



AADHARSHILA

A Bi-Annual Newsletter of the Department of Civil Engineering
Assam Engineering College

Inside this Issue

INSIGHT

International Collaboration Project on Seismic Risk Reduction between Assam Engineering College (AEC) and NORSAR, Norway 3

AEC-ASDMA Project School & Hospital Safety Project
Status Survey of Schools and Hospitals in Guwahati
Structural and Nonstructural Vulnerability to Earthquake, Wind, Flood & Fire 3

Civil Engineering Projects at a Glance 4

FACE OF THE ISSUE

An interview with Dr. P.K. Bora 5

PERSPECTIVE

Cross-boundary Research in Civil Engineering 6-7

Towards a Safer, Efficient Transportation System for the city of Guwahati 8

EVENTS

A report on the Geotechnical symposium organized in Assam Engineering College 9

ACCOLADES

Achievements and Publications 10

CATALYST

Information for students 11

STUDENT'S SPEAK

12

Principal's Message

It gives me immense pleasure to learn that the Civil Engineering Department, Assam Engineering College is coming up with its first issue of the bi-annual departmental Newsletter titled AADHARSHILA. I hope it will help in creating a healthy environment for the students. I wish them all the success for the future issues to come.

Dr Atul Bora
Principal
Assam Engineering College

Message from the HOD, Civil Engg. AEC

It gives me immense pleasure to inform you that the Civil Department of Assam Engineering College is going to publish the maiden issue of the newsletter titled 'Aadharshila'. I, as the Head of the Department of Civil Engineering, AEC, would like to extend my best wishes to all those who were involved in publishing the newsletter and wholeheartedly wish for its success. However, I hope this wonderful tradition would be continued and carried on by all the batches to come.

Prof N.N. Patwari
Head of the Department
Civil Engineering
Assam Engineering College





Editorial

At the very outset, I, on the behalf of the student fraternity of the department of Civil Engineering, Assam Engineering College, would like to extend the heartiest season's greetings to all and sundry. As the editor of this inaugural edition of the Newsletter, I feel very fortunate to have been a witness to this noble endeavour. This started out as a dream, like any other job that requires meticulous attention and constant perseverance of those involved. But the effort and dedication of a lot of people, helped in the materialization of this dream.

The chronicling of the glorious legacy of the department, led me and my friends through the majestic past of the department, and the discoveries made along the way were immensely rewarding, to say the least. Hence, what started out looking like a tedious job, turned out to be a most charming and pleasant walk down the memory lane.

A treatise detailing all the events that occurred during the entire period of existence of the department, is surely not possible and probably, not feasible too. Hence, in this edition we have tried to provide merely a bird's eye view of the activities of the department, and the domain of Civil Engineering, as a whole.

Here, I would like to take the opportunity to express my heartfelt gratitude to the people who made the journey of this newsletter from our minds to the press, possible. First of all, I would like to express my sincere gratitude to Dr. Atul Bora, The Principal, Assam Engineering College and Prof. N. N. Patwary, Head of the Department of Civil Engineering, Assam Engineering College. Then, I would like to thank all the respected Faculty Members and also all the members of the Non-Teaching Staff of the Department, who always supported, motivated and inspired us, at every step. I would also like to thank the Library Staff of the Assam Engineering College Library. Last but not the least; I would like to express my gratitude towards my fellow members of the Editorial Board, who had helped me in this endeavour. The process for publishing the newsletter has been a collective effort from day one, and the input of every single member, has contributed to how this newsletter has shaped up.

Assam Engineering College was set up in 1955, and at that time, it was a Civil Engineering College. Hence, this department has a legacy as old as the college itself. This department has stood still through time, being a witness to a number of milestones. It has also always been a pioneer when it comes to any new development in the field of education in Civil Engineering, in the entire region. Apart from that, the department has always been a pioneer with regards to any new development or endeavour in Assam Engineering College as well, and has been a constant contributor to the upliftment of the College as a whole.

