



ODD SEMESTER MAGAZINE 2017
Department of Civil Engineering,
Jamia Millia Islamia
New Delhi - 110025

TA'AMEER

تعمیر





Message from Vice Chancellor

Prof. Talat Ahmad

It gives me immense pleasure to present first issue of the magazine of civil engineering department brought out by the students and faculty. Magazine of this type provides an opportunity to the members of departmental fraternity to express their latent talent in the form of technical articles and their practical experiences. Magazine also showcases talent spectrum of Jamia in general and civil engineering department in particular. I wish all the success to the authors and publishers.

A handwritten signature in black ink, likely of Prof. Talat Ahmad.

(Prof. Talat Ahmad))





Message from Chief Editor

Prof. Nazrul Islam

It's a matter of great pleasure that "Ta'ameer" a long awaited magazine of civil engineering department is now ready in our hands. The title of the magazine, "Ta'ameer" may seem difficult; but it just means "to construct"; a clear vision of civil engineers. The magazine provides a solid platform where students and faculty exhibit their innovative ideas and technical skills. Ta'ameer reflects the outcome of dedication and hard work of students and faculty. I would like to thank my editorial team specially to the joint editor Mr. Musabur Rehman for his sincere efforts. I express my considerable appreciation to all the authors of the articles in the magazine. I wish to extend my heartfelt thanks to all the contributors.

Prof. Nazrul Islam



Message from Joint Editor

Mr. Musabur Rehman

It is my great privilege to express my gratitude to Prof. Nazrul Islam (Chief Editor) Department of Civil Engineering for giving me a commendable opportunity as a Magazine Joint Editor of JMI's Department of Civil Engineering. It was greatly appreciated and would definitely benefit the wider Science, Technology, and Engineering.

The first edition of the magazine is going to be introduced in JMI's Department of Civil Engineering that reflects great potential of the students of the Department. On behalf of Department of Civil Engineering, we graciously welcome its new readers.

Finally, I would like to extend, individually, sincerest thanks to each of the person who contributed his great articulation to the magazine.

Musabur Rehman
Student M. Tech (Earthquake Engg.)



Message from Dean Prof. Mehtab Alam

Providing ample opportunities in engineering education is one of the most fundamental obligations we owe to our students because in JMI we are driven by the belief that every student deserves a high quality education. TA'AMEER provides an intersection of great challenge and great opportunity for the students to review their efforts and to analyze their achievements in research and development. Technology is evolving at a dizzying rate and our classrooms may not be designed to keep pace with it. There may be a lot wrong in the style of education but the pages of TA'AMEER tell the tale of all that have been a part of what is right about the education they get in JMI. I congratulate the team of students and the Editor for their tireless efforts that have come to fruition in the form of this magazine. I wish it all success and hope that this tradition that has been set by the current students will be carried through by the following generation of students to come.

Prof. Mehtab Alam



Message from Head of Department Prof. Gauhar Mehmood

Nurturing creativity and inspiring innovation are two of the key elements of a successful education, and a civil engineering department magazine is the perfect amalgamation of both. It harnesses the creative energies of the academic community, and distils the essence of their inspired imagination in the most brilliant way possible. Hence, It gives me great pleasure to know that 'TA'AMEER' is a college magazine of 2017 is ready for publication

I take this opportunity to congratulate the editorial board for bringing out this magazine as per schedule, which in itself is an achievement considering the effort and time required. May all our students soar high in uncharted skies and bring glory to the world and their profession with the wings of education.

Prof. Gauhar Mehmood



ABOUT CIVIL ENGINEERING

The Department of Civil Engineering is one of the oldest and the largest department in the Faculty of Engineering & Technology. The department has produced several eminent engineers who have made important contributions in the planning and execution of many important Civil Engineering projects in India as well as abroad.

The Department offers two undergraduate courses in Civil Engineering. The Department also offers Master's programme with specialisations in Environmental Engineering and Earthquake Engineering. In all, there are around 560 students in undergraduate programme and 75 students pursuing their Masters degree. These courses are supported with strong doctoral programmes in all the major specialisations of Civil Engineering. More than 35 Ph. D. research scholars including many from foreign countries are currently working in the department on emerging research areas.

The Department is known for its reputed faculty with expertise in diverse fields. Presently, the department has 24 highly qualified, experienced, sincere and dedicated teaching faculty members, indicated below.



Dr. T.K. Dutta

Emeritus Professor

Dr. Tushar Kanti Datta, A visiting faculty and fatherly figure of Civil engineering department of JMI; a professor Emeritus from IIT Delhi.

An alumnus of 1966 of B.E.College, Shibpur, Prof. T. K. Datta completed his PhD from IIT-Bombay in 1973. He joined IIT-Delhi as a lecturer in the Department of Civil Engineering in November 1975. His interests of research are in the general area of Structural Dynamics covering wide ranging fields

like Earthquake Engineering, Wind Engineering, Offshore Dynamics, Structural Control and Stability of Dynamic Systems. He has been closely associated with the Earthquake Engineering initiatives in the country that were taken up after Latur Earthquake. During his teaching and research carrier, he is credited with 30 Phd guidance, publication of more than 100 international journal papers and nearly equal number of papers in conference proceedings. He is the author of the text book Seismic Analysis of Structures published by John Wiley International. He had significantly contributed to the educational development program as a QIP co-ordinator and co-ordinator for up-gradation of the Institute of Engineering (IOE), Kathmandu from a Polytechnic to a UG level college and then, to a post graduate institute. In recognition of his work, Tribhuban University honored him with adjunct professorship of the University. He is internationally well known for his work in the area of structural dynamics and earthquake engineering and has lectured in various universities in USA. He is a dynamics core group member of the Engineering Mechanics Division of ASCE since 2002. He is the city representative of Delhi for the world mega cities project RADIUS for Seismic Hazard coordinated by Stanford university, USA. Amongst different awards received by him, the most notable one is the 15th Khwarizmi International Award for his research work in Earthquake Engineering and Structural Control. He is a fellow of the Indian National Academy of Engineering. He is highly regarded as a dedicated teacher and researcher by his students, scholars and the reference group.



Dr. Kuldeep Chandra

Professor

Dr. Kuldeep Chandra, A visiting faculty and fatherly figure of Civil engineering department of JMI.

B.Sc Engg(civil) Punjab Engg. college

M. Tech(structure) IIT Delhi

Ph.D Project Management IIT Delhi

Former Prof. and Head Building Engg and Management (SPA) School of Planning and Architecture New Delhi from April 1985- July 2011



Dr. Mehtab Alam Professor
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Prof. Gauhar Mehmood
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Dr. Khalid Moin
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Dr. Mohammad Shakeel
Professor



Dr. Shamshad Ahmad
Professor



Dr. Farhan Ahmad Kidwai
Professor



Dr. Nazrul Islam
Professor



Dr. Quamrul Hassan
Professor



Dr. Mohammad Sharif
Professor



Dr. Sirajuddin Ahmed
Professor



Dr. Syed Mohammad Abbas
Professor



Dr. Asif Husain
Professor



Prof. Kafeel Ahmad
Deputy Research Director



Dr. Naved Ahsan
Professor



Mr. Ziauddin Ahmad
Associate Professor



Dr. Sayed M. Muddassir
Associate Professor



Dr. Azhar Husain
Associate Professor



Dr. Akil Ahmad
Assistant Professor



Dr. Abid Ali Khan
Assistant Professor



Dr. Syed Shakeel Afsar
Assistant Professor



Dr. Mohd. Umair
Assistant Professor



Mr. Ibadur Rahman
Assistant Professor



Dr. Imteyaz Ansari
Asstt. Professor
Guest Faculty



Mr. Shehbaz Alam
Asstt. Professor
Guest Faculty



Imagine a World without Civil Engineering



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We wake up in morning and go to bathroom but no water comes out from tap, there is no water-supply and you go out from your house but there is no bus, no train, no metro, and no road or highway, you may only walk from place to place. When you start studying or working there is no school or university, no lab, no library, and even no office to do work, working outside would be your only option. When you come back to your place there is no electricity, no light and cooler, no drainage system,



no dam to control flood, no canal for irrigation, and no food. The life will completely destroy, the world without civil engineer just a NIGHTMARE.

