

ASCE

AMERICAN SOCIETY OF CIVIL ENGINEERS

INDIA SECTION

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President's Message

Dear members,

The October Issue of News letter of ASCE IS brings the news contents related to the activities organized in South and West regions of the Section. I wish to inform you that the ASCE NITK Suratkal Student's Chapter started functioning recently. It is heartening to note that they have been able to organize excellent technical lectures by experts such as Prof. Roger P West, Prof. Ravindra K Dhir, as well as a lecture on Cement Manufacturing Process in about two month's time. Dr. S N Suresha is the faculty advisor from the Department of Civil Engineering and deserves all the appreciation in this regard. In this issue, there is also a message from Dr. Gajanan M. Sabnis, P.E., F. ASCE, a distinguished member of ASCE. The article is well written and provides insights into working, responsibilities and opportunities for an ASCE member in India.

I was in touch with Mrs. Meggan Maughan-Brown, Director, International Relations, ASCE with regard to the formation of state level and city level offices to improve interactions among ASCE members and she was quite happy with the initiative. As a result, steps are being taken to form state level chapters. This also brings in more members of ASCE IS in active mode in organizing programs.

We need many young and dedicated civil engineers in the country today and they come from students. They should be passionate about doing good work in India and get inspired from professional bodies such as ASCE. I do hope that all the regions (East, North, South and West) become active in organizing technical activities in this year and also involve many professionals and students.

Best regards

Yours sincerely

Prof. G L Sivakumar Babu
President, ASCE IS

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News from Regions

Southern Region News

ASCE NITK Suratkal Student's Chapter Events

1. Two Day Seminar on Concrete Technology

A two day seminar was organized by the ASCE NITK Students' Chapter in association with NITK Civil Engineering Department on 18th and 19th September, 2013. The seminar was attended by the faculty of Civil Engineering Department, UG & PG students and the Research Scholars.

The seminar was held in two sessions: The first on 18th afternoon and the next on 19th August. The opening lecture was given by Prof. Roger P West on "How to make our structure actually last longer than our career?" The lecture covered the aspects of using improvised techniques by standardizing and maximizing the output of concrete in a given set of constraints. He introduced his Trinity College Dublin and introducing and its efforts on mitigating the global concrete failures due to exposure to environmental during its life period. He also explained the methods to use innovative materials which improve solar reflectivity, incorporating Energy absorbing concrete, study on aligning of steel fibre, and dealing with bamboo use in structural strengthening. He also shared his personal experience in civil engineering field with some practical law suits that baffled many. His novel ideas of study in concrete including rheology was highly motivating and generated great curiosity amongst many UG and PG students. Being an expert in areas of research in Concrete drying, cracking Information Technology in construction including e-procurement, he also explained on what factors they are dependent. He concluded his lecture by urging students to recognize avenues in research and pursue their careers in this field.



The next lecture was held 19th September, on "Minimizing Carbon footprints by Concrete construction" by one of the eminent Concrete Technology expert Prof. Ravindra K Dhir, Founder Director, Concrete Tech Unit, Dundee Univ, Scotland. This talk was an eye opener to the entire gathering. Prof. Dhir is the founding Director of Concrete Technology Unit in University of Dundee and has been the President of Concrete Society UK (2009-2010). He gave a terse introduction of Concrete as a global factor for increasing carbon footprints. His presentation focused on concrete science and technology i.e. optimizing cement content for enhancing performance. He also stressed on curtailing the adverse impacts on environmental by reusing, recycling and reconstituting materials. He also shared the challenges he faced while initiating the research on pozzolanic materials. He discussed how people were reluctant to incorporate any changes in mix designs. It was only after he produced experimental results which vindicated his stance, people started realizing the benefits of adopting such designs. These benefits included savings in terms of money, as well as reduction in carbon emissions. He concluded his lecture by extending the ambit of construction materials to worn out tires, glasses and any synthesized waste product, astounded the audience and opened up new possibilities in research and design.

2. Expert Lecture on Cement Manufacturing Process

A talk was held by civil consulting engineers and RAMCO group in association with ASCE NITK Students' Chapter in Civil Engineering Department. The event was enthusiastically attended by ASCE student members, faculty and Research Scholars. Prof. Katta Venkataraman, Head of Department presided the function.

Cement in this global business of construction is regarded as an invention that changed the way this entire industry operated. Its need was appositely recognized and brought into light by John Smeaton in 1756. He had used cement as binding element in Edystone Light House. Er. Anil Kumar Pillai started his lecture with





by reversing the wheels of time and discussing the history of cement. He went through the developments in 1824 and when by Joseph Aspdin patented Portland cement. And since then, there is no turning back for global cement industries. The invention of Rotary Kiln in 1900 and Pre-heater and Pre-calcier kiln in 1950 bolstered the growth of cement industries.

