

NHPC Commissions 120MW Sewa HE Project Stage- II, J&K

NHPC Ltd, one of the premier organizations in the country in the field of hydropower development is actively associated in exploiting hydropower potential of the J&K besides other states of the country. In J&K alone, NHPC has commissioned 4 projects namely Salal stage-I & stage II (690MW), Uri Stage-I(480MW), Dulhasti (390MW) and Sewa Stage-II (120MW), totaling to 1680MW and 4 projects namely Nimmo-Bazgoo (45MW), Chutak (44MW), Kishanganga (330MW) and Uri II (240MW), totaling to 659MW are under construction. NHPC has recently commissioned Sewa -II HE Project in J&K. The project has a capacity of 120MW. With the commissioning of Sewa II project, the total installed capacity of NHPC has reached to 5295MW including the project commissioned in Joint Venture. In addition, 5 projects totaling to 89.35 MW have been commissioned on turn key / deposit basis in India and abroad.



Sewa II HE project is a run-of-river scheme located in Kathua district of J&K. It utilizes the flow of Sewa river, a tributary of river Ravi. The CCEA clearance for the project was obtained in September 2003 and project was commissioned on 26th July 2010. The main components of the project are 53m high concrete gravity dam, 10km long 3.3 dia Head Race Tunnel and a surface power house at village Mashka with 3 units of 40 MW each with pelton turbines to operate under a net head of 560 meters. The 10km long HRT was the most critical activity of the project. The tunnel passes through granite/augen gneiss of Dalhousie granite and folded and faulted sequence of Tanawal schist comprising of carbonaceous phyllite, slate, limestone and quartzites. The contact of Dalhousie

granite & Tanawal schist is sharp and thrust and is known as Jutogh thrust. Problems such as chimney formation, squeezing ground condition, copious ground water inflow and day lighting of tunnel due to low cover zone were encountered during construction; however, the same were tackled successfully.

Sewa-II HE project has been constructed at an estimated cost of Rs 1601 crores. Sewa power station will work as a peaking station for northern region. The beneficiary states are J&K, Punjab, Haryana, UP, Uttarakhand, Delhi, Rajasthan and Chandigarh.

Sharad Bhatnagar
Chief (Geology),
NHPC Ltd, Faridaba

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Guest Editorial Team

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International Conference on Underground Space Technology (ICUST)

17-19 January 2011, Bangalore, India

Venue: Le Meridien, Sankey Road, Bangalore

Organized by : Indian Society of Engineering Geology and National Institute of Rock Mechanics

The Indian Society of Engineering Geology (ISEG), in association with the : National Institute of Rock Mechanics (NIRM) and under the aegis of The International Association for Engineering & Environmental Geology (IAEG) is organizing International Conference on Underground Space Technology (ICUST) between 17th and 19th January 2011 at Bangalore. The venue of the conference will be Hotel Le Meridien, Bangalore'

Themes of the Conference are:

- Site investigations and rock mass Characterization
- Stress regime around underground openings
- Testing of rocks to determine their physico-mechanical properties
- Tunneling methods / Methods of excavation
- Design methodologies, with emphasis on numerical modeling
- Rock reinforcement and ground improvement
- Instrumentation and monitoring
- Hazard assessment and analysis
- Environmental management
- Other peripheral issues

Technical papers are invited from all professionals active in the field involving creation of underground spaces.

Milestone dates are:

- Last date for receipt of Extended Abstracts: **30th November, 2010**
- Last date for receipt of Full Length Papers: **31st December, 2010**

For details, please visit: (www.icust.com; www.isegindia.org)

ISEG Membership ...

ISEG membership (Membership Forms available at www.isegindia.org)		(ii) Life Membership
● Admission fee (one time; New Members) : Rs. 1000/-		For age < 35 years : Rs. 5000/-
● Institutional/Associate Membership (Annual) : Rs. 2000/-		For age 30-40 years : Rs. 4000/-
● Individual Membership		For age > 50 years : Rs. 3000/-
(i) Ordinary Membership (Annual) : Rs. 500/-		

ISEG Website Advertisements ...

