



CHAIRMAN'S MESSAGE

Er. S.Radhakrishnan, FIE



World Environment Day is observed all over the world on June 5. This prompts me to put in a few words on the changing environmental scenario. The theme for World Environment Day 2011 is 'Forests: Nature At Your Service'. Forests cover one third of the earth's land mass, performing vital functions and services. In fact, 1.6 billion people depend on forests for their livelihoods. They play a key role in our battle against climate change, releasing oxygen into the atmosphere while storing carbon dioxide.

Forests feed our rivers and are essential to supplying the water for nearly 50% of our largest cities. They create and maintain soil fertility. Forests are the most biologically diverse ecosystems on land, and are home to more than half of the terrestrial species of animals, plants and insects.

Global deforestation continues at an alarming rate every year. 13 million hectares of forest are destroyed. But this trend is not irreversible. The services forests provide are essential to every aspect of our quality of life.

Let us all take a pledge that we will plant two trees for every tree that is cut.

HONORARY SECRETARY'S DESK

Er. J. Umasankar, MIE



Kerala State Centre - Forthcoming Events

08-06-2011 Technical talk on 'Human Aspects of Project Management' by Dr.B.T. Vikram Kumar, Director (Training) UST Global, Technopark, Thiruvananthapuram.

15-06-2011 Technical talk on 'Information and communication Technologies for common man - Engg. Challenges' by Er. N.T. Nair, Chief Editor, Executive Knowledge Lines (monthly) Thiruvananthapuram.

22-06-2011 Technical talk on 'Nature and Engineering Design' by Prof.V.Rajendra Babu, FIE, Professor(Retd.) College of Engineering, Thiruvananthapuram.

29-06-2011 Technical talk on 'Energy From Biomass' by Dr.Shaji James, Associate Professor, Head, Krishi Vigyan Kendra, Kerala Agricultural University, Pattambi.

06-07-2011 Technical talk on 'Corrosion of Materials and Its Prevention' by Prof.T.K.G.Namboodhiri, Professor(Retd.) Metallurgical Engineering, Banaras Hindu University.

13-07-2011 Technical talk on 'Dousing' by Dr. P.S. Anil Kumar, Senior Geologist, Geological Survey of India, (Ministry of Mines), Government of India, Kerala Unit, Thiruvananthapuram.

World Telecommunication and Information Society Day 2011

World Telecommunication and Information Society Day 2011 was observed by The Institution of Engineers (India), Kerala State Centre jointly with Bharat Sanchar Nigam Limited, Thiruvananthapuram Telecom District on 17th May 2011 at Visvesvaraya Bhavan, Thiruvananthapuram.

At the public meeting, Er. S. Jyothi Sankar I.T.S., General Manager, Thiruvananthapuram Telecom District, Bharat Sanchar Nigam Limited delivered a lecture on the theme "Better Life in Rural Communities with ICTs".

World Telecommunication Day was observed annually on 17th May since 1969 marking the founding of International Telecommunication Union (ITU) and the signing of the 1st International Telegraph Convention in 1865 at Paris. ITU is based in Geneva, Switzerland and its membership includes 192 Member States and 700 Sector Members and Associates.

The UN General Assembly adopted in March 2006 to observe World Information Society Day every year on May 17th. Later ITU decided in November 2006 to celebrate

both events on 17th May every year as World Telecommunication & Information Society Day. The theme for this year is 'Better Life in Rural Communities with ICTs'. ICT (Information and Communication



Er. S. Jyothi Sankar speaks

Technology) provides enhanced opportunities in the rural context. ICTs provide enhanced opportunities to generate income and combat poverty, hunger, ill-health and illiteracy.

Earlier Er.S.R.Vijayamohanakumar, Council Member and Chairman, Aerospace Engineering Division Board, IE(I) welcomed the august gathering. Er.S.Radhakrishnan, Chairman, IE(I) Kerala State Centre delivered the Chairman address and Er.J.Umasankar, Honorary Secretary, IE(I) Kerala State Centre proposed the vote of thanks. There was also an Exhibition of BSNL products and services with discount sales.

91 years of relentless journey towards engineering advancement for nation-building

CHALO KUDANKULAM

The Kerala State Centre organised a technical visit to the Kudankulam Nuclear Power Project (KKNPP) (Thirunelveli District, Tamil Nadu) near Kanyakumari on May 7, 2011. The group consisting of 45 engineers was on a mission to understand the details of the Project after the KKNPP team made a presentation at the Centre on March 30, 2011. The plant of 2x1000 MWe capacity is the largest in the country of water-cooled, water-moderated type (VVER-1000) built with Russian collaboration.



The studious group

The visit started with a detailed presentation on the various aspects of nuclear power, covering from the fundamentals of nuclear physics to the plant specific details of the Project, by the training school faculty. The group was divided into two teams for the plant visit.