I cannot imagine a world without civil engineers, And I'm not just saying that because it is my chosen profession. In fact, without civil engineering, there would be neither cities nor landscapes to view. Take away the tallest skyscrapers like the Shanghai Tower in China, the World Trade Center and Empire State building in New York, the Dream Dubai Marina, Tower 1 and 2 in Kuala Lumpur Malaysia, and what are you left with? Not much in the skyline anywhere. These tallest buildings have been constructed and engineered to fulfill a purpose over the years.



Without civil engineering, any structure more modern than a simple but would be impossible to build. Infrastructure would be gone as there would be no roads or vehicles to travel on them without engineering we simply would be walking along foot paths or game trails.



Imagine a world without roads and railways, it would simply delete from our lives the fluid movement of goods and people due to lack of transport planning and design. A factor today that doesn't need a second thought. Imagine not being able to order books, rare clothing brands and gadgets that are only available overseas and can not be delivered to your doorstep quickly that don't happen anymore. The world has been traveling, exploring new places, transporting handmade to machine made products, all because of civil engineers who apply scientific principles to the planning, functional design, construction and management of facilities for any mode of transportation. They also ensure that it is safe, fast, economical, convenient, comfortable and environmentally compatible. This skill is divided across aerospace, roads and highway; pipelines, waterways, port, coastal and ocean.





Our buildings, roads, vehicles, and technologies provides comfort to human. These engineered structures allow us to translate space, communicate across vast distances and extend the limits of our bodies.

Thanks to hydraulic engineers, we have been able to channelize water for human use with the design and construction of dams, canals and bridges. With the application of fluid mechanics principles, hydraulic civil engineers plan and execute the proper collection, storage, control, transportation, regulation, measurement and usage of water. Construction of DAM is impossible without civil engineering, with the help of dam we save water and use for supply and generating electricity purpose, Our city or state is also save from flood. We

use water for irrigation purpose to make canal, without canal irrigation will be very difficult and there will be not enough food for us.

Geotechnical Engineering guys are off-beat, so to say. They study and analyze the behavior of earth materials. A geotechnical engineer applies the principles of soil and rock mechanics in mining, petroleum and military related and other such constructions on the surface or within the ground to assess the risk to humans, property and the environment from natural hazards such as earthquakes, landslides, debris flows and rock falls. By the virtue of their job, geotechnical engineers are responsible for the safety of large populations.





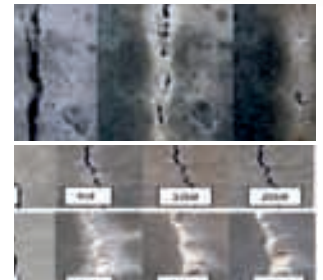
Self Healing Concrete



Sumeet Tabassum Amin

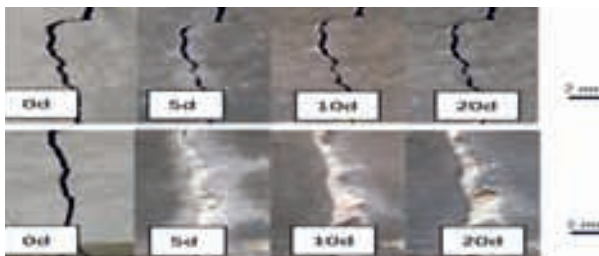
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Concrete is one of the most widely used materials in the world, but at some point, no matter how it is mixed, it will crack and deteriorate. It was to this problem that microbiologist Hendrik Jonker set his mind. Whilst thinking about how the body can heal bone through mineralization, he looked into whether a similar method could be used with concrete. By mixing it with limestone-producing bacteria, he found that any cracks that formed in the concrete were patched over.



The bacteria, either *Bacillus pseudofirmus* or *Sporosarcinapasteurii*, are found naturally in highly alkaline lakes near volcanoes, and are able to survive for up to a staggering 200 years without oxygen or food. They are activated when they come into contact with water and then use the calcium lactate as a food source, producing limestone that, as a result, closes up the cracks.

The technology is currently able to mend cracks up to 0.8mm wide. And while making better concrete is a more feasible approach to sustainable building than shifting to an entirely new building material, that doesn't mean the innovation is a sure bet. The current cost would be prohibitive for many.



Mechanism

Cracks can be healed by using calcium carbonate precipitating micro-organisms. These organisms are embedded in the concrete matrix after immobilization on diatomaceous earth, and will start the precipitation of CaCO_3 once a crack occurs. Through this process the bacterial cell will be coated with a layer of calcium carbonate, resulting in death of the micro-organism, but in the meantime the crack faces may be bonded together.

In order to keep the bacteria dormant until it is needed, it is placed in small, biodegradable capsules containing the nutrient. When the concrete cracks, and water enters the gaps, it comes into contact with the bacteria and the food source, setting the healing process off. The bacteria then feed on the calcium lactate, joining the calcium with carbonate to form limestone, fixing the crack.

Some Disadvantages

Encouraging as it sounds, self-healing concrete can't cure very wide cracks or potholes on roads just yet;

There is one major obstacle that needs to be overcome if self-healing concrete is to transform concrete construction in the next decade. The clay pellets holding the self-healing agent comprise 20% of the volume of the concrete. That 20% would normally comprise harder aggregate such as gravel. The clay is much weaker than normal aggregate and this weakens the concrete by 25% and significantly reduces its compressive strength. In many structures this would not be a problem but in specialised applications where higher compressive strength is needed, such as in high-rise buildings, it will not be viable.



Glass Fiber Reinforced Concrete (GFRC)



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GFRFC is an engineered concrete that has numerous applications in concrete products including ornamental structures, fountains, domes, and planters. GFRC is also used extensively for decorative panels.

Composition of Glass Fiber Reinforced Concrete (GFRC)

Glass fiber reinforced concrete composites contain high strength glass fibers that are surrounded by a cementitious medium. In this shape, both the fibers and the environment maintain their natural individual chemical characteristics. However, the concrete produced has improved resultant properties that cannot be attained if either of the components is used individually. The glass fibers are the main elements that carry the load, while the enclosed matrix keeps the fibers in the preferred position and direction. The medium facilitates transfer of the load on the fibers, and shields them from the damage due to environment. Glass fibers can be integrated into the matrix either in constant or irregular lengths. The most widespread shape in which glass fiber reinforced composites are used in structural applications is known as laminate. This form is achieved by consolidating fine fiber layers and a matrix into the desired size. The orientation of fiber in each layer, and the stacking sequence of the layers, can be used to produce a range of mechanical properties of the composite materials.

