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DEPARTMENT OF CIVIL ENGINEERING

presents

CIVILIZATION

VISION

- To be a Department imparting knowledge in Civil Engineering Education, Research, Entrepreneurship and Industry outreach services for creating sustainable infrastructure and enhancing the quality of Life with professional and ethical values.

MISSION

- To provide an effective learning environment enabling to be a competent Civil Engineer.
- To motivate Research and Entrepreneurial initiatives in the field of Civil Engineering.
- To inculcate ethical values to serve the society with high order Professionalism.

Assam's Bogibeel Bridge

Assam's Bogibeel Bridge, is the longest rail cum road bridge in the country at a total length of 4.94 km and spans across the Brahmaputra, connecting Eastern Assam with Arunachal Pradesh. The bridge houses a double line broad gauge track on the lower deck and three lanes of road on the upper deck. The Bogibeel bridge is India's only bridge to have fully welded steel-concrete composite girders. The bridge is part of a 74 km long railway line which is also being commissioned simultaneously.

Direct rail connectivity between Dibrugarh and Itanagar will reduce travel distance by 705 kms, to only 180 kms. Travel time between Dibrugarh and Itanagar will reduce from 24 hours to only 5 hours. Trains travelling between Delhi to Dibrugarh will benefit from a 3 hour reduction in travel time. Distance from Dibrugarh to Rangiya will be reduced by 170 km. Now people going to cities like Delhi, Kolkata, Mumbai and Bangalore will no longer have to travel via Guwahati. It will enhance the national security of the eastern region of India by improving the movement of defence forces and weapons systems.

By Mr. P. Krishna Kumar

Assistant Professor

Department of Civil Engineering

Impact of Indian Economy – A Brief Discussion

Introduction

Indian economy is getting down in a pathetic way. The next two months will be crucial for the Indian economy, which is facing the worst growth slowdown in six years, as per official GDP data released on August 30. State Bank of India (SBI) Chairman Rajnish Kumar told several business dailies that the next two months will be critical in terms of reviving the economy. While growth for the "**April-June quarter slumped to a low of 5 per cent"** on weak consumer demand, Kumar hopes that demand will pick up once the festive season kicks in. He, too, like many other economists feels that strong policy reforms are needed to tackle the slowdown, which seems to be a mix of structural and cyclical factors.

Next Two Months Crucial

The next two months will be crucial for the government in terms of reviving the Indian economy. A mix of policy decisions and demand dynamics could decide whether India will be able to withstand the economic storm or face a prolonged slowdown. Government is likely to closely monitor sales during the festive season, which is set to begin this month (September-October). Usually, consumer demand picks up during the festive months as sales activities increase significantly. While the government would be hoping for a demand boost during the next two months, it won't be easy without reforms.

Economists feel that the government is working on measures that cater to the "**supply-side of operations"** while demand creation has been grossly ignored, which is a concern as supply growth without demand is no good. Shubhada Rao, Chief Economist at YES BANK told moneycontrol.com that for the supply-side changes to yield benefits, people need to have cash in their hands. However, the current spree of job losses combined by record-high unemployment rate has severely affected the supply-demand ratio in India--a key reason behind the economic slowdown. Economists at India Ratings and Research said a mixture of

short and long-term measures are required for a pickup in demand. Short-term boosts, especially during the festive season, may significantly help in increasing demand.

Focus on Real Estate & Construction

Since the real estate and construction sectors offer employment to a large pool of people, economists believe that the government should introduce some temporary boosters to help the real estate sector snap out of its weak streak. Many construction workers and daily wage labourers who work in real estate have been pushed out due to the economic slowdown. Therefore, a large number of people are now sitting unemployed-a key reason why demand has fallen. Reviving demand in realty and construction could steer the economy towards revival.

Boosting MSMEs & Employment

The government has to come up with measures to increase wage growth, which declined significantly due to certain policy reforms aimed at correcting macroeconomic imbalances, showed an SBI study. This, however, is not possible without injecting more liquidity into the system. Despite the bank mergers and shots of recapitalisation, Indian banks are far from recovery, with non-performing assets (NPA) close to Rs 8 lakh crore. The NBFC or shadow banking sector, which is a key lender to Medium and Small Scale Enterprises (MSMEs), is still reluctant on lending to business as they continue to face the pangs of the liquidity crunch. It would be almost impossible to tackle the slowdown without reviving small scale enterprises, which create a bulk of employment opportunities across sectors.

Not Mergers & Higher Lending

While the government has been busy announcing bank mergers and minor policy reforms, economists have made it clear that such measures will not play a decisive role in economic revival. The decision to merge non-performing banks with

anchor banks--those performing much better--could turn out to be a fruitless move, according to many economists who feel that it would only increase complications.