Rs. 10000/-** per annum

FREE : One Year Institutional/Associate Membership of the Society for all categories of advertisements subscription

**Add US\$ 20 for overseas advertisements

Note

The advertisement would be carried for one year from the date of its posting on the website.

The advertisements would be posted as abridged

version, i.e Logo and Tagline, if any.

The advertisements would be appropriately hyperlinked to the advertiser's webpage/website.

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

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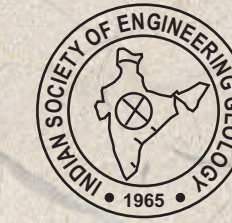
The payment may be drawn by Demand Draft in favour of "Indian Society of Engineering Geology", payable at Lucknow.

IAEG Membership (Annual) ...

- Members with bulletin (Receive Newsletter also) : 29 Euros
- Associate Members (Receive Bulletin + Newsletter) : 150 Euros
- Membership without bulletin (Receive Newsletter only) : 04 Euros

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

C/o Bhilwara Towers, A 12, Sector-1, Noida 201 301, (NCR-Delhi), India
Tel. : +91-9650843509 (IST 1000-1800 hrs; All Working Days)
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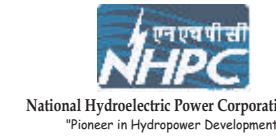
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ISEG
NEWS
INDIAN SOCIETY OF ENGINEERING GEOLOGY
(Indian National Group of IAEG)

Biannual Newsletter

Bridging communication gap...

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From Editor's Desk ...

We are happy to bring out another issue of The ISEG News, and fulfill the major responsibility. It is unfortunate that the duly elected Editor could not shoulder this responsibility and the present council had no other way to but to fall back on this stop gap arrangement so that regularity in the publication is maintained and the present council doesn't default in its responsibility. This is the last issue being brought by the present council as electoral process for the election of new council has almost been completed and results are being included in this issue of the NEWS.

Coming one or two months are going to be very hectic period for the council members as ICUST-2011, an international event being organized jointly by ISEG and NIRM at Bangalore, has to be taken to logical conclusion. This will require a huge bundle of sincere effort since many delegates from countries other than our own are expected to participate in this conclave spread over three days during the mid- January. Successful completion would need best wishes and active participation from all the members of the society.

The undersigned, in the last issue of the NEWS had mentioned about 5000MW Initiative that was launched by the Government of India in 2004 and expressed doubts about its success. The way things are to day in case of this initiative, there is no doubt that it could turn out to be a big failure until and unless the Government really takes the matter seriously and makes mid course corrections without which the Initiative may end up as a complete failure and not more that 20% of the targets planned in case of hydroelectric power generation may be achieved at the end of the period. It may not be out of place to mention here that the at the time of planning the schemes in 2003-2004 most of the schemes were planned as run of the river schemes in order to avoid large scale submergence keeping in view the environmental and R&R aspects. In order to reduce the loss in generation due to this aspect, run of the river schemes were planned in cascade manner with the objective of utilizing head to the extent possible. But recent environment require a certain distance to be left for river to flow freely. As a result of this many schemes would have to be revised and some may even get eliminated. This calls for a fresh look into whole scheme, identification of redundant schemes and assessment of available potential. If this is not done at this stage, the whole effort may not succeed. It is more important as the IPPs who are involved in this effort may not like to continue with the projects allotted to them if they either do not remain techno-economically attractive or deviate too much from the schemes allotted to them initially.

Since this is the last issue of the ISEG NEWS being brought out by the present council, I thank the council for giving me and my fellow council members S/Shri Imran Sayeed, D.K. Joshi and Akhouri Bishwapriya the opportunity of associating with the editorial task of the ISEG NEWS. I also extend warm welcome to the new council and wish them a very successful tenure.

The Guest Editorial Team wishes a **HAPPY, PROSPEROUS AND EVENTFUL NEW YEAR** to all members of the Society,

(Dr. Y. P. Sharda)
Guest Editor

From Secretarial Desk...