All these properties are combined with the fact that GFRC looks like solid concrete, although it weighs only one-third of the original solid concrete weight. This makes it ideal for outdoor or indoor applications where lightweight and durable concrete is needed. Such applications may include decorative structures, fountains, domes, planters, etc.

A Decorative GFRC Application

Glass Fibers

Glass fiber consists of 200-400 individual filaments, lightly bonded in order to form a stand. These stands can then be chopped into various lengths and be used for a variety of applications. The main industrial application of glass fibers is cement or mortar matrices reinforcing, used for thin-sheet products manufacture. The conventional mixing techniques for concrete only allow about 2% (by volume) of fibers of a length of 25mm to be used. The most common type of glass fibers used for general applications is e-glass. Polymers may also be added in the glass fiber mixes in order to improve physical properties such as moisture movement.

Advantages of Glass Fiber Reinforced

Concrete

GFRC is an engineered material. Its properties can change depending upon the design of mix, fiber content, and the techniques used for manufacture. The use of GFRC has become popular due to its numerous favorable properties:

GFRC has been tested in the laboratory and also in the actual installations, and can be anticipated to survive as long as pre-cast concrete. In numerous environmental conditions, like when exposed to salts or moisture, GFRC is likely to function better due to the absence of steel reinforcement that may corrode.

Relatively light in weight compared to the traditional stones. Its installation is fast and comparatively simple.

GFRC has the characteristics to be cast into almost any shape.

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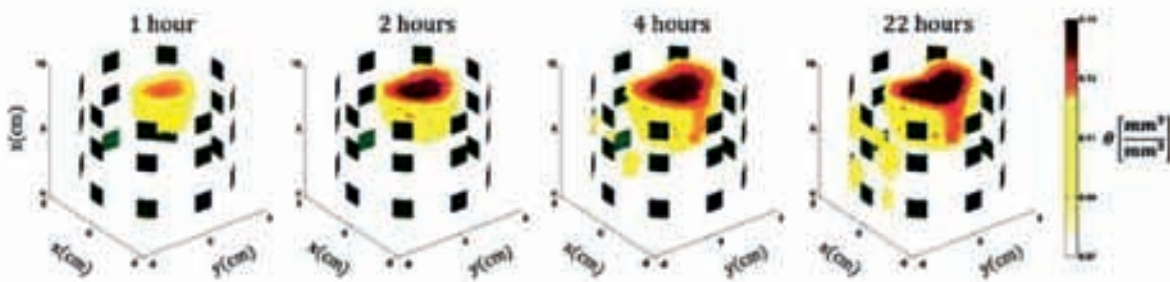
Researchers Use Electricity to Track Moisture Flow in Concrete



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RESearchers AT North Carolina State University and the Kuopio campus of the University of Eastern Finland have developed a process that uses the behavior of electric currents as they pass through concrete to create three-dimensional maps that track moisture flow within the concrete. The process also reveals internal cracking that may otherwise go undetected. The researchers anticipate that the process will make it possible to test concrete in the field for moisture penetration and degradation resulting from exposure to snow, ice, and the chemicals and salts used in deicing.

The process developed by the researchers is dubbed electrical impedance tomography (EIT), and it uses a system of electrodes placed around a concrete shape of any geometry. Computer-controlled electric currents pass through the concrete between pairs of electrodes, and data are collected on the behavior of the currents. The resulting data are then used to create a three-dimensional model that reveals moisture ingress and the presence of internal cracks.



In a test, moisture flow and volumetric water content in concrete were measured after 1, 2, 4, and 22 hours of ingress. An actual specimen with embedded pipe, top, was used to introduce water.

The technology determines whether water is infiltrating into the concrete, where the water is, and how fast it is moving, according to Mohammad Pour-Ghaz, Ph.D., M.ASCE, an assistant professor of structural engineering at North Carolina State, who oversaw the research.

EIT works by measuring the concrete's conductivity. "It turns out that concrete is a porous material like a sponge," Pour-Ghaz explains. "The electrical conductivity of concrete is really sensitive to the amount of moisture in it. So if we can map the electrical conductivity of concrete, we can map the moisture in three dimensions," he says. "The real trick

of this technology is making the three-dimensional map of the electrical conductivities." To create such maps, he notes, "we send a very small trickle current in multiple directions and measure electrical potential at the surface of the structure. Then, using some algorithms and mathematical tools, we assemble this information into a three-dimensional image." Through a sequential series of current injections, multiple maps can be created for tracking moisture flow over time.

"I think this is quite a good example of how mathematics can be used for advancing engineering," says Aku Seppänen, Ph.D., a research fellow in the applied physics department at the University of Eastern Finland, who led the mathematical work.

Anything that changes the electrical conductivity of the concrete will appear in the model, including water, cracks, and even rebar, according to Pour-Ghaz. EIT, he notes, “is bigger than just monitoring moisture ingress. . . . It is a really versatile nondestructive testing tool,” he says.

At present X-ray or neutron radiation is typically used to track the movement of water within concrete and gain an insight into the concrete’s internal composition. By comparison, EIT offers advantages and disadvantages, according to Seppänen. “Each is suitable for different applications,” he notes.

While the resolution afforded by EIT is lower than that of the two existing methods, neither X-ray nor neutron radiation is particularly useful in the field for examining bridges or buildings. Moreover, the existing techniques can penetrate only a limited way

into the concrete. Neutron radiation is also much more expensive and may pose health risks to the user, Pour-Ghaz points out.

EIT, on the other hand, will be applicable in the field to large-scale objects of varying geometries after the next phase of research has been completed, according to Seppänen. “The technology could already be commercialized for laboratory-scale testing,” he notes. “For the on-site testing applications, further research is needed for handling the effects of structural properties, such as rebar, on the moisture estimates.”

In addition to being a nondestructive assessment tool, EIT will enable designers to gain a better understanding of how water penetrates and degrades concrete under certain conditions. Such knowledge will aid in developing concrete better able to withstand such water movement, according to Pour-Ghaz.

Anything that changes the electrical conductivity of the concrete will appear in the model, including water, cracks, and even rebar.

The research team also includes Danny Smyl and Reza Rashednia, doctoral candidates at North Carolina State, and Milad Hallaji, Ph.D., who conducted his doctoral work there.

The results of the team’s work were reported in three papers last year: Can Electrical Resistance Tomography Be Used for Imaging Unsaturated Moisture Flow in Cement-Based Materials with Discrete Racks? published in *Cement and Concrete Research*; Quantitative Electrical Imaging of Three-Dimensional Moisture Flow in Cement-Based Materials, in the *International Journal of Heat and Mass Transfer*; and Three-Dimensional Electrical Impedance Tomography to Monitor Unsaturated Moisture Ingress in Cement-Based Materials, in *Transport in Porous Media*.

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GFRC consists of materials that are unlikely to burn. The concrete takes the role of a thermal regulator while exposed to fire and protects the materials from the flame heat.

GFRC is thin and strong, with weight being 75% to 90% less compared to solid concrete. Less weight facilitates easy and rapid installation, and also decreases the load applied on the structure.

The light weight and tough material also minimizes the transportation expenditures, permits flexibility in design, and reduces the impact on environment.

Superior strength enhances the ability to endure seismic loads.

GFRC is less vulnerable to weather effects and more resistant to freeze thaw than the normal concrete.