The idea of publishing a newsletter is a result of the analysis of a number of factors. The thought first came to our minds last autumn. The most important consideration was the lack of interest among our students for pursuing a career in research. The number of our students who eventually do take up research as a career option, is very less when compared to the numbers pertaining to other Engineering Institutes of national repute. This nonchalance regarding research might have its roots in a number of factors, the most possible assumption being: - a lack of knowledge regarding the possibilities of research, and the myriad new horizons that it brings forth. Hence, this newsletter strives to provide an insight into the plethora of vistas that open up in the areas of interest and the vast amount of work being done in the field of research by the faculty members and the students of this department.

I hope our efforts have been fruitful in providing an overview of this department, and that this newsletter sees the light of the day for many more years to come. With a fervent prayer in my heart for its success, I would like to present this newsletter to all the people associated with Assam Engineering College.

- Abhinav Bhattacharyya



AADHARSHILA

President	: Prof. N.N. Patwari
Prof-in-Charge	: Dr. Bibhash Sarma
	: Dr. Malaya Chetia
Editor-in-Chief	: Abhinav Bhattacharyya
Deputy Editors	: Kuldeep Kaushik
	: Ritukesh Bharali
Members	: Preetish Kakoty
	: Rimjhim Kashyap
	: Priyanka Kotoky
	: Priyanka Deka
	: Jyotishman Lahkar
	: Tsangpo Luit Kashyap
	: Chinmoy P. Choudhury
	: Bhushan Deuri
	: Manish Dutta
	: Tapasranjan Das
	: Amitranjan Barman

Advisory Committee :

Dr. (Mrs) Binu Sarma
Dr. Palash Jyoti Hazarika
Dr. Jayanta Pathak
Dr. Bipul Talukdar
Dr. Diganta Goswami
Abinash Mahanta

External Advisory Committee :

Dr. Achintya Nayan Bezbaruah
Nayan Jyoti Pathak
Rituraj Nath
Achintyamugdha Sharma
Banajit Debnath

<http://www.facebook.com/aadharshila.civil.aec>

WRITE TO US

Send us your comments/suggestion about the newsletter and the initiative. You may send the feedback to newsletter.civil.aec@gmail.com

Or contact us

Abhinav Bhattacharyya
abhi.jor2@gmail.com
Kuldeep Kaushik
kuldeepalbert@gmail.com
Ritukesh Bharali
ritukesh.bharali@mail.com

The prime objectives of the newsletter are-

- To showcase the illustrious history of the Civil Engineering Department.
- To highlight the recent developments and events of the Department.
- Develop and encourage an interest in the research field among students of the Department.
- To introduce the students to better opportunities and prospects in national and international platforms.
- To connect with the alumni and make them a part of the greater Civil fraternity of A.E.C.



INSIGHT

International Collaboration Project on Seismic Risk Reduction between Assam Engineering College (AEC) and NORSAR, Norway

Dr. Jayanta Pathak

Prof., Civil Engg

Assam Engineering College

The Department of Civil Engineering, Assam Engineering College (AEC) has entered in to an International Collaboration with NORSAR, NORWAY for the Earthquake Hazard and Risk Reduction on the Indian Subcontinent (EQRisk) Project. NORSAR is an independent geo-scientific research foundation established in 1968, specializing in software solutions and research activities within applied seismic and seismology. NORSAR operates some of the world's largest seismological observatories, and has more than 40 years of experience in developing and supporting seismological data processing and analysis schemes.

The RRISC project represents a continuation of NORSAR activities on earthquake-related R&D works in India. The project is subdivided into three regional chapters: Northeast Indian

(Assam) and Bhutan, which will be coordinated by Assam Engineering College, Peninsular India (Bangalore), which will be coordinated by CMMACS, Bangalore and Northern India (Uttarakhand and Himachal Pradesh), which will be coordinated by IIT Roorkee.