Following the release of the last ISEG News, ISEG Elections for the Term 2011-2012, Constitution Amendment, preparations for the ICUST 2011/ Meeting of the Asian National Groups of the IAEG, presence of ISEG at the IAEG Council Meeting/ 11th International Congress of the IAEG at Auckland, etc. are some of the engagements that have kept the Society's secretariat buzzing with activity. The realization that the current Term has come to an end is now there and has put the ball rolling faster.

The ISEG Elections for Term 2011-2012, like always, have had extremely poor response from the ISEG fraternity, not only in terms of voter turnout, but, also in the number of nominations. A couple of withdrawals of nominations led to the Council getting elected unanimously. On its part, the ISEG Secretariat tried its level best in encouraging Members to come forward and make it a vibrant activity, but, the response somehow has been extremely lukewarm. The Amendment for Articles of the Society regarding Regional Chapters has been approved by the Members and has come in force with effect from 27 August 2010. There is a report on this amendment in this issue.

The 11th International Congress of the IAEG at Auckland, New Zealand, has been a major event during the period under review. Consequently, this event finds special treatment in this issue of the News. Attended by about 700 delegates from across the globe, it turned out to be yet another successful four-yearly event of the IAEG. Ann Williams and her team delivered a truly world class event. Absolute punctuality, impeccable arrangements, precisely coordinated concurrent technical sessions, just appropriate attention to the opening and closing ceremonies, and well coordinated and conducted excursions have been the hallmarks of the event. Having had the opportunity to attend this Congress for its entire duration of five days, and the IAEG Council Meeting as the representative of the Indian National Group just preceding it, I had the experience of a lifetime. The highlights of the meeting included election of the dynamic Vice President of IAEG for Asia Dr Faquan Wu of China as the next Secretary General, the amicable Dr Carlos Delgado of Spain as the next President, decision on Torino, Italy, as the venue of the 12th IAEG Congress in 2014, etc. Both Dr Delgado and Dr Faquan accepted my invitation on behalf of the ISEG fraternity and agreed to be present during the ICUST 2011 at Bangalore. This gives us an opportunity to strengthen our bond with the IAEG.

The preparations for the International Conference on Underground Space Technology – 2011 (ICUST 2011) along with 8th Asian Regional Conference of the IAEG are in full swing. The Society is organizing a Meeting of the Asian National Groups of the IAEG during the Conference. The event has been given wide publicity during the IAEG Congress at Auckland through a presentation in the IAEG Council Meeting and distribution of fliers.

On behalf of the ISEG, NIRM and Organising Committee, I invite you all to the ICUST 2011 and extend a very warm welcome. Please do join us at Bangalore in Jan 2011. Before I close, I would like to sincerely thank the Guest Editorial Team for extending helping hand in bringing out this issue of the ISEG News.

With Season's Greetings and Best Wishes,

Yogendra Deva
Secretary, ISEG

A Report on IAEG Council Meeting of 05 Sep 2010 at Auckland, New Zealand

(Held on the occasion of the 11th International Congress of IAEG)

A Council Meeting of the IAEG was held on 05 September 2010 at Auckland, New Zealand. It preceded the 11th International Congress of the IAEG – a prestigious four-yearly event of the Association. Chaired very ably by Dr Fred Baynes, President IAEG, and attended by a score of Office Bearers from across the globe, the meeting went by the clock. All the Agenda items and the intervening breaks for beverages and refreshments were taken up precisely in accordance with the allotted time frame. From the Indian National Group of the IAEG (ISEG), the undersigned participated in the Council Meeting and in the IAEG Congress thereafter for all the five days from 06 to 10 Sep.