Considering that past bank mergers have not turned out the way they were envisaged, there are several doubts over the fresh move announced by Finance Minister Nirmala Sitharaman.

Conclusion

The government should focus on measures that will enhance bank and NBFC lending rather than further complicate the situation with bank mergers, according to many economists. While the slowdown would probably continue for the next quarter, it is high time the government focuses on fixing the liquidity crisis, which has choked lending to most MSMEs and reducing the tax burden on individuals and companies. The government should encourage small scale industries in order to get a growth of income during the crisis.

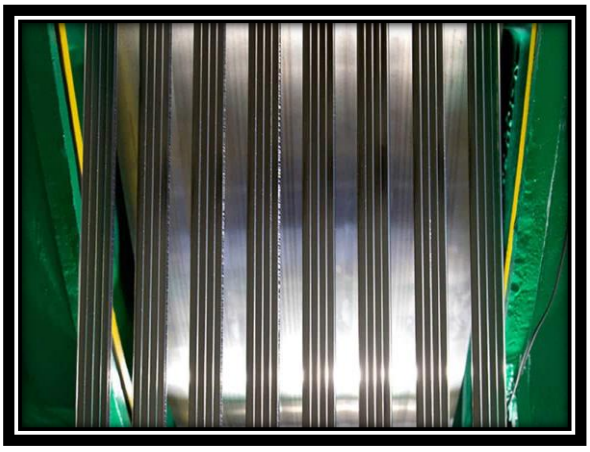
By Mr. M. Manoharan

Assistant Professor

Department of Civil Engineering

CARBON FIBRE ROPE THAT DOUBLES THE HEIGHT OF SKYSCRAPERS

One major deterrent to the height of supertall buildings is elevator technology — i.e. at a certain height, the amount of steel rope needed to pull people upwards becomes too heavy and the number of separate elevators needed to reach the top skyrockets. Kone, a Finnish company, has developed an alternative: A rope made of carbon fibre that's 90 per cent lighter and could support elevators up to twice as high as the current limit. It's called UltraRope, and it could enable elevators that are up to a kilometer in height. It will also change how elevators are serviced, since it will last twice as long than standard steel rope.



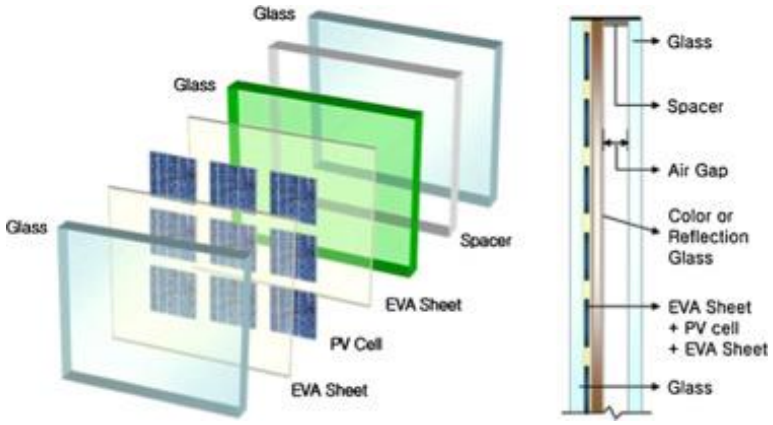
By Mrs. S. Yugasini

Assistant Professor

Department of Civil Engineering

PHOTOVOLTAIC GLASS

Photovoltaic glass (PV glass) is a technology that enables the conversion of light into electricity. To do so, the glass incorporates transparent semiconductor-based photovoltaic cells, which are also known as solar cells. The cells are sandwiched between two sheets of glass.



One of the most exciting new technologies used in civil engineering is building integrated photovoltaic (BIVP) glazing, which can help buildings generates their own electricity, by turning the whole building envelope into a solar panel. Companies such as Polysolar provide transparent photovoltaic glass as a structural building material, forming windows, facades and roofs. Polysolar's technology is efficient at producing energy even on north-facing, vertical walls and its high performance at raised temperature means it can be double glazed or insulated directly. As well as saving on energy bills and earning feed in tariff revenues, its cost is only marginal over traditional glass, since construction and framework cost remain, while cladding and shading system costs are replaced.

Building using a substantial amount of photovoltaic glass could produce some of their own electricity through the windows. The PV power generated is considered green or clean electricity because its source is renewable and it does not cause pollution. In addition to energy cost savings, potential benefits from the use of photovoltaic glass includes reducing the carbon footprints of facilities, contributing to sustainability and consequently, enhancing branding and the public relations efforts.