Comparison of GFRC to Precast Concrete

The elasticity and density of the GFRC is greater than precast concrete. The cement to sand ratio for GFRC is approximately 1:1, while for precast concrete it is 1:6. The glass fibers included to reinforce the concrete produce considerably greater impact strength and lower permeability to water and air than precast concrete. GFRC looks like a natural stone and permits the designer greater flexibility in form, color, and texture.



Mohd Waseem

Soil Nailing Technique



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A Soil Nailing system has been used for stabilization of excavations and natural slopes for the last few decades in India and Abroad. Soil Nailing Technique used steel anchor rods inserted directly into the soil mass as a driven nails and when Nails are placed in pre-drilled holes to form grouted nails. In both the cases, it restrained load and the side deformations. 'Soil Nailing' has been developed for stepwise vertical de-stabilization and stabilization of compacted collapsible sandy soil for the construction of railway underpasses in live railway loading conditions. This technique is successfully implemented first time in the world for controlled destabilization of vertical cut slope and again stabilization for creating

a space for pushing of box for railway underpasses for the length of 22 m and 50 m at two sites, namely Yamuna Bazaar and Apsara border, respectively, in Delhi, Capital of India. This Soil Nailing Technique of controlled destabilization of soil and again stabilization in steps has proved a superficial method of stabilization with the other methods for such kind of dynamic loading situations.

A process for making an underpass through a railway track or road without service interruption by stepwise destabilization and stabilization of a collapsible soil mass by a soil nailing technique, the process **Comprising of the following steps:**

- i. Marking a position of a box on a vertical face of a first retaining wall or an embankment;
- ii. Dismantling the retaining wall above the marked position of the box and providing temporary support by shuttering plates having holes for pre-decided positions of nails to be driven in the vertical face;
- iii. Nailing the soil mass by using grouted nails and driven nails above the marked position of the box;
- iv. Again dismantling the first retaining wall, placing the shuttering plates with pre-drilled positions of nails and inserting only the driven nails from the top to the bottom of a box pushing area;
- v. Leaving a complete nail system for a period in the range of 8 to 12 hrs to mobilize the friction of the nails;
- vi. Bringing the box close to the soil-nailed, wall face;
- vii. Loosening one top row of shuttering plates, and excavating the soil to a 30 to 40 cm depth;
- viii. Repeating step (vii) until the entire rows of the nails are covered for a 30 to 40 cm depth followed by pushing the box into the excavated area of 30 to 40 cm depth;
- ix. Pushing the nails into the soil mass and again tightening of the shuttering plates;
- x. Repeating steps (vii) to (ix) until 50% of the box pushing length;
- xi. Cutting the nails in the range of 25 to 35 cm to create a space for box pushing wherein first/pointed ends of the nails will touch a second retaining wall, followed by placing vertical nails in order to increase the stability of the cut slope; and
- xii. Again repeating steps (vii) to (ix) until complete insertion of the box for making an underpass.

One of the Practical application of Soil Nailing for Stabilisation of Vertical Cut Slopes for Construction of Road Under the Approach Embankment of Bridge by Box Pushing Technique at West End Approach of Old Yamuna Bridge No. 249, Delhi Shabadra Section is described as under.

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Tanveer Ahmad

Comparison of Terrestrial Soil & Lunar Soil

Soil and rock analysis have always been a fantasy for Civil Engineers right from the start of monumental construction era dating back to the cradles of civilisation. It is a known fact that engineers need to study and analyse the soil and other terrestrial attributes prior to initialising a structural foundation that might be later supporting a monument or a building.

Let's have a glimpse if the soil of our natural satellite (the Moon) i.e the lunar soil is versatile enough to withhold and withstand monuments and earthly structures as the terrestrial soil does.

In the light of Civil Engineering, a variety of data analysis via astronautic observations and experimentations have inferred that density and strength characteristics vary locally and with depth. For instance, in lunar soil, densities may be as low as 1 g/m^3 at the surface in some areas but may increasingly scale to 2 g/m^3 with the rise in depth on centimetre scale. The average value say 1.5 g/m^3 is probable at depths of 10 to 20 cms.



Lunar soil

For Terrestrial soil, density is typically 2.60 to 2.75 grams per cm^3 and is usually unchanging for a given soil. Soil particle density is lower for soils with high organic matter content, and is higher for soils with high iron-oxides content.

Additively, for a given lunar soil, porosity appears to be the most important single parameter controlling cohesion and friction angle --- exhibiting a range of 0.1 to 1 kN/m^2 and the most probable range of lunar soil friction angle is



Terrestrial soil

about 30° to 50° with the higher values associated with lower porosities. However, lunar soil analysis have also disclosed the fact that soil on a slopy area is less dense and weaker than that on a level area.

In terrestrial soil analysis, we measure porosity by water absorption test. Porous building blocks will allow water to penetrate the wall, will tend to expand and shrink seasonally and have reduced durability. An upper limit of 15 % has been proposed; but a well-stabilized building block (on earth soil) should have a water absorption of not more than 10%.

Besides, another significant property that greatly contributes to the load carrying capacity of any soil is its shape and size—(in short 'granulometry').

For a given sample of lunar soil, for the most part, consist of small mineral particles that differ in shape. The particles easily stick to each other to form separate clumps and aggregates. In its granulometric composition (in common words, as per shape and size), lunar soil resembles dusty sand. Structures that are constructed on sandy soils are relatively unstable, with no plasticity at all.

Be its lunar soil or terrestrial soil, construction of houses atop sandy soils require deep foundations that might be relatively costlier as compared to other forms of soils.

For terrestrial soil, GB and GW are the best soils for foundation purpose --- as inte

- G : gravel
- W: well graded with little or no fines
- B: well graded with clay binder

For lunar soil analysis, it happened that Apollo 11 to 17 have collected various soil samples from the moon and decisive test and experiments were carried, yielding the range of inhomogeneity from 2.77 to 4.41 orderly. Coming to terrestrial soil, here on earth we have Soil

as a mixture of minerals, organic matter, gases, liquids, and countless organisms that together support life on Earth. Despite of being a parameter of building construction criteria , terrestrial soil also has two important functions: it is a medium for vegetative growth & is a modifier of Earth's atmosphere unlike the lunar counterpart , because the Moon doesn't have an atmosphere of its own; as such the aforesaid factors intrinsically modify a soil stratum — be its lunar or terrestrial --- and are decisively assembled parameters of foundation of a building prior to construction.

Now let's have a view on Bulk density and void ratio. The main factor that determines the physical characteristics of a lunar soil sample is the degree of packing, as estimated by the void ratio (i.e., ratio of void volume to solid volume).

Summarizingly, from Geotechnical point of view , the results of the lunar study of soil physical and mechanical properties based on the samples delivered to the Earth and measurements made in situ are in very good agreement and demonstrate that the processes of lunar soil formation have very much in common over vast areas. Overall, its on the geotechnical engineers to envisage the finalization of structural foundation atop lunar soil ; as the process of amelioration and capitalization is ever – perpetuating. The data acquired may serve as a basis for developing soil simulants intended for setting up modern space technology for further investigation and exploration of the Moon.