People wonder how the Pyramid could stand forever and how Roman Colosseum sustained the might of earth forces. The endurance of these structures motivates and drive the cement industries. He then explained the three process we use in cement manufacturing viz. Wet process, Semi Wet process and dry process. He mentioned about the exponential growth in the scale of manufacturing since the pre independence period. While witnessing this surge in modern construction, we realise that the demand for Portland cement is bound to increase. He went on to state the exact figures of manufacturing quantities i.e., 1 million ton is produced per annum and 130 lakhs tones by RAMCO Group alone. So one can estimate the possibilities of exploring his/her opportunities in cement business.

He briefed the gathering about innovations in cement industry which are implemented recently like Cross Belt Analyzer Application, Raw material Homogination, Pyro-Processing Coal grinding, etc.

He apprised the gathering to Green Rating Project and mentioned 4 leaf awards won by RAMCO group. He iterated his commitment to environment friendly techniques by using Wind energy, Dust control mechanism, Energy and power efficiency etc.

He concluded his lecture by giving a holistic view of cement industries. He mentioned the advances in cement industry due to research in terms of increased kiln capacity, reduction in heat of production, decreased power consumption. He intended to establish a cordial relationship and mutual trust between academicians and industry so as to benefit both in terms of knowledge exchange and resource generation.

Western Region News

Lecture Series on 'Trenchless Technology' by Dr. Declan Downey at VJTI, Matunga, Mumbai on 23rd July 2013.

ASCE ISWR organised a lecture on "Pipeline Construction and Renewal using Trenchless Technology" on Tuesday, July 23, 2013 at VJTI, Matunga, Mumbai. The talk was delivered by Dr. Declan B Downey, Chartered Engineer & Fellow, CIWEM. Dr. Downey's talk focused on presenting the advantages of use of trenchless technology for new service lines as well as for rehabilitation of existing lines.

Dr. Downey emphasized that trenchless technologies provide unmatched advantages compared to the conventional cut-and-cover techniques. He stated that the technological developments in this field have far exceeded that in conventional techniques. This has resulted in the technology becoming more accurate, providing faster speed of execution and higher quality. He gave illustrative examples of various projects in India and other countries where this technology is being successfully utilized in complex working domain. Unlike in the past, this technology can also be used for large diameter pipelines.

Examples of the use of this technology for rehabilitation of existing sewer and other service lines were also presented by Dr. Downey. Such rehabilitation almost fully restores the existing capacity of the line and can easily provide additional service life of around 20-25 years. Dr. Downey also cautioned that in spite of the clear advantages of trenchless technologies, there are certain conditions where its use is not recommended.

The talk was followed by vibrant discussions regarding the applicability and experience with trenchless technology in Mumbai. The lecture was attended by around 15 delegates.

ASCE: Get more involved!

Dr. Gajanan Sabnis

It was year 1995, when I had a call from my friend and Mentor, Neil FitzSimons, who encouraged me to become involved and become active at the national level as an Office bearer, International Director to be exact. I was not sure, what I was getting into and looking back after almost 20 years, it changed my whole image of national organizations in the US. Until then, I was involved only as Technical Committee Chair, Division Chair etc., but participating in the administration of ASCE was whole new game for me.

I walked in the large room of some 30 individuals, serving as Nominating Committee for ASCE with a tremendous awe and pressure. However, I was well prepared for all the questions and after a wait of some 45 minutes, both Ed Groff and I were invited to walk in to be congratulated as the official nominees for President-elect and International Director. I called my wife Sharda to give her the news

and she was also excited for another achievement in the US after 30 years of career.

ASCE is a great organization and I made so many new friends in so many countries at various levels and I believe today's success is wholly due to ASCE in my life. ASCE India Section benefitted a lot from my involvement of ASCE at the national level.

First of all, I helped ASCE re-structure the dues for International Members. At that time, probably 7,000 were such members and of which about 4,000 came from developing countries like India. In 1997, dues became 1/3 and I thought it was the step in the right direction to benefit ASCE. It did to a certain degree, but from new members. Whenever I travelled I requested that the present members, whose dues went down, should recruit one new member. I may have happened, but I have no statistics. I myself made a large number of new members, convincing them to join and they did! It qualified me for a national award in 2002, the same year I was also inducted as Honorary Member of ASCE. I also helped dues for students worldwide, preaching the Board to consider them as future members and student chapter at Howard University, where I was Faculty Advisor, were delighted and made more progress in the chapter.