Advantages

- Small-scale solar plants can take advantage of unused space on rooftops of existing buildings.
- PV cells were originally developed for use in space, where repair is extremely expensive, if not impossible. PV still powers nearly every satellite circling the earth because it operates reliably for long periods of time with virtually no maintenance.
- A PV system can be constructed to any size based on energy requirements. Furthermore, the owner of a PV system can enlarge or move it if his or her energy needs change. For instance, homeowners can add modules every few years as their energy usage and financial resources grow. Ranchers can use mobile trailer-mounted pumping systems to water cattle as the cattle are rotated to different fields.

Disadvantages

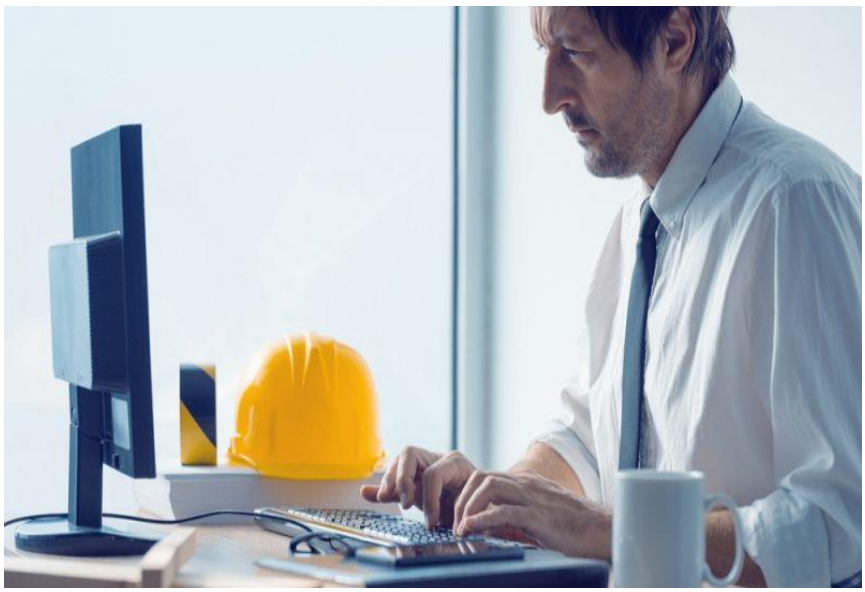
- Some toxic chemicals, like cadmium and arsenic, are used in the PV production process. These environmental impacts are minor and can be easily controlled through recycling and proper disposal.
- Solar energy is somewhat more expensive to produce than conventional sources of energy due in part to the cost of manufacturing PV devices and in part to the conversion efficiencies of the equipment. As the conversion efficiencies continue to increase and the manufacturing costs continue to come down, PV will become increasingly cost competitive with conventional fuels.
- Solar power is a variable energy source, with energy production dependent on the sun. Solar facilities may produce no power at all some of the time, which could lead to an energy shortage if too much of a region's power comes from solar power.

By M. J. SATISH ANAND

Student / III YEAR CIVIL B

CLOUD COLLABORATION

Another recent technology used in civil engineering is a cloud collaboration tool called Basestone. Basestone is a system allowing the remote sharing of data on a construction site in real time. It is predominantly a review tool for civil engineers and architects which digitises the drawing review process on construction projects, and allows for better collaboration. The cloud-based collaboration tool is focused on the installation of everything from steel beams to light fittings. The system is used to add "snags", issues that happen during construction, on to pdfs, then users can mark or add notes through Basestone. Trials have revealed possible cost-savings of around 60 per cent compared with traditional paper-based review methods.