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During the recently concluded Commonwealth games, it was proposed to construct a bye pass road from ISBT (Kashmeri Gate-Delhi) to ITO to decongest the existing ring road traffic, which traverses through the Yamuna Bazar, Shantivan and Rajghat to connect ITO Bridge. In order to construct the proposed bypass, named as “Salimgarh Fort to Velodrome Road”, it was necessary to cross the existing Shahadra-Old Delhi railway line, which was constructed on an embankment about 15 m high adjacent to old Yamuna Bridge popularly known in Delhi as Steel Bridge (Loha Pul). The upper portion of the steel bridge is being used for the rail movement and lower one is being used by road traffic. This railway bridge is considered as life line of Delhi as more than 350 trains cross this bridge, which include Rajdhani, Shatabdi and several express and goods train. The railway bridge along with the approach embankment was constructed about 135 years ago by British Engineers. During the preliminary investigation carried out by the railway authorities,

it was found that the high approach embankment is made up of pure sand and is confined between the two stone masonry retaining walls.

In order to cross this railway track, there were two options; either to construct a flyover over the existing railway line or to construct an underpass below the existing railway line. The construction of a flyover over the existing railway line was ruled out by the hard pressed authorities i.e., Delhi PWD and Indian Railway due to the exorbitant cost, problems of land acquisition and time constraint at the time of Commonwealth Games.

It was therefore decided to construct an underpass. It was further decided that technique of “Box Pushing” which is now gaining momentum in various civil engineering projects dealing with underground projects be adopted for the construction of an underpass.





Mirza Aamir Baig

Failure of Power Transmission Tower



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The power transmission tower-line system is an integral part of power system. The structure of towers is complex and repetitive; it needs to be commercially competitive. Transmission line tower (TL) failure can lead to severe blackout. Its damage can influence production construction, living order, earthquake relief and loss to life and properties. Tower design is an iterative and interactive process.

The strength of the composing members in tension/compression joints determines the capacity of tower to withstand the design loads. Linear elastic analysis is taken into consideration for the stress calculation in self-supported steel towers. The secondary members included in the tower for slenderness are generally not considered. Since their effect is not much on the forces in load carrying members.

Major Collapse of Transmission Line towers

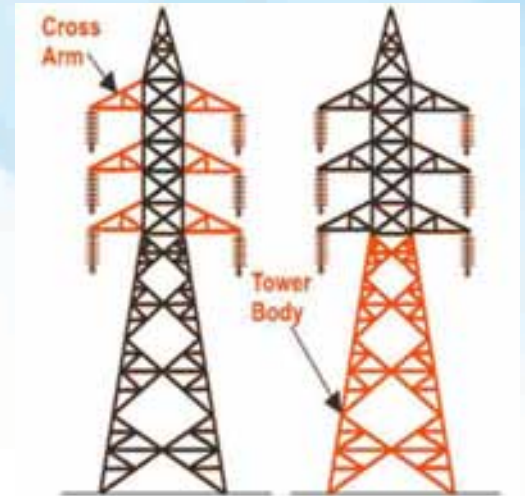
Masts and towers can collapse as a result of natural disasters, such as storms and fires; from engineering defects; and from accidents or sabotage. The overhead transmission lines are subjected to various loads during their life span. For design purposes, all loads can be estimated reliably except for the climatic loads (predominant being wind & ice load), which are dependent on correctness of the meteorological inputs. In Northern Region, the transmission towers are designed as per IS 802-1995, considering wind zone 4 under IS: 875 (part-3)-1987 with wind speed 47m/s and takes into account the recorded cyclones to some extent.

FAILURE OF TOWERS OF VARIOUS TRANSMISSION LINES

Tower line/ year of collapse	Reason for collapse
Meerut – Bhiwani 2014	The towers had failed due to localized cyclone/whirl wind resulting in excessive wind load on towers.
Jhatikalan 2012	The line was designed considering loads for wind Zone-IV and narrow front wind effects. The tower failed due to localized cyclone/whirl wind resulting in excessive wind load on tower
Gaya-Fatehpur 2014	Nine (9) towers have failed from bottom cross arm high wind speed during the storm.
Maithon-Mejia 2015	The towers of this line were designed for wind speed of 47m/sec corresponding to Wind zone-4 of IS:802-1995. collapsed during Construction stage due to local storm
Kaithal-Patiala 2015	It was reported that a high intensity storm followed by rainfall was experienced which caused widespread damage in the area
Bhiwani-Jind 2014	The high speed wind might have caused the failure to tower at location No. 33. The impact loads due the sudden failure, caused secondary failure of towers. High wind speed high speed wind fronts could have formed to cause unprecedented wind loads on towers.
Korba-Raipur 2014	The suspension towers of this line were designed for wind zone-II (Speed 39m/s) as per IS: 802-1995

Analysis of failures

From the preliminary investigation it was brought to the notice that all towers of above lines were designed with narrow base. It was also reported that high velocity localized whirl wind have caused damage to number of trees in the locality near the failed tower locations. A part of nearby wall in agricultural field was also damaged due to the effect of wind. The other transmission line with towers having broad base, which is passing parallel and close to this line was also intact and no damage was reported. Hence it is presumed that the high velocity localized whirl wind, obstructed by the raised compound wall running parallel to above line (near the location of failed towers), might have increased wind pressure further near the tower locations leading to damage of the towers at normal tower level. Most likely, the towers, which were subjected to such whirl wind, have suffered damages whereas the other adjoining towers in the line are found to be intact The



basic wind speed data provided in IS: 875 do not account for other localized high intensity wind condition having narrow front viz tornadoes, hurricanes, localized thunder storms/ dust-storms etc. These are short lived and cover small area but devastation caused for such high intensity winds is very severe.

Recommendations/ Remedial measures to be taken

- Towers of the line were designed as per old code IS:802 (1977) and the wind zone for Delhi area has been changed as per revised code IS: 802 (1995). In view of the above, design of towers in line with latest IS codes and strengthening of members of tower, if required, may be carried out accordingly to avoid reoccurrence of such failures in future and thereby increase the availability of the line.
- The regular patrolling of lines should be carried out to check for missing of tower members. Regular maintenance activities such as chopping of nearby trees to maintain adequate safety clearances, considering MOE & F guidelines, removing the bushes near the foundation area, and coping of chimneys etc. should be carried out.
- For old lines, rusting in members of all the towers (due to exposure to atmosphere over a long period of time) may be checked and painting of the rusted members with Zinc rich paints may be done as remedial measures.
- The holes in the tower members including leg members are to be filled with bolts & nuts to increase the strength of members.
- Material test of the failed tower members should be carried out from recognized NABL approved laboratories / Govt. approved laboratories to assess the quality of steel material used in the tower.

Two students of B. Tech. (Civil Engineering) 7th Semester have been selected in L & T through campus placement as a Graduate Engg. Trainee



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Use of Nanotechnology in Water Purification



Saket Kumar Singh

Clean water is the basic necessity for human and animal existence. It also finds a crucial use in the various industrial processes and agriculture. However, close to a billion people do not have access to safe drinking water. The water scarcity along with pollution of the available water resources also takes its toll on the human life. Each year millions of people lose their lives due to water borne diseases contracted from the consumption of unsafe water.

Water can have humongous amount and variety of pollutants, large and small up to the nano-scale. The process of purification of water consists of either removal or reduction of the concentration of particulate matter, dissolved chemicals, parasites, bacteria, algae, fungi and viruses. Some of which may be pathogenic in nature.