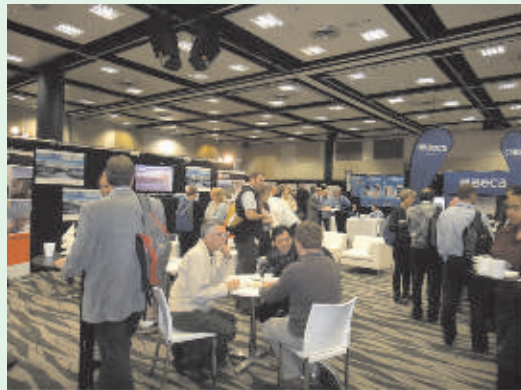


Photo 2 : Main Hall at the Congress venue.

Besides other items, Election of the IAEG Council for next Term (2011-2014) and selection of the venue for the 12th International Congress of the IAEG were two important items. Italy and Brazil - the two contenders for hosting the 12th IAEG Congress – made their presentations and Italy won the mandate by voting through secret ballot. **The Congress in 2014 will be held at Torino, Italy.**

The election for the next IAEG Council was held through secret ballot. For some posts like the President and Secretary General, the contest turned out to be very close. That for the Vice President for Asia was a triangular contest with ISEG President Dr PC Nawani as one of the candidates. The other two were from China and South Korea. Although the China candidate won the post of Asian Vice President, India came in next with impressive support.

Following is the incoming **IAEG Council for 2011-2014.**

President	:	Carlos Delgado, Spain
Secretary General	:	Faquan Wu, China
Treasurer	:	Pierre Potherat, France
Editor	:	Brian Hawkins, USA
Regional Vice Presidents	:	John Stiff (South Africa) for Africa Silvina A. Marfil (Argentina) for South America Rejean Couture (Canada) for North America Runqiu Huang (China) for Asia Ann Williams (New Zealand) for Australasia Atiye Tugrul (Turkey) for South Europe Ian Jefferson (UK) for North Europe



Photo 4 : Deva, Secretary, ISEG, at the Congress

A few presentations were also made by some national groups on events being held by them. This included a presentation on ICUST 2011 by the undersigned.

The IAEG Congress was a very well organized event. It was organized in the Sky City Convention Centre in the heart of Auckland. The venue was superb with lots of space. In particular, absolute punctuality, impeccable arrangements, precisely coordinated concurrent technical sessions, just appropriate attention to the opening and closing ceremonies, and well coordinated and conducted excursions have been the hallmarks of the event. The arrangement that singularly led to the great success of the Congress was that the dining space, poster boards and exhibitors' stalls were all accommodated in one spacious hall that made it easy for all to intermingle and interact without efforts.

Kudos to Ann Williams (Convenor) and her team for delivering a grand event!



Photo 1 : IAEG Council Meeting under progress

7th Amendment to the Articles of the Indian Society of Engineering Geology comes in to Effect

Pursuant upon the suggestion of the ISEG Council, the organizational matters concerning Regional Chapters were put to voting by the ISEG Members as 7th Amendment to the Articles of the Society. The amendment aimed at a uniform policy of the Indian Society of Engineering Geology regarding its Regional Chapters and, at the same time, giving latitude to the locally elected bodies in having a free hand in running them as per their convenience. Since, the guidelines regarding Regional Chapters in the Articles of the Society were very brief, the proposed amendment was considered necessary.

The above mentioned Amendment to the Articles of the Indian Society of Engineering Geology has been accepted by the Members unanimously with effect from 27 August 2010 and has replaced the provisions under Article 21 as per the provisions outlined in following paragraphs.

Article 21: Regional Chapters

Original:

Regional Centres

Regional Centres may be formed with the prior approval of the Council at suitable places provided there is sufficient response from the members of the Society.