By Mrs. S. Yugasini

Assistant Professor

Department of Civil Engineering

DEPARTMENTAL ACTIVITIES

STUDENT ACHIEVEMENTS

- 3 students of Final Year Civil Engineering - V. Unish Kumar, R. Sai Krishna and K. Sathyashriya have been placed in TCS through campus recruitment.
- J. Govindha Krishnan & V. Balaji of III Year A won II price in Paper Presentation held at Chennai Institute of Technology on 20.09.2019.
- C. Maria Don Bosco of III Year A participated in "Enactus India National Symposium and Competition 2019" at IIT Delhi on 13.07.2019.
- V. Yogesh & V. Unish Kumar of IV Year B has won II price in "Technical Conections" held at St. Joseph's College of Engineering, Chennai on 14.09.2019.
- P. K. Yashwanth Sathya Narayanan & K. C. Tharun Varshan of IV Year B has won II price in "Decryption" held at St. Joseph's College of Engineering, Chennai on 14.09.2019.
- V. Yogesh & V. Unish Kumar of IV Year B has won III price in "Decryption" held at St. Joseph's College of Engineering, Chennai on 14.09.2019.
- Cash price of Rs. 5000/- was awarded to P. K. Yashwanth Sathya Narayanan, K. C. Tharun Varshan, V. Yogesh & V. Unish Kumar of IV Year B for winning in various events held at St. Joseph's College of Engineering, Chennai on 14.09.2019.
- J. Sudharshan & C. Srimathi of II Year B participated in a workshop titled "Concrete Technology" at Easwari Engineering College on 14.08.2019.
- M. Varsha of II Year B participated in an event "Mega Mind" at Easwari Engineering College on 14.08.2019.
- M. Bhuvan, A. S. Dawn Adaikaladass, U. Dinesh Sundara Marthandan, and V. Maatheskumar of II Year A participated in a workshop titled "Advanced Energy Conversion Techniques" at SSN College of Engineering on 26.07.2019 and 27.07.2019.

- A. S. Dawn Adaikaladass of II Year A participated in "World Biggest International Hands-On IOT & Ethical Hacking Workshop" by Microsoft Research Community Group in Chennai on 15.08.2019.
- A. S. Dawn Adaikaladass, S. Kousiya, M. Lathika, N. Shashank, C. Srimathi and J. Nagarjun of II A & B participated in a workshop titled "Underground Structures" at Chennai Institute of Technology on 20.09.2019.

STUDENTS OF BATCH 2015-19 PURSUING HIGHER EDUCATION

S. No.	Student Name	University	Program
1	Arjun Raghavan	Delft University of Technology, Netherland	M.S. Structural Engineering
2	Mohamed Haisar Hayath	University of Auckland, New Zealand	Master of Engineering Studies
3	Mohammed Zameel	Deakin University, Australia	Masters in Construction Management
4	Arjun Shishir Bajjuri	National Institute of Construction Management and Research (NICMAR), Pune, India	Advanced Construction Management
5	K. Bharadwaj Balaji	SRM Institute of Science & Technology, Chennai, India	M. Tech-Geotechnical Engineering

STUDENT's RESEARCH PROJECT

- Students Research Proposal by K. Sathyashriya, T. Sithrubi and Sneha Kasturi Rangan (IV Year B) mentored by Dr. S. Geetha on "Building Blocks with Pondash infilled Plastic Bottles - A sustainable Technology" was submitted to

Tamil Nadu State Council for Science and Technology for a budget of Rs, 1,04,254/-

- A project titled **"Rural Water Management through Low Cost Treatment Technique"** has been submitted on 30.9.19 for Chhatra Vishwakarma Award under the category 'WATER' by the Final Year Students: Sneha Kasthuri Rangan, K. Sathyashriy and T. Sithrubi guided by team mentor Dr. M. Selvakumar.

INDUSTRIAL VISITS ARRANGED

S. No.	Company / Site Visited	Sector	Year/Section	Student Strength	Date
1	Poondi Reservoir, Chennai	Govt	IV A	36	30/07/2019
2	Poondi Reservoir, Chennai	Govt	IV B	36	31/07/2019
3	Prism RMC Ready Mix India Pvt. Ltd., Chennai	Private	II A & B	90	27/08/2019
4	Structural Engineering Research Centre- CSIR, Chennai	Govt	III A & B IV A & B	198	26/09/2019

SERC – CSIR, Chennai (26/09/19)

Prism RMC Ready Mix India Pvt. Ltd., Chennai (27/08/19)

GUEST LECTURES ARRANGED

S. No	Topic	Name of the Speaker	Organization	Student Strength	Year/ Section	Date
1	Lecture on Career Guidance	Mr. D. Nagadevan/ Director	Terzaghi Institute	55	III/ A & B	02.07.19
				60	IV/ A & B	12.07.19
2	Teckla Software	Mr. R. Sudhakar/ Director	Dynamic Solution	106	III/ A & B	11.07.19
3	Bond Anchorages	Mr. M. Kamala Kannan/ Managing Director	Utracon Construction	90	IV/ A & B	14.08.19
4	Safety Engineering	Mr. S. Sekar/ Chief Executive Officer	RVJ Techno Services	106	III/ A & B	23.08.19
5	Chennai Metro Politian Development of Structures	Mr. P. Selvadurai/ GM TamilNadu Industry Guidance and Export Promotion Bureau	CMDA	180	II, III & IV / A & B	24.08.19
6	Estimation of Foundation & Beams	Mr. P. R. Anantha Narayanan/ Chartered Engineer	Prayojana Training Institute	90	IV/ A & B	25.09.19
7	Limit State of Design of RC Elements	Mr. L. Suresh/ Assistant Engineer	CPWD	106	III/ A & B	28.09.19
8	Site Exploration and soil sample types	Mr.J.Jayapal/ Research Scholar	IIITM	106	III/ A & B	28.09.19

STUDENT WORKSHOP

117 Students of III year and IV year Civil Engineering have undergone a Hands on Training Program on **"Diploma in Construction Practice"** from 17th September to 20th September 2019 within REC campus. The Hands on Training Program on **"Diploma in Construction Practice"** was conducted by Mr. Sudhakar of Dynamic Engineering Research Centre, Chennai.