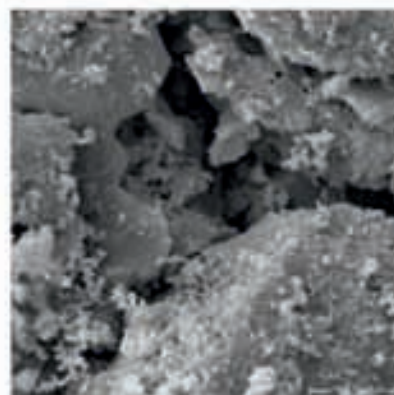
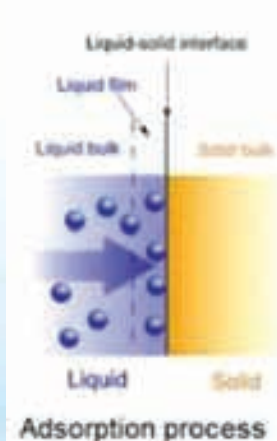
A variety of techniques are being used nowadays for water treatment. Some of which are:chemical treatments, UV treatment filtration Technologies (including membrane filter and reverse osmosis), flocculation.

These methods employed in large scale water treatment plants are heavily expensive, chemically intensive and require skilled engineers and laborers. In the areas too poor or remote to receive centralized

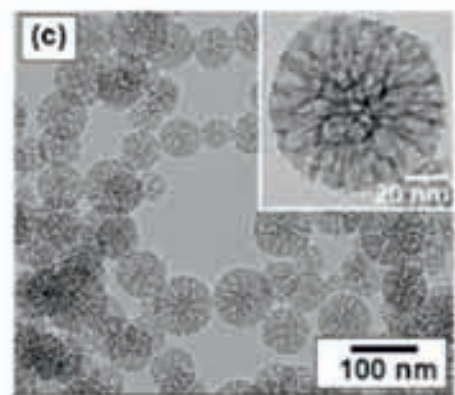
water treatment and in the places where population grows very rapidly and demand outreaches the supply 'point-of-use' water treatment may prove to be more beneficial. When the centralized utilities shut down after occurrence of a natural disaster or when water gets contaminated during the distribution, point-of-use water treatment has a crucial role to play. Namely, the point-of-use water treatment is the purification of water at the point of its consumption. The point of use water treatment must be portable, simple, effective, inexpensive and require meager or no power at all. Some of the commonly used processes are:brita filters, micro filters and chemical treatments (like chlorine tablets or drops, or iodine).

Nanotechnology has opened new avenues for point-of-use water treatment, making it more efficient and effective in removing all the water contaminants. This technology makes use of membranes or nano-filters, that either have nano sized pores, or that utilize nanomaterials(carbon nanotubes) to filter out the contaminants.The nano-tubes act as a kind of molecular filter, allowing smaller molecules (such as water) to pass through the tubes, while contaminants are too large to pass through.Due to their electronic configuration smaller ions that would otherwise pass through are also blocked.

There are other nanotechnologies employed in water



SEM of activated carbon



Nanoporous silica for adsorption

purification everything ranging from nano-sensors to detect contaminants in water, nano particles as treatment agents, to new desalination technologies.

The nano-filter is the most developed and widely used technology for water purification. Some of the nano tech enabled filtration techniques are-

- The Lifesaver Bottle- an ultrafiltration membrane with holes 15 nanometers in size.
- Seldon Technologies Water Stick and Water Box- a 'nanomesh' filter which incorporates carbon nanotubes. The nanomesh allows the water to flow at a higher rate than an ultrafiltration membrane. The microbes and contaminants adsorb on the surface of the CNTs making the water chemical free.
- Electrochemical Carbon Nanotube Filter- a carbon nanotube filter that takes advantage of the electrical conductivity of carbon nanotubes. By using a small power source the filter is electrified. The electrical current kills or degrades the microbes or chemical contaminants, keeping the filter clean for longer time and reducing the need for frequent cleaning of the filter.

Advantages of nano-filtration over normal filtration

- Much less pressure required to move water across filter.
- Much more efficient.
- Filter easily cleaned by back flushing.
- Selective adsorption properties of nanotube surfaces.
- Incredibly large surface area.
- Manmade nanotube membranes allow fluid flow 10,000 to 100,000 times faster than conventional fluid flow theory would predict.

However this technology needs to be designed for mass production. Nano-technology could potentially lead to more effective means of filtration that not only removes more impurities than current methods but also does it faster, more economically and more selectively.





Building a House From Plastic Bottles



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Throughout the world, people are in need of shelter from the elements. This is particularly true in developing countries. Another issue the world is facing is the disposal of plastic bottles. One group is working to address both of these problems by constructing residential homes for the world's poorest individuals out of plastic bottles and mud.

The last time a global survey was attempted – by the United Nations in 2005 – an estimated 100 million people were homeless worldwide. As many as 1.6 billion people lacked adequate housing (Habitat, 2015).[1]



The demand, equivalent to about 20,000 bottles being bought every second, is driven by an apparently insatiable desire for bottled water and the spread of a western, urbanised “on the go” culture to China and the Asia Pacific region. Fewer than half of the bottles bought in 2016 were collected for recycling and just 7% of those collected were turned into new bottles. Instead most plastic bottles produced end up in landfill or in the ocean. Between 5m and 13m tonnes of plastic leaks into the world's oceans each year to be ingested by sea birds, fish and other organisms, and by 2050 the ocean will contain more plastic by weight than fish, according to research by the Ellen MacArthur Foundation.[2]

Waste bottles for construction? Yes, it is difficult to think of a bottle as a brick. But a mud-filled bottle is as strong as a brick and whatever you can do with a brick, you can do with a bottle too..Plus it has got lots of advantages too. This is an effective solution for reusing

the plastic. Bottles have the following advantages over bricks and other construction materials.[3]

- Low cost - You know how much a bottle costs.
- Non-Brittle - (Unlike bricks)
- Absorbs abrupt shock loads - Since they are not brittle, there can take up heavy loads without failure.
- Bio climatic
- Re-usable
- Less construction material
- Easy to build
- Green Construction

When we make a clay brick, the time and energy used right from mixing the clay to baking it in the kiln and taking into account the firewood used for that, you will see that the bottle brick is far more energy-efficient. The technology also reduces the carbon emission

that happens during the baking of an ordinary brick. The heat generation from cement factories can also be reduced as this technology uses only five percent cement. The foundation for the entire construction is obtained from building waste and so the mountains from which granite is blasted out can be saved too. Bottle can last as long as 300 years (undoubtedly longer than the cement used to bind the bottles together in the walls).

The walls are bullet resistant, fireproof, and keeps the inside temperature down to a comfortable degrees even on the hottest summer days. We may used these bottles in construction of house, garden wall, well boundary as well in construction of bunker as it is bullet resistant, we may also use these plastic bottles to making furnitures.



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Death in Air



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November is the month whose thought brings fear among the people of the Delhi.

Every winter Delhi comes under the grip of severe Air pollution.

In fact, over the past few years Delhi has been amongst the most polluted cities in the world.

In 2016, the city witnessed one of the worst periods of air pollution and once again in 2017 the same period is being repeated .

The air quality in Delhi during this period is worst, said an official of a government organisation working to mitigate pollution, even as a thick smog cover that has been looming over the Capital during this period continued to spark fears of health hazards.

Gufran Beig, project director of the System of Air Quality and Weather Forecasting and Research (SAFAR), told that foul air and heavy smog makes it the most polluted period of the season.

SAFAR data showed that the rolling average of PM 10 was $950\mu\text{g}/\text{m}^3$ and PM 2.5 was $590\mu\text{g}/\text{m}^3$. Particulate matters (PM) are tiny particles in the air that cause visibility problems and health hazards. The permissible level of PM 2.5 is $60\mu\text{g}/\text{m}^3$ and PM10 is $100\mu\text{g}/\text{m}^3$. Levels beyond that can cause harm to the respiratory system as the fine particulates can embed themselves

deep into the lungs and enter the bloodstream.

