	6	5	8	3	4	2	2	2	2	3

Contd... on Page-16

ISEG NEWS
(A Biannual Newsletter of ISEG)

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DESCRIPTIVE ANALYSIS OF THE RIVER SILT SEDIMENTS .....

Continued From Pg 15

TABLE 2.GRAIN SIZE ANALYSIS OF THE SILT SEDIMENT— An Example

Size Range (µm)	+300 µm	-300µm to+150 µm	-150µm to+90 µm	-90µm to+75µm	-75 µm
1-20	-	1	2	3	7
21-40	-	2	2	5	8
41-60	-	3	3	6	11
61-80	2	2	6	11	17
81-100	1	3	7	14	22
101-120	3	4	9	18	15
121-140	2	4	11	13	9
141-160	5	5	16	11	7
161-180	3	7	12	8	4
181-200	4	8	10	5	-
201-220	5	12	8	4	-
221-240	4	15	4	2	-
241-260	6	11	4	-	-
261-280	7	8	3	-	-
281-300	10	6	2	-	-
301-350	14	4	1	-	-
351-400	11	2	-	-	-
401-500	8	2	-	-	-
501-600	5	1	-	-	-
601-700	3	-	-	-	-
701-800	4	-	-	-	-
801-900	2	-	-	-	-
901-1000	1	-	-	-	-

Indian Society of Engineering Geology

DK-6, Second Floor-GSI, Karunamayee Sector-II, Bidhan Nagar, Kolkata, West Bengal-700091

INCOME & EXPENDITURE ACCOUNT

EXPENSES	Amount (Rs.)	Amount (Rs.)
Activity Expenses		
National Seminar Expenses	523,631.00	
GOP-2014 Expenses	219,254.00	742,885.00
Administrative Expenses		
Accounting Charges	5,500.00	
Audit Fees	5,500.00	
Bank Charges	372.00	
Printing & Stationary	141,725.31	
Travelling Expenses	32,974.00	
Meeting Expenses	16,238.00	
Postage Courier & Internet Expenses	18,091.00	
Web Updation & Server Rental	7,146.00	
Delhi Branch Expenses	79,380.00	306,926.31
Depreciation		95.00
Income Tax written Off		5,778.00
Total		**1,055,684.31**
Excess of Income over Expenditure		**612,175.69**

INCOME	Amount (Rs.)	Amount (Rs.)
Advertisement & Sponsorship Fees	1,135,784.00	
GOP fees received	253,700.00	
Membership fees (IAEG& & ISEG)	134,158.00	
Delegates fees for workshop	129,976.00	
Interest received on saving account	14,242.00	1,667,860.00
Total		**1,667,860.00**

Auditor's Report
As per our separate report of even date attach
FOR RAKESH K SRIVASTAVA & CO.
Chartered Accountants

FOR INDIAN SOCIETY OF ENGG. GEOLOGY

Sd/-
(Ashok Kumar)
Treasurer
Place: Lucknow
Date: 30.10.2015

Sd/-
(M. Raju)
Secretary

Sd/-
Stamp of firm (Pooja Mittal)
Partner

Indian Society of Engineering Geology

DK-6, Second Floor-GSI, Karunamayee Sector-II, Bidhan Nagar, Kolkata, West Bengal-700091

BALANCE SHEET AS ON 31.03.2015

Source of Funds	SCH		AMOUNT(Rs.)	AMOUNT(Rs.)
General Fund				
Opening Balance			3,085,328.35	
Add: Excess of Income Over Expenditure			612,175.69	3,697,504.04
Total				**3,697,504.04**

Application of Funds	SCH		AMOUNT(Rs.)	AMOUNT (Rs.)
Fixed Assets				
Opening Balance			951.00	
Less: Depreciation @ 10%			95.00	856.00
Investments	A			**2,308,416.00**
Current Assets, Loans & Advances				
Stock of Publication			121,545.00	
Advances recoverable in cash or kind				
TDS (A.Y. :2015-16)		37,284.00		
ISEG Delhi Branch		20,620.00	57,904.00	
Cash and Bank Balances				
Cash in Hand				
Cash at Bank:				
SBI Kolkata			2,400.28	
SBI Lucknow			384,936.91	
UCO Bank Lucknow			821,445.85	
			1,388,232.04	
Less: Current Liabilities				1,388,232.04
Total:				**3,697,504.04**
Significant Accounting Policies & Notes on Accounts	B			

Auditor's Report
As per our separate report of even date attach
FOR RAKESH K SRIVASTAVA & CO.
Chartered Accountants

FOR INDIAN SOCIETY OF ENGG. GEOLOGY

Sd/-
(Ashok Kumar)
Treasurer
Place: Lucknow
Date: 30.10.2015

Sd/-
(M. Raju)
Secretary

Sd/-
Stamp of firm (Pooja Mittal)
Partner

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