The teams visited the breakwater dyke in the sea at 1.2 km away from the shore for water intake and the four mammoth concrete structures called caissons placed in specially designed beds at the mouth of the breakwater dyke. The caissons- two of them weighing 2900 tons and the other two weighing 2400 tons have big gates to allow smooth flow of sea water to cool the condensers in the reactors.

The next attraction was the desalination plants of the project. The plant uses the mechanical vapour compression technology to produce potable water. Sea water is to be heated up to 70 degrees Celsius and

sprayed in vacuum developed in chambers. Part of the hot water will evaporate and this vapour will condense into fresh water. The pure water will be used as primary and secondary coolant in the reactor, and as "make-up" water during operations and also meets the potable water requirements at the plant site. Kudankulam Plant does not depend on other water sources. It costs five paise to produce a litre of potable water. It has been erected on a turnkey basis by Tata Projects in conjunction with IDE Technologies Limited, Israel.

The teams then moved to the turbine-generator hall. The 1000MWe turbine, first of its kind is steam condensing of four cylinder configuration (1 HPC + 3 LPC) with intermediate moisture separation and steam reheat, with rotational speed of 3000 rpm, designed to drive directly an alternating current generator, mounted on a joint foundation with the turbine. The total length of turbine with out generator is about 40.65m and weighs 1800 tons. The single heaviest part, LP rotor weighs 80.5 tons. The generator delivers 1000 MW (50 Hz 3 phase) at 24 kV which is stepped up to 400 kV for transmission..

Another important location was the simulator used for training the plant operators, which is a replica of the control room. It can simulate start up, operation and shut down of reactors along with a spectrum of abnormal conditions. The teams enjoyed the hospitality of KKNPP with a lunch at the Executive canteen.

The teams further moved to the reactor building of the first reactor (RB-1) which is expected to be operational soon. The members were taken to the +31 m level above the reactor pressure vessel (RPV) . The site engineers explained the various features of the reactor, the features of the reactor building and other built-in active and passive safety mechanisms. The team members could see the fuel storage area, polar crane, fuel assembly loading machines and the huge water pumps. The team members were



IEI Members with KKNPP team - L-R - (Fifth) Shri.M.I.Joy Addl CE(Site Planning), (Sixth) Shri.V.Chellappa , DGM(HR)



Interactive session (L-R) Shri.S.R.Vijayamohanakumar,

Shri.M.I.Joy,Shri.M.Kasinath Balaji,Site Director KKNPP, Shri.V.Chellappa thrilled to be inside a reactor building to be operational soon and where entry is highly restricted.

The teams also had a visit to the 400 kV Gas Insulated Sub-Station (GIS) the biggest of its kind in the country with Gas Insulated Switchgear. It handles both the power output from KKNPP and the incoming grid power from TNEB. The main components of the Power output system are 24 kV, 31.5 kA Isolated Phase Bus duct, 24 kV, 28 kA, generator circuit breaker, 3 X 417 MVA, 24/400 kV generator transformer (GT) , 400 kV, 2000 A gas insulated bus duct, 400 kV gas insulated switchgear. The gas used for insulation is SF6 (Sulphur Hexa-Fluoride). The team also had a visit to the electrical control room, where both the



Inquisitive and keen for the answers

grid power and also the generated power are controlled. The teams were accompanied by Shri.M.I.Joy, Addl CE (Site Planning) and Mrs.S.Lekha, Engr-in-Charge(PMS) throughout the visit for on the spot explanation of the installations. Subsequently the team had lively interaction with Shri.M.Kasinath Balaji,Site Director KKNPP with participation of Shri.M.I.Joy, Addl. CE and Shri.V.Chellappa, DGM(HR). Shri.Balaji answered all the queries and apprehensions of the teams on various safety aspects. Shri.Vijayamohanakumar thanked the Site Director and officials on behalf of IEI for extending all the support and for the patient explanations to the queries. He mentioned that the visit to KKNPP would always remain a memorable event for each and every participant.

REFLECTIONS

After my visit to Kudankulam, I got finally convinced that this plant is a very safe nuclear installation. It has many active and passive safety features, advanced safety devices and mechanisms. I hope that KKNPP will tune them based on the latest lessons learned from recent Japanese incident. also , which would make this plant one of the safest in the world.

- **Abraham Varghese**

Dear Shri Vijayamohanakumar,

First of all let me express my sincere thanks to you for organizing the Trip to Koodankulam. It was a rare occasion in that we could go around the plant and see the various aspects related to power generation using Nuclear energy. The different Active and Passive safety features provided in the Koodankulam plant disposed off any fears regarding possibility of the plant malfunctioning and leading to catastrophic failure. Also we were lucky to see the turbine as it was kept outside for maintenance.I will cherish this visit as one of the best that I have made to an industry/ installation of similar nature. Once again accept my thanks for organizing this visit.