The Department of Civil Engineering, AEC will work on preparation of building classification scheme for Northeast India, risk and loss scenarios for selected (urban and rural) test beds, identification of weak structural and nonstructural components, strengthening and retrofitting suggestions for the same. The project is being coordinated by

Dr. Jayanta Pathak, Professor, Department of Civil Engineering from AEC and Dr. Dominik H. Lang, Research Engineer from NORSAR.

The project will facilitate technology transfer and training on the CRISIS and OpenSHA packages, software transfer and training on the SELENA-RISe Open Risk package as well as other risk software (e.g. CAPRA) and finite element modeling software (e.g. SAP2000, OpenSees) for the students and research workers from Assam Engineering College and other participating institutions of India.

AEC-ASDMA Project School & Hospital Safety Project Status Survey of Schools and Hospitals in Guwahati Structural and Nonstructural Vulnerability to Earthquake, Wind, Flood & Fire

The Govt of Assam through ASDMA has initiated effort to increase the seismic safety of schools in order to prevent damage and to protect students from injury or loss of life. The schools and hospitals are being surveyed and studied to increase their safety against various possible disasters. ASDMA has partnered with the Department of Civil Engineering, Assam Engineering College to survey the status of schools and hospitals in Guwahati city for their vulnerability against multi hazard. The objective includes survey of the status of vulnerability to possible hazards namely Earthquake, Wind, Fire and Urban Flood in Guwahati. A status report about the schools

and hospitals of the city will help the authority to plan and prioritise restoration, retrofitting work against multi hazard vulnerability.

Rapid Visual Screening (RVS) of existing school and hospital buildings are completed for more than 700 schools and more than 60 hospitals area wise in the city of Guwahati. The data generated have been collated and quantified to map vulnerability and risk index the schools and the hospitals. A status report has been presented with structural and nonstructural vulnerability index for schools with colour coded vulnerability index bar for individual schools. The exposure level and preparedness level of hospitals are studied and also presented. The school vulnerability data have been presented ward wise for ward level disaster management work plan.



Dream big and dare to fail - Norman Vougan



Civil Engineering Projects at a Glance

Scheme	Name of the coordinator	Amt. sanctioned		Sanctioned letter details	Funds Utilization position as on today	Utilization Certificate details/ Reason for non-submission of Utilization Certificate
		NR	R			
MODROBS(AICTE): Modernization of Hydraulics Laboratory	Prof. N. N. Patwary	14,62,000/-	Nil	8024/RIFD/MOD(NER)-02/2011 -12 dated 21/2/2012	Ongoing	
MODROBS(AICTE): Modernization of Transportation Engg. Laboratory	Prof. N. N. Patwary	14,96,000/-	Nil	8024/RIFD/MOD(NER)-03/2011 -12 dated 21/2/2012	Ongoing	
RPS (AICTE): Mathematical modeling of an erosion effected reach of River Brahmaputra	Dr. Utpal Mishra	18,00,000/-	Nil	8023/RID/RPS - 1/(POLICY-III)(NER)/2011 -12 dated 13/2/2012	Ongoing	
RPS (AICTE): Evaluation of Scour depth around Bridge Pier	Dr. Bipul Talukdar	14,68,795/-	Nil	8022/RID/RPS - 2/(NER)/2011 -12 dated 20/3/2012	Ongoing	
ASDMA (Assam State Disaster Management Authority): Vulnerability Assessment of School & Hospital Buildings of Guwahati City	Dr. J. Pathak	56,00,000/-	Nil	2010-11	Ongoing	
RPS (AICTE): Technology development for seismic Vulnerability Reduction of Traditional & Conventional housing of Rural areas	Prof. N. N. Patwary	14,00,000/-	Nil	2010-11	Ongoing	
RPS (AICTE): Development of an Urban Built Environment & Life line Structure information system for Earthquake Hazards mitigation	Dr. J. Pathak	13,50,000/-	Nil	2010-11	Ongoing	
FIST (DST)	Dr. Bipul Talukdar				Ongoing	
RPS (AICTE): Rapid Identification of Anomalous Piles using Pile Integrity Test	Dr. U. K. Nath	5,00,000/-	Nil	2008-09	Full Fund utilized	Project completion report Submitted
MODROBS (AICTE): Modernization of Surveying Laboratory	Prof. N.N. Patwary	14,32,000/-	Nil	2008-09	Full Fund utilized	UC submitted