The previous worst was recorded a day ago when the rolling average of PM 2.5 was $485\mu\text{g}/\text{m}^3$ and PM 10 was $790\mu\text{g}/\text{m}^3$.

The Air Quality Index (AQI) across the city on Sunday hovered around 500, according to SAFAR data . Pollution level is classified as severe if the AQI is between 401 and 500. Punjabi Bagh in west Delhi, Anand Vihar in east Delhi, Mandir Marg in central Delhi and RK Puram in south Delhi were among the most polluted areas.

“Winds are coming from north-north west, the areas where biomass burning is taking place.

“Every year, it is usually easterly winds during this time of the year, with occasional western disturbances. This year these north-north-west winds are creating problems,” Beig said.

A new report by the World Health Organisation (WHO) on ambient air pollution levels shows that with very high levels of particulate matter measuring 10 microns or less, Delhi is among the most polluted cities in the world, second only to Riyadh among the big cities.

The report — Ambient Air Pollution: A Global Assessment of Exposure and Burden of Diseases — found that 92 per cent of the world’s population lives in places where air quality levels exceed WHO limits.

CONSEQUENCES -:

An estimated 3 million deaths a year are linked to exposure to outdoor air pollution. In 2012, an estimated 6.5 million deaths — 11.6 per cent of all global deaths — were linked to indoor and outdoor air pollution.

Nearly 90 per cent of air-pollution-related deaths occur in low- and middle-income countries, with nearly two out of three occurring in WHO’s South-East Asia and Western Pacific regions.

Among diseases linked to air pollution are cardiovascular diseases, stroke, chronic obstructive pulmonary disease and lung cancer. Air pollution also increases the risks for acute respiratory infections.

The situation got worse during this year as it caused a huge impact on transportation system, which lead to several huge car accidents in the Delhi NCR region which caused a lot of damage to public and property.

NOW THE QUESTION ARISES -

“WHO IS RESPONSIBLE FOR THIS ?”

Major sources of air pollution include inefficient modes of transport, household fuel and waste burning, coal-fired power plants, fire crackers and industrial activities. However, not all air pollution originates from human activities. For example, air quality can also be influenced by dust storms, particularly in regions close to deserts.

SO IS IT FAIR TO BLAME PUNJAB’S FARMER FOR DELHI RED POLLUTION MAP ?

The Government authorities have said the situation was worsened due to the “large scale” influx of pollutant-laden smoke from farm fires in neighbouring Punjab and Haryana.

WHAT WERE THE STEPS TAKEN TO CONTROL THE SITUATION ?

While Delhi reeling due to pollution since the festival of Diwali, chief minister Arvind Kejriwal announced a string of measures to fight the crisis.

1. All schools in Delhi will remain closed for three days
2. The car-rationing odd-even scheme could be brought back, said Kejriwal, who admitted that the city has turned into a gas chamber.
3. He also announced a five-day ban on all construction and demolition, among other measures. Dust arising out of these activities is one of the big reasons for the rise in PM 2.5 levels.





Rainwater Harvesting



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Water is undoubtedly the most precious natural resource that exists on our planet. Major parts of our country have been facing continuous failure of monsoon and consequent deficit of rainfall over the last few years. Also, due to ever increasing population of India, the use of ground water has increased drastically leading to constant depletion of ground water level causing the wells and tube wells to dry up. In some places, excessive heat waves during summer create a situation like drought. It is imperative to take adequate measures to meet the drinking water needs of the people in the country besides irrigation and domestic needs. Out of 8760 hours in a year, most of the rain in India falls in just 100 hours.

Rainwater harvesting is the accumulating and storing of rainwater for reuse before it reaches the aquifer. It has been used to provide drinking water, water for livestock, water for irrigation, as well as other typical uses. Rainwater collected from the roofs of houses and local institutions can make an important contribution to the availability of drinking water. Rainwater harvesting can ensure an independent water supply during water restrictions. It produces beneficial effects by reducing peak storm water runoff and processing costs. Rainwater harvesting systems are simple to install and operate. Running costs are negligible, and they provide water at the point of consumption. In municipalities with systems, reducing storm runoff is especially important, because excess runoff during heavy storms leads to the discharge of raw sewage when treatment plant capacity cannot handle the combined flow. Sometimes a practice is adopted of directing collected rainwater deep inside the ground through pipes or shafts. Such a practice will carry surface pollutants to the ground water and thus pollute it. The best practice is to store water in ponds, lakes and other unlined surface reservoirs so that the water gets filtered through before entering the ground.

Three basic components of a rainwater harvesting system

Each rainwater harvesting system consists of three basic components:

- (1) Catchment or roof surface to collect rainwater
- (2) Delivery system to transport the water from the roof to the storage reservoir (gutters and drainpipes)
- (3) Storage reservoir or tank to store the water until it is used.

There is Several factors in addition to cost should be considered when choosing appropriate water sources or a specific rainwater harvesting system. Climate (rainfall pattern and rain intensity), technology, socio-economic factors, local livelihood, political system, and organizational management all play an important role in the eventual choice. An essential starting point when considering a rainwater catchment system for domestic water supply is to determine its environmental, technological and socio-economic feasibility.

Is rainwater harvesting suitable for me?

To find out whether RWH is suitable for your situation, several critical issues need to be considered. The design of a RWH system is determined by several factors:

- the number of users and their consumption rate (multiple uses)
- local rainfall data and rainfall pattern
- user regime of the system (occasional, intermittent, partial or full)
- roof catchment area (m²)
- run-off coefficient (this varies between 0.5 and 0.9 depending on roof material and slope) atmospheric rainwater is very pure and any contamination of the water usually occurs after contact with the catchment system. In rural areas rainwater

is generally unpolluted and pure before reaching the ground. It is also in these areas that rainwater from roof catchments is most commonly used for drinking. Rainwater from well-maintained roof catchments is generally safe to drink without treatment. Except in heavily urbanised and industrialised areas or regions adjacent to active volcanoes. Regular cleaning and inspection of the catchment area and gutter are important to ensure good water quality.

The first rains should be used to flush away the dust, bird droppings, leaves etc. that lie on the roof surface. To prevent these pollutants and contaminants from getting into the storage tank, the first rainwater containing the debris must therefore be diverted or flushed away.

A certain degree of microbiological and chemical contamination of roof rainwater run-off is inevitable. It will, however, generally not cause any health

problems if the roof, gutters and storage are properly maintained and regularly cleaned and inspected.

It is very important to make water everybody's business. It means a role for everybody with respect to water. Every household and community must become involved in the provision of water and in the protection of water resources. Make water the subject of a people's movement. It means the empowerment of our urban and rural community, i.e., to manage their own affairs with the state playing a critical supportive role. Further involving people will give the people greater ownership over the water project including watershed development, Soil and Water conservation and water harvesting will go a long way towards reducing misuse of government funds. It will also develop the ownership (own water supply systems), they will also take good care of them. In this way, it is possible to solve water problems facing the county in the 21st century.