Second achievement from Indian perspective was establishment of Western Region Group, the first step to becoming Section a few years later. This step was mainly to bring more members in ASCE from my hometown and region, as many complained of ASCE IS in Kolkata was too far and there was no communication. However, few years went by and I did not have much contact with either IS or Western Group in India due to my other involvements.

I move fast forward to year 2011, when I suddenly found out that ASCE had renewed their interest in SE Asia with obvious strength of International region (now, Region 10), becoming strong and due to the connection that was established in that region with various national societies to create (CECAR) conference when I was International Director. I was spending more time in India after retiring from Howard University and couple of years with Deloitte in their India office and was very appropriate to get involved in Indian activities. Meggan Maughan-Brown, ASCE Staff was also delighted to have me with my background and experience.

I see that finally things seem to be settling down, so that ASCE IS has been firmly established with four regions in India, practiced by other National societies in India, with ASCE IS remaining as Apex body and its management rotated in four regions. That's the first important step. With every one busy in their routine work, it takes a strong commitment of a few individuals, who get started and then get others involved. There are many activities that can bring together in India as part of ASCE. They include, a national convention at least once a year, student chapters, joint activities with other local bodies etc. to mention a few. I am committed to give at least two events in WR mainly where I live with international speakers in civil engineering. This year, we had David DeLizza from Pennoni Associates of Philadelphia and Mr. Tsuchiya-san from Tokyo in Mumbai. The program was jointly held by Institution of Engineers (India) and ASCE WR and drew more than 70 attendees. With this year's leadership with SR, I strongly recommend a

National Convention in Jan/Feb 2014 to be held Western Region, so that they actively work towards assuming the IS responsibility next year and demonstrate their success. The main strength of ASCE is professional contacts and networking which will prove itself to be a success of not just for regions themselves but also for the IS and also ASCE on the whole. Recently I attended the WR officers' meeting at their invitation and advised them on the same basis to expand their horizon.

On big gap I have seen between ASCE national and Region 10 in general is the lack of successful communication. It is mainly due to cultural differences between the East and the West. The growth of ASCE in this region will take place if there is proper guidance from the HQ to the Region. First noticeable observation I had was Affiliate Membership for the new members, who are already qualified engineers with graduate degrees and holding fairly high responsible positions in their countries, mainly in India. After paying full dues as Member, if one cannot participate in the society activities, as he is not qualified. I took upon myself and induced the ASCE staff to insure that new members are properly guided through the membership application. Simply accepting dues on-line and starting them as Aff. MASCE does not justify the ASCE aims and objectives. I also made aware the officers of each region to work on this problem locally and happy that things have improved. I would like to see every member existing or new to in the proper category of membership.

Whenever I have an opportunity to give a lecture related to Civil Engineering in India, I stress that students get involved by joining first and then creating a structure as Student International Chapters. I am happy to report that I have seen it happening as these students do care genuinely for the profession and we should encourage them.

Another advice to the IS, is to get involved beyond the borders of India in the region and then at national level. I recently saw the flier for Officers Openings by the ASCE HQ. I am requesting that it be published in the newsletter, so all members are aware and can help each other by suitable nominations at Regional and National levels. It is great opportunity to demonstrate that local engineers also care for the ASCE beyond local level.

Each member should keep in contact with his/her Region and national level so that the contact information is current. In addition, they should browse the ASCE website constantly for newer and additional information available. To mention a few items are: ASCE Annual Register, ASCE Report Card, 2020 Vision etc. ASCE Register is really the "Geeta" (Bible as we call it in the West) for every Indian Member of ASCE. It literally has every piece of information that you need to know; e.g., how ASCE functions, Bylaws, Rules, committees, awards etc. This information will keep you closer to ASCE and will allow you to progress in your careers.

So before I close, I should tell you that I am happy to be a Life-long Civil Engineer and I hope you all will be too with more involvement in civil engineering activities, starting as student, then as younger member and then growing into a successful in the profession. We will need more civil engineers with the phenomenal growth in the infrastructure in India and Region 10 in general.

Tech Briefs

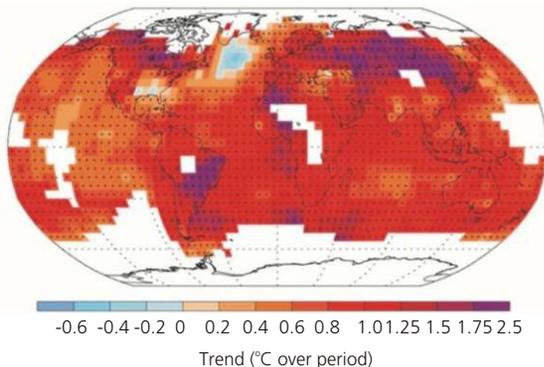
It's true: Climate change is man-made

Scientists are now 95 percent certain that humans are the major cause of climate change.