■ FACE OF THE ISSUE

An interview with Dr. P.K. Bora

Abhinav Bhattacharyya
Preetish Kakoty

Dr Padma Kanta Bora, is a noted academician, a skilled Civil Engineer and a researcher who has been associated in the field of civil engineering for almost half a century. Born on 1st December, 1937, at Nagaon, Dr Bora completed his graduation in Civil Engineering at Assam Engineering College in 1960. He then pursued his M.Sc and the PhD degree from Birmingham University, U.K. in the year 1965 and 1968 respectively. Dr Bora joined PWD for a small period of time and then joined Assam Engineering College as a lecturer. After 35 years of stay as a faculty in Civil Department, Bora retired as the Head of the Department, AEC in the year 1995. Dr Bora has his research interests in Highway, Traffic Engineering and soil mechanics and has in his credit a number of research papers in National and International Journals.

Q1. How did your journey in the field of Civil Engineering begin?

Ans – The beginning of my journey in the field of Civil Engineering is quite interesting. I got myself admitted as an engineering student in 1955 after my 10+2 standard which was known as ISE at that time. That was a time when the state was suffering from acute dearth of engineers. Lot of work was to be done but there were not enough engineers to carry out the projects; so government hurriedly granted an engineering college for the state of Assam and although the normal practice is to have land acquisition, building construction and other infrastructure before the starting of a college, all these things were skipped and the engineering college was hurriedly established at the Assam Engineering Institute, Chandmari. The name of the college was given as Assam Civil Engineering College, so I did not have any option other than pursuing the course on Civil Engineering. There was not even electricity in our hostels and we studied in the evenings and nights under the light of hurricane lamps.

Q2. How has the Civil Engineering Department evolved during your tenure?

Ans – The Civil Engineering Department of Assam Engineering College has come a long way from its humble beginnings to evolve as a fully equipped engineering department offering undergraduate, post graduate and doctorate degrees. When I started out as a student, there were a total of 72 students in our batch. There was acute dearth of laboratory facilities, workshop facilities, engineering teachers and even the affiliation from the University was not obtained. These difficulties extended our tenure at the college as a student from 4 to nearly 5 years. After the college was shifted

to Jalukbari, gradually there were corrections of these deficiencies. So I have seen the full journey of the Civil Engineering Department from almost nothing to a fully functional department with the introduction of Masters Course and PhD Course.

Q3. What is your view regarding the initiative of publishing a newsletter from the department?

Ans – It is a good move but I would advice you to be careful about the content of the newsletter. It should conform to a particular standard and consistency is of utmost importance as the publishing of the newsletter should be continued regularly.

Q4. Since you have been associated with academics and research field for decades now, what would you suggest for the development of the research awareness among undergraduate students?

Ans – Research awareness among undergraduate students is an interesting topic because till the completion of undergraduate studies, a student's capacity to memorise and a good handwriting are powerful allies in taking him to the goal. But in matters of research, these two factors are not of so high an importance. Instead, what comes as more of importance is an enquiring mind capable of doing rational analysis of facts and data. This sudden difference that a student has to encounter is sometimes found to be a difficult one. I have found from my own experience, research aims at finding something new and useful that did not exist before. For this, the fundamental requirement is an enquiring mind which does not have much scope to flourish in undergraduate studies where the emphasis is to collect class notes and reproduce them in the examination. There

must be passion for research. Research has both agonies and ecstasies. When the researcher faces agony, his passion will go on helping him to surmount the difficulty.

Q5. Living in the North-eastern part of the country, do you think it is difficult to conduct research at an international scale considering there is limitation of resources?