**Topper of B. Tech Civil 6th
Semester 10 CGPA**



Mohd. Zakir



EVENTS

**Two days Workshop on
“Inclusive City” conducted by
Civil Engg. Deptt on
Dec 19-20, 2016**



**One day workshop on Yamuna
Water Quality was organized by
Department of Civil Engineering
on 6th April 2017.**



ASCE chapter conducted inaugural program in the department of civil engineering with the under graduate students of the department.

ASCE-JMI International Student Chapter organised an Orientation Ceremony on 12th October, 2017 to acquaint the new members with the legacy. The programme took place under the abounding cooperation and accomplished guidance of honourable Chief Patron Prof. Mehtab Alam, Dean, Faculty of Engineering and Technology, JMI; respected Patron Prof. Gauhar Mahmood, Head of Department, Civil Engineering, JMI; Branch Counsellor, Mr. Ibadur Rehman and all the esteemed faculty members of Department of Civil Engineering.

Mr. Satish Kumar Vij, President, ASCE-India Section graced the occasion with his pertinent presence as the Chief Guest.



**An International Seminar on
Water Pollution and Health was
Organized by the Department
of Civil Engineering on 27-28
July 2017.**



Department of Civil Engineering has organized “Swachh Pakhwada” successfully w.e.f sept. 1-15, 2017 under the Dynamic Leadership of Prof. Gauhar Mehmood and Prof. Asif Husain.

Swachh Bharat Abhiyan is a swachh Bharat mission led by the Government of India to make India a clean India. This campaign was launched officially by the government of India on 145th birth anniversary of the great person, Mahatma Gandhi on 2nd October, 2014. It was launched at the Rajghat, New Delhi. The government of India has aimed to make India a clean India by 2nd October 2019 (means 150th birth anniversary of the Mahatma Gandhi) through this campaign and inspired by the patriotism. It is launched as a responsibility of each and every Indian citizen to make this country a swachh country. This campaign has initiated people globally towards the cleanliness. Teachers and students of schools, colleges and University are joining this “clean India campaign” very actively with great favour and joy. Likewise, in our Department many initiatives were taken to fulfil the mission of Swachh Bharat Abhiyan.



Visit under academic exchange Programme between Department of Civil Engineering, JMI and University of Applied Sciences, ERFURT (FH- ERFURT) Germany, 22-29 SEP 2017.

The Department of Civil Engineering, Jamia Millia Islamia has an academic exchange programme with University of Applied Science, Erfurt, Germany. It is one of the most successful International Exchange Program between JMI and a foreign university, which is being successfully implemented since 2005 under the MOU between the two universities

It is among one of the most active MoU's of the University under which Twelve Batches of students and teachers from both the sides have visited India/Germany to work on the stability studies of the monuments in collaboration with Archeological Survey of India. The students from Jamia were privileged to get training in the specialized laboratories of University of Applied Sciences, Erfurt. Further, this MoU also provides an opportunity to students of both collaborating countries to explore the social and cultural aspects of each other.



Group of visiting German students and professors with professor and students of Jamia at Taj on September 23, 2017

Following the felicitation ceremony a light dinner was enjoyed by all.



Prof. Mehtab Alam, Dean, presenting memento to Prof. Christian Stangenberger



Dinner in the lawns of Deans's office

The entire program was a huge success and students and professors of both the universities made cherish able memories.

B.Tech. Civil 7th Semester students visited CRRI on oct 12, 2017 alongwith learned Prof. Farhan A. Kidwai and Prof. Shamshad Ahmed.

Students learned various latest techniques used in roads and highways construction. They also exposed with latest lab equipments and their



Two days Jamia Taleemi Mela was organized on oct. 29-30, 2017. Various cultural and academic programs alongwith Jamia tarana and National Anthem was recited enthusiastically by students and staff.



A Survey camp for B. tech. (Civil Engineering)

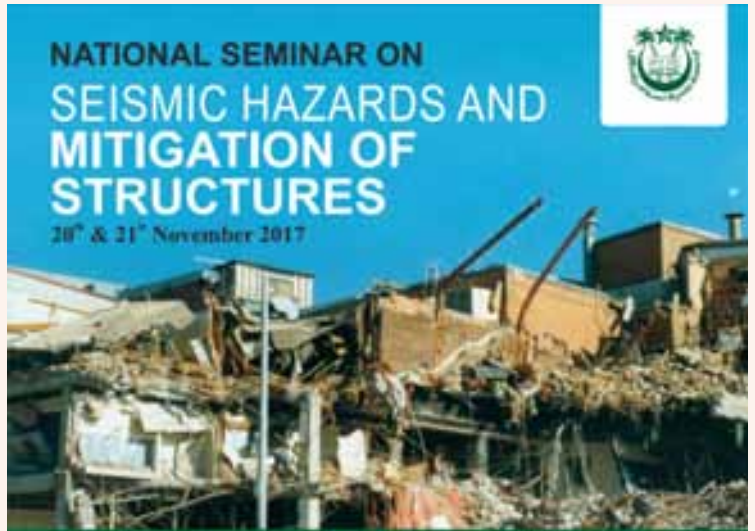
5th semester students

A Survey camp for B. tech. (Civil Engineering) 5th semester students was organized by the Department at Kullu Manali, Himachal Pradesh, with effect from October 27 -31, 2017 under the able leadership of Prof. Gauhar Mehmood and Prof. Shamshad Ahmad. Almost 80 students have attended the camp and worked on latest equipments such as Total Station, Theodolite, Plane Table, Dumpy Level, and draw the countouring and down the the topography of the ground on the sheet using the latest computer software. The camp was much appreciated by the dean and all the faculty members. Students worked very sincerely and a token of appreciation was granted to them.



National Seminar

Department of Civil Engineering has organized a two days national seminar on Seismic Hazard and Mitigation of Structures on Dated 20th and 21st November 2017. Prof Chandan Ghosh from Ministry of Home Affairs, Govt. of India has presided the seminar and presented valuable research paper, also delivered a Key note address. Many reputed professors from IIT Delhi, IIT Ropar like Prof. T. K. Dutta, Prof. Bhardwaj, Prof. Halder, Prof. Mehtab Alam, Prof. Gauhar Mehmood have delivered the key note addresses.



جامعہ کا ترانہ

دیار شوق میرا شہر آرزو میرا

اچھے تھے سن کر جو آواز بہان واپن
اسی نے ہوش کو بچھا جنوں کا پیراہن
کدول کے داغ کو کس طرح رکھتے ہیں روشن

ہوئے تھے آکے ہمیں خیر دن وہ دو جانے
ہمیں سے شوق کی بے ریلوں کو رہا ملا
ہمیں سے اللہ سحر کو یہ سراغ ملا

دیار شوق میرا شہر آرزو میرا

یہاں کی صبح نرالی، یہاں کی شام نئی
یہاں کے جام سے طرح قہس جام نئی
یہ ہم دل سے یہاں کی مسائے عام نئی

یہ اہل شوق کی بہتی یہ سر پھروں کا دیا
یہاں کے زم و رہ سے گئی جدا سب سے
یہاں پہ تکتے جی سے نشئی کا حاصل ہے

دیار شوق میرا شہر آرزو میرا

یہاں پہ قبلہ ایمان کعبہ دل ہے
یہاں پہ راہ روی خود حصول منزل ہے
کنار موج میں، آسویگی ساحل ہے

یہاں پہ شیخ ہدایت ہے صرف اپنا ضمیر
سڑے دین یہاں، کفر ہے قیام یہاں
شاہری کا تحفہ نو ہے نو طوفان

دیار شوق میرا شہر آرزو میرا



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