According to study released recently by the United Nations' Intergovernmental Panel on Climate Change (IPCC) human practices such as burning fossil fuels that emit greenhouse gases is clearly responsible for more than half of the increase in temperatures.

Climate change "challenges the two primary resources of humans and ecosystems, land and water," said Prof. Thomas Stocker, co-chair of the IPCC group that issued the study. "In short, it threatens our planet, our only home." IPCC warns that "substantial and sustained reductions of greenhouse gas emissions" will be required to limit these changes. The study says that sea levels will rise at a faster than previously anticipated rate. The new estimate is for a rise of between 26 cm and 82 cm by the end of the century, depending on greenhouse gas emission policies.

Observed change in average surface temperature 1901-2012



The 36-page report is the first of three due from the IPCC over the next 12 months. IPCC announced the report in Stockholm, and issued a press release on its findings. It also published a short document providing climate change bullet points for policy makers. IPCC includes two U.N. bodies - the World Meteorological Association, and the U.N. Environment Program.

Courtesy: IPCC

A14: A 'smart road' that can automatically control driving speed

The A14 is set to become U.K.'s first Internet-connected road, as government officials in UK explore new ways to handle congestion and road safety. Sensors will be placed along the A14 between Felixstowe and Cambridge which is a distance of approximately 70 miles that will be able to transmit data on traffic, creating a "smart" road that can send messages to a driver's mobile phone alerting them to upcoming traffic.



Image shown is purely indicative

This is an interesting concept since many modern traffic regulations are aimed at reducing driver distraction. However, the sensor technology does have another feature it may be used in the future to automatically control the speed of a vehicle.

The trial project is being run by BT and Cambridge technology specialists Neul and the Department of Transport. Telecoms watchdog Ofcom, which recently announced that the U.K. will road-test "white space" technology 'the sending of signals over the gaps between television channels rather than a mobile phone network' said "Sensors in cars and on the roads monitor the build-up of congestions and wirelessly send this information to a central traffic control system, which automatically imposes variable speed limits that smooth the flow of traffic. This system could also communicate directly with cars, directing them along diverted routes to avoid the congestion and even managing their speed."

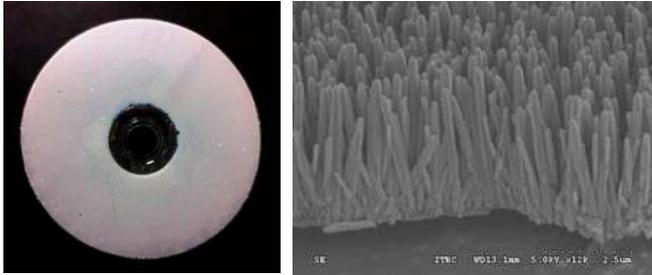
Ofcom believes that if the pilot scheme is successful, the project could be rolled out nationwide during 2014.

Courtesy: Smart planet

Spinning CDs to Clean Sewage Water

Scientists find a potential new use for old music CDs: coating disks in photocatalytic compounds and spinning them to clean water.

Audio CDs, all the rage in the '90s, seem increasingly obsolete in a world of MP3 files and iPods, leaving many music lovers with the question of what to do with their extensive compact disk collections. While you could turn your old disks into a work of avant-garde art, researchers in Taiwan have come up with a more practical application: breaking down sewage. The team presented its new wastewater treatment device at the Optical Society's (OSA) Annual Meeting, Frontiers in Optics (FiO) 2013, held on Oct. 6-10 in Orlando, Fla.



¹This image shows an optical disk entirely coated with zinc oxide nanorods. (Photo credit: Din Ping Tsai, National Taiwan University)

²This scanning electron microscope image shows tiny nanorods growing on the disk. (Photo credit: Din Ping Tsai, National Taiwan University)

“Optical disks are cheap, readily available, and very commonly used,” says Din Ping Tsai, a physicist at National Taiwan University. Close to 20 billion disks are already manufactured annually, the researchers note, so using old disks for water treatment might even be a way to cut down on waste.

Tsai and his colleagues from National Taiwan University, National Applied Research Laboratories in Taiwan, and the Research Center for Applied Sciences in Taiwan used the large surface area of optical disks as a platform to grow tiny, upright zinc oxide nanorods about a thousandth the width of a human hair. Zinc oxide is an inexpensive semiconductor that can function as a photocatalyst, breaking apart organic molecules like the pollutants in sewage when illuminated with UV light.