Ans – I think there is no reason whatsoever to think so. I have found it from my long experience as Head of the Department of Civil Engineering at AEC that finance is never a problem in conducting research activities. I have been shuttling between Guwahati and Delhi on many occasions in connection with getting grants from the Educational Department of Central Government. Authorities of the department have always been telling me that research proposals or laboratory improvement programmes do not usually come from state engineering colleges and especially from Assam. I was repeatedly asked to convey it to my colleagues so that more research proposals and more requests for money could be made. Rather than having a problem on deficiency, I infact had a problem of having in plenty.

Q6. What is your message to current and upcoming students of the Civil Engineering Department, Assam Engineering College?

Ans – My message to the current to the upcoming batches is that they should maintain sincerity at studies and later at work in the field so that they can bring prestige to themselves as well as to the state. As I stated before, an enquiring mind combined with hardwork is needed for success.

Great spirits have always encountered violent opposition from mediocre mind - Albert Einstein



Cross-boundary Research in Civil Engineering

Achintya N. Bezbaruah, PhD
Asst. Professor
North Dakota State University

Is Civil Engineering confined to structures, waters, and soil? Can a civil engineer work on a food safety project and use his civil engineering knowledge to produce fundamental data related to the impacts on nanoparticles on spinach (Scientific name *Spinacia oleracea*, vernacular paleng saak) and rice (scientific name *Oryza sativa*, vernacular dhan)? Cross-disciplinary research is what will take us to the next level and keep engineering as a relevant topic in the future world. At least so thinks Dr. Achintya Nayan Bezbaruah, a faculty member at North Dakota State University (NDSU) in the United States. An AEC Civil Engineering alumnus of the class of 1987,

undergraduate and about 70 graduate students actively pursuing their degrees.



NRG members, 2012 (Photo credit: NDSU)

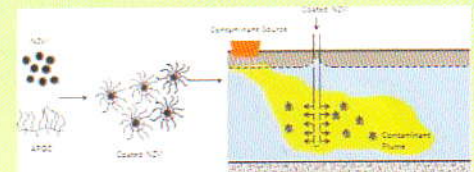
Krajangpan and Harjyoti Kalita, who recently got their PhDs worked on the development of new polymeric surface modifiers to coat nanoscale zero-valent iron (NZVI). Such surface modifications make it easier to delivery of zero-valent iron into the aquifer for groundwater remediation. The work by Dr. Kalita and Dr. Krajangpan has led to two industrial patents for the polymers and polymer coated nanoparticles. A few of the researchers are exploring interactions of NZVI with endemic microorganisms and encapsulation of NZVI/microorganisms in biopolymer beads and capsules. The group's most recent graduate Dr. Talal Almeelbi worked on aqueous phosphate and selenium removal and recovery and how to make the recovered nutrients bioavailable to plants. This research has led to two more patents and the group is presently negotiating with an industry for the commercialization of the technologies. The group has so far graduated three master's and three doctoral students.



(Photo credits: NDSU)

Dr. Bezbaruah's Nanoenvirology Research Group (NRG) is presently spearheading NDSU's environmental nanotechnology research from a life-cycle perspective. Nanotechnology is an emerging area that deals with materials which are smaller than 100 nm (10^{-9} m) at least in one dimension. Nanomaterials have amazing physico-chemical properties not found in their bulk counterparts, and these unique properties have made nanomaterials immensely popular in biomedical applications, sensing, electronics, consumer products, and paint industry. Nanotechnology is said to be 'the next big thing' after industrial revolution and the advent of electronics. Fortunately, researchers are acting proactively to look into the darker side of nanotechnology which was not the case with industrial revolution and electronics. NRG researchers at NDSU experiment with greener production of nanomaterials, looking into impacts of various nanomaterials on ecosystem components, and developing novel technologies for contaminant removal using nanotechnology. Starting with a couple of students in 2005, the group now has fifteen student researchers working on various topics related to environmental nanotechnology. This new area of research needs multi-disciplinary problem solving approach and collaborations with other researchers. NRG has collaborations within civil engineering and with polymer science, plant sciences, biology, microbiology, genetics, and material sciences. Two of Bezbaruah's students, Sita