- **Dr.M.Jayakumar**

Dear Vijayamohanakumar,

I wish to thank you for the photos you sent and also for organising this trip to the Nuclear plant. This visit will rank among my top personal engineering site visits ever. Its a rare opportunity to get a visit to a nuclear power plant, even rarer is the opportunity to get into the core reactor area and experience the marvels of engineering. Thanks to you and Mr Umasankar and John and others in organising this event

- **Mathew Philip**

Dear Sri.Vijayamohana Kumar,

The visit to KKNPP organised by IEI, Trivandrum was

memorable not by its organisation alone but through the transparency of details provided, the hospitality and high level of courtesy exhibited by the scientists and managers including the site Director explaining the details of KKNPP. It was a unique experience to see yourself some exemplary work carried out by a cute project management team existing in KKAPP which implemented the Project in a short span of time displaying the techno-managerial skills housing social and political influence in a time bound manner. In nutshell it is an example of marvel, skill, efficiency, leadership and timely requirement for the future of our country men.

- **P Ratnakara Rao**

Thank you sir for the nice and excellent technical visit to KKNPP. Thanks also for the notes & information supplied to me sir which is very much informative.

- **D.Shanmuganathan**

Dear Vijayamohan,

As with the current social pulse I also had much apprehension about the safety features of a Nuclear Power Plant. During the visit, we were fully exposed about the safety features of the technological marvel called 'VVER Reactor Technology'. The KKNPP Engineers showed the full safety features of the Reactor Shell. Other safety features; right from the 'fish trapping' of the saline water to the Nuclear waste disposal were explained. We could get an in depth overview about the Nuclear safety and plant operation. Definitely from now onwards, my outlook towards the Nuclear Power Plants shall be different. I take this occasion to express my deep gratitude especially to the Director and all other Engineers of KKNPP. They have shown that knowledge dissemination is the best way to drive away the 'scare mongers'.

- **Vishnu TP**

MEMBER IN NEWS

Er. V. Parvathy

Heartly Congratulations

We are happy to inform that Er. V. Parvathy, Associate of The Institution of Engineers (India), Kolkata secured 715th rank in the Civil Services Examination 2010, conducted by Union Public Service Commission. She is a graduate in Civil Engineering from College of Engineering, Thiruvananthapuram and was working as Junior Manager in Steel Authority of India Limited, Bhilai. She is the daughter of Er.V.Vimal Prakash, Council Member and Chairman, Electrical Engineering Division Board, The Institution of Engineers (India).



Kerala State Centre

WEDNESDAY TALKS - Glimpses

04-05-2011 Talk on "Celebrating Success and Failures" by Swami Sukhobodananda, Chairman, Prasanna Trust, Bangalore. In his talk Swamiji made it clear that in life if one door closes, another door will open.



11-05-2011 National Technology Day -

Talk on "Dynamics of Public-Police Communication" by Mr.B.Krishna Kumar, Assistant Commissioner of Police, Kerala Police, Cantonment, Thiruvananthapuram.



25-05-2011 World Water Day

Lecture on the topic "Extended Aeration / Bio-sorption Treatment of Waste Water for Reuse" by Dr.N.Narayana Pillai, Professor, Emeritus, Amrita Viswa Vidyapeetham and Director (Academics), PA Aziz College of Engineering & Technology, Tvm.



Think It Over

Nothing enduring can be built on violence.

- Mahatma Gandhi

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Educational Announcement

GATE & IES 2012 Examinations
Guidance Classes

for the following Engineering Branches

- Civil Engineering
- Computer Science & Engineering
- Electrical & Electronics Engineering
- Electronics & Communication Engineering
- Applied Electronics and Instrumentation
- Mechanical Engineering

will commence on 2nd July 2011.

For details contact:

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Kerala State Centre, Visvesvaraya Bhavan,
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Thiruvananthapuram - 695033

Tel: 0471 - 2330105, 2322991, 9446436480

Free Photo Identity Card - Further extension of date for applying

Please refer to the Voice of Kerala Engineers - March, April & May 2011 issues. The date for applying for Photo Identity Card, free of cost, has been extended upto 30th September 2011. **Please contact Mr. John Sunito at Kerala State Centre (Tel: 0471-2322991 during office hours) for necessary assistance if required.**

Summer Vacation Class

Valedictory Function of Summer Vacation Classes 2011 on Practical Electronics and Energy Conservation for High School Students was held on 11-05-2011. Mr. Anvar Sadath K., Executive Director, IT@School Project, Government of Kerala was the Chief Guest and distributed certificates to the students.



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