Amendment by Modification (7th Amendment, 27 August 2010):

Regional Chapters may be formed with the prior approval of the Council at suitable places provided there is sufficient response from the members of the Society. The Regional Chapter is required to adhere to the following guidelines:

1. The Executive Body of the Regional Chapter would have an elected Executive Body comprising a Convener, a Joint Convener, a Treasurer and two Members.
2. The Term of the Executive Body would be two years and would run concurrently with the Term of the ISEG.
3. The Office Bearers of the Chapter are required to be Life Members of the ISEG and also the Members of the IAEG (with or without Bulletin).
4. The membership fee would be Rs 500/- per annum for Non-ISEG Members and Rs 300/- for ISEG Members. There would be no provision for Life Membership.
5. If required and accepted by the Council, the Society may pay appropriate, non-refundable seed money, not exceeding Rs 15,000/-, for initiating the Chapter.
6. The Chapter would pay 10% of its gross annual collection to the Society.
7. The Chapter would maintain all accounts as per norms that would be audited internally and then sent to the ISEG for formal auditing as part of ISEG accounts.
8. The Chapter would submit a report on its activities to the ISEG on annual basis.
9. The Chapter would use the ISEG Logo along with name of the Regional Chapter inscribed at the base of the ISEG Logo.

33rd Annual General Meeting of the ISEG

It is proposed to hold the 33rd Annual General Meeting of the ISEG on 17 January 2011 at Hotel Le Meridien, Sankey Road, Bangalore, at 1800 hrs.

The Agenda for the AGM is proposed as follows:

1. Confirmation of the Minutes of the last Annual General Meeting held at Hyderabad on 04 December 2008.
2. Report by the Secretary, ISEG
3. Report by the Treasurer, ISEG
4. Report by the Editor, ISEG
5. Discussions on the Agenda of the proposed Meeting of the National Groups of IAEG to be held on 18 January 2011 at Bangalore
6. Any other matter with the permission of the Chair
7. Address of the President, ISEG
8. Address of the IAEG Executives
9. Declaration of the Result of Elections held for the ISEG Council for Term 2011-2012
10. Vote of Thanks

ISEG Election 2010 for Term 2011-2012

It is informed that the voting for the ISEG Election 2010 for the Term 2011-2012 has not been necessary as the number of nominees does not exceed the number of vacancies for different posts. The elected Council for the Term 2011-2012 would be announced by the Election Committee as per the Agenda of the Annual General Meeting of the Society on 17 January 2011 at Bangalore.

ITAIPU- Largest power plant on the Earth

ITAIPU, the largest hydropower project on the planet, a fine example of international understanding and cooperation, is located at the Brazilian-Paraguayan border and not far from the Argentinian border. It produces more power than 10 nuclear power stations and supplies the second largest city on the planet with zero-emission electricity since 1984. It supplies 26% of the electrical power consumed by Brazil and 78% of the consumed by Paraguay.



The control center of the 18 generators. Left half of it (in Brazil) controls the 60 Hz units, right half (in Paraguay) controls the 50 Hz units



Inside the ITAIPU Powerhouse Dimensions: Length 986 m, Maximum height 112 m and width 99m. The red line on the floor indicates the border of Brazil and Paraguay.

The governments of neighboring states of Brazil and Paraguay signed a treaty "for the development of the hydroelectric resources of the Parana River" on April, 26, 1973. This was followed by founding "ITAIPU Binacional" (cooperation with the legal, administrative and financial capacities and technical responsibility to plan, set up and operate the plant) on May, 17, 1974.



On top of the 7.6 km dam, a 12 800 000 m³ of concrete was used for the project ITAIPU.

The construction work for this 12750MW (715MW X 18) installed capacity project started in 1975, reaching its peak in 1978 when 30 000 people were engaged in the work. Monthly concrete production at site reached 338 000 m³.

First Unit commissioned in December 1983. Electrical grid connection to Paraguay was established in March 1984 and that to Brazil 5 months later. The last unit



Total view of the ITAIPU power plant Left part shows overflow (spillway), the power station is located in the middle

(No.18) was put into operation in March 1991. The final cost of ITAIPU amounts to US\$ 20 billion.

The height of the dam is 196 m, its length 7.76 km. The reservoir created by this is 170 km long and holds 29 billion tons of water. The design discharge for each 715 MW Francis-turbine is 700 m³/s; its weighted efficiency is 93.8%. This project generates 75 TWh of electricity and avoids 67.5 million tons of carbon dioxide emissions compared to coal power plants.