Course Contents of the Hands on Training Program is listed below

- **Masonry Work**
  - Tools used in masonry work
  - Masonry material grade and standards
  - Mortar ratio and specifications
  - Field test on masonry unit
  - Types of brick masonry
  - Practice in masonry work
- **Safety and Quality Control**
  - Introduction on safety and quality control
  - Safety equipment's used in construction
  - Quality inspection in construction
  - Safety precautions in construction
- **Bar bending**
  - Tools used in bar bending
  - Bar bending schedule
  - Reinforcing material grade and standards
  - Lap joints and hooks specification
  - Stirrups and ties bending
  - Rod bending methods and Equipment's
  - Practice in bar bending of beams and columns
  - Reinforcement detailing
- **Material Testing**
  - Introduction of construction materials
  - IS standards for construction materials
  - Tests on cement
  - Tests on fine aggregates
  - Tests on coarse aggregates
  - Tests on bricks and blocks
  - Tests on Fresh Concrete
- **Electrical and Plumbing**
  - Tools used in electrical and plumbing works
  - Basic introduction of house electrical and plumbing
  - Appliance of construction wiring
  - Plumbing and sanitary materials

- Practice in fittings and connections

➢ **Quantity Estimation**

- Introduction on Estimation
- Estimation for Brickwork & Concrete
- Material Quantity calculation
- Cost of materials and labours as per schedule of rates
- Practice in Quantity Estimation

Hands on Training Program on "Diploma in Construction Practice"
(17^{th} - 20^{th} September 2019)

FACULTY ACCOMPLISHMENTS

RESEARCH PROPOSALS SUBMITTED

➢ A Research Proposal was submitted to Department of Science and Technology, Nano Technology, Technology mission division on **"Synthesis of a Porous Alkali Activated Material with Nano Graphene Oxide for Water and Waste water Treatment"** on 26.9.19 for a budget of Rs. 37,77,750/- by Principal Investigator: Dr. M. Selvakumar and Co Investigator: Dr. S. Geetha.

FDP's & WORKSHOP's ATTENDED BY FACULTY MEMBERS

- Mr. N. Mahamood Ul hasan & Mr. P. Krishnakumar attended a 2 day Workshop titled **"Writing for Research Purpose"** on19.07.2019 & 20.07.19 at B. S. Abdur Rahman Crescent Institute of Science and Technology.

CONFERENCE PAPER PUBLICATION

- A technical paper titled **"Sullage Treatment – An Overview"** was published by Dr. M. Selvakumar in **"Water Conference**" sponsored by Confederation of Indian Industry (CII- Chennai) on 5.9.19 held at hotel Hilton.
- A research paper on **"Self Prestressing Concrete Composite with Shape Memory Alloy"** by Dr. S. Geetha and Dr. M. Selvakumar was published in 4th International Conference in **'Advances in Materials and Manufacturing Applications'** held at Amrita School of Engineering, Amrita Vishwa Vidyapeetham, Bangalore.

OTHER ACHIEVEMENTS

- Department of Civil Engineering has received **"Teaching Awards in Engineering"** by Staffordshire University, UK & Education Matters (2019) for maintaining academic excellence.
- Consultancy works worth Rs. 33,400/- has been carried out by Dr. S. Geetha and Dr. M. Selvakumar in Construction Material Testing and Water Quality Testing for "Krishna Water Supply Project, PWD" in June 2019.
- Consultancy works are being carried out on Construction Material Testing and Cube Testing for "Transrail Lighting Limited" by Dr. A. Rose Enid Teresa and Mr. E. S. Karthic from July 2019.

EDITORIAL BOARD MEMBERS

STAFF INCHARGE

Mrs. S. Muthu Lakshmi/ AP(SG)

STUDENT INCHARGES

M. J. Satish Anand (III/B)

A. Naveen Aravind (III/B)

R. Harine (III/A)

B. Anjali Kumari Shaw (IV/A)

Sneha Kasturi Rangan (IV/B)