While other researchers have experimented with using zinc oxide to degrade organic pollutants, Tsai's team is the first to grow the photocatalyst on an optical disk. Because the disks are durable and able to spin quickly, contaminated water that drips onto the device spreads out in a thin film that light can easily pass through, speeding up the degradation process.

The Taiwanese team's complete wastewater treatment device is approximately one cubic foot in volume. In addition to the zinc oxide-coated optical disk, the device consists of a UV light source and a system that recirculates the water to further break down the pollutants.

The research team tested the reactor with a solution of methyl orange dye, a model organic compound often used to evaluate the speed of photocatalytic reactions. After treating a half-liter solution of dye for 60 minutes, they found that over 95 percent of the contaminants had been broken down. The device can treat 150 mL of waste water per minute, the researchers say.

The spinning disk reactor is small, consumes little power, and processes contaminated water more efficiently than other photocatalytic wastewater treatment methods, Tsai says. The device could be used on a small scale to clean water contaminated with domestic sewage, urban run-off, industrial effluents, and farm waste. Going forward, the team is also working on ways to increase the efficiency of the reactor, and Tsai estimates that the system could soon be improved to work even faster, perhaps by creating layers of stacked disks.

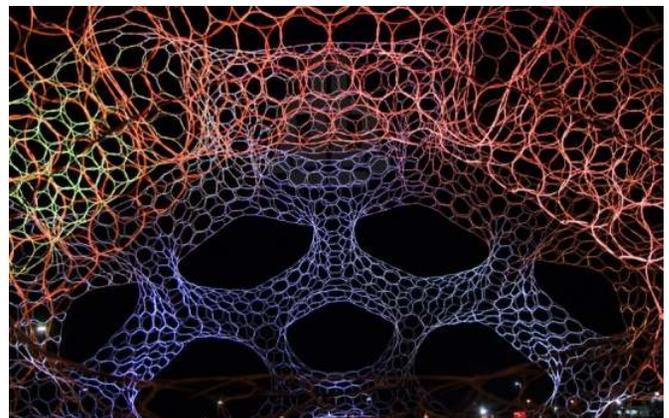
Courtesy: Din Ping Tsai, National Taiwan University)

A responsive solar-powered lighting pavilion



London based art and design studio loop pH have developed 'the SOL dome', a fully responsive lighting pavilion in Michigan. The honeycomb-shaped structure is assembled onsite from thousands of individual circles woven from composite fibers, extending through space with its hollow lightweight constructing. Measuring 8 x 4 meters and weighs just 40 kg, the 'SOL dome' is illuminated by a circular matrix of solar powered LEDs. The portable structure is animated; it interacts and adapts to its environment, similar to a plant and its surrounding ecosystem. The rotational breathing rhythm of light is driven by an onsite CO₂ sensor the underlying geometry and construction technique of the dome is based on chemical and molecular bonds between carbon atoms. When each fibre is bent into a circle, it charges the LEDs like a battery, creating a controlled energetic structure.

Courtesy: Designboom



Events

ASCE Events

Design, Construction, and
Renovation
of Masonry Structures
October 24-25, 2013 | Washington, DC

2nd T&DI Green Streets, Highways
and Development Conference
November 3-6, 2013 | Austin, Texas

3rd International Conference on
Urban Public Transportation Systems
November 17-20, 2013
National Conservatory of Arts and Crafts,
Paris, France

Other Events

Carbon Management
Technology Conference
October 21-23, 2013 | Hilton Alexandria Old
Town, Alexandria, VA

Innovative World of Concrete
ICI-IWC 2013
International Conference on
Innovations in Concrete for Meeting
Infrastructure Challenges
October 23 - 26, 2013
Hitex / NAC, Hyderabad, Andhra Pradesh, India

OTC Brasil 2013
An Event Organised by IBP and OTC
October 29-31, 2013 | Rio De Janeiro

International Colloquium on
Architecture Structure Interaction for
Sustainable Built Environment

Organised by: SEWC (India)
November 18-20, 2013 | India Habitat Centre,
Lodhi Road, New Delhi, India

International Conference on Trends and
Challenge in Concrete Structures
Organised by: ICI - Ghaziabad
December 19-21, 2013
Ghaziabad, NCR Delhi, India

Arctic Technology Conference
February 10-12, 2014
George R. Brown Convention Center,
Houston

The Fourth International fib
Congress 2014, Mumbai
February 10 - 14, 2014 | Renaissance Mumbai
Hotel & Convention Centre, Mumbai

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