Bezbaruah was a teacher in Assam Engineering College from 1988 to 1999. With a master's degree from the prestigious Indian Institute of Technology-Bombay, he left his AEC job in 1999 to pursue a doctoral degree in Civil Engineering from the University of Nebraska at Lincoln (UNL, USA). His doctoral dissertation research was on rhizosphere microenvironmental studies wherein he studied wetland plants as engineering components to treat municipal wastewater. After his graduation from UNL, he worked for URS Corporation, one of the largest engineering consulting firms in the world, on groundwater modeling and remediation, and then joined NDSU in 2005. North Dakota State University is a student-focused, land-grant, research university, and is among the nation's top 108 public and private universities in the Carnegie Commission on Higher Education's elite category of "Research Universities/Very High Research Activity." Civil Engineering Department at NDSU is among the top 100 civil engineering departments in terms of National Science Foundation's research dollars, and has more than 650



Schematic of polymer coated nanoparticle application developed by NRG for groundwater remediation (Photo credit: Environmental Science & Technology, 2012)

With an extensive set of research data, patents, and publications, the group has been successful getting two major federal research grants. The two-year \$175,000 National Science Foundation (NSF) grant has Bezbaruah as the sole investigator. The target contaminants in this NSF research are phosphate, selenium, sulfate, arsenic, and trichloroethylene. **One of emphases of this work is to examine the bioavailability of some of the nutrients and micronutrients adsorbed onto the nanoparticles. The other major grant with Bezbaruah as the principal investigator is on food safety** (vis-à-vis nanomaterials). The interdisciplinary and inter-institutional team for this project includes researchers from NDSU and South Dakota State

After the game, the king and the pawn go to the same box - Italian Proverb



University. The three-year \$500,000 National Institute of Food and Agriculture-United State Department of Agriculture (NIFA-USDA) grant will investigate plant-nanoparticle interactions at molecular level. The plantspecies to be studied in this NIFA-USDA project are rice and spinach, and nanomaterials selected are zinc oxide and carbon nanotube.

For the graduate students, work at NRG is a rich experience as they not only work on their own research but also mentor undergraduate and high school students in nanotechnology research. Such collaborations and mentorships have led to high quality research at NRG. One of the undergraduate students (Juan Elorza, an exchange student from Spain) has the unique distinction of being one of the co-authors of a major journal paper. Five undergraduate students are presently involved with NRG. Students from West Fargo High School are also working

alongside the graduate students and exploring frontiers of nanotechnology. Most of the graduate students in NRG are recipients of internal fellowships while Seydou Cisse is a Fulbright Scholar and Talal Almeelbi had a fellowship from Saudi Arabia. Nanoenvirology Research Group members also volunteer their time for outreach activities which include planning and implementation of nanotechnology teaching modules for the seventh grade students at West Fargo STEM Middle School (North Dakota, USA), and offering hands-on introductory classes on nanotechnology for area elementary and middle school students. The primary objective of the outreach programs is to entice young students to higher studies and careers in science, technology, engineering, and mathematics (STEM).

Being an alumnus of Assam Engineering College, Bezbaruah would like to collaborate with faculty and students from

AEC. He feels that there are opportunities to work on teaching techniques, graduate and undergraduate research, and outreach to local communities. North Dakota State University willingto offer courses at AEC via video and the Internet, and joint doctoral degrees are possible in the long run. Nanoenvirology research group is involved in global capacity building in environmental nanotechnology and is offering a workshop on bionanotechnology at Assam Agricultural University (Jorhat) in February 2013 and looking forward to more such capacity building efforts across the globe. Bezbaruah writes, "I had the most fun in academia at AEC both as a student and a faculty, and it would be nice to continue the fun experience through more frequent academic and research interactions."

SILLY MOMENT



Do not follow where the path may lead. Go instead where there is no path and leave a trail - Harold R. Mc Alindon



Towards a Safer, Efficient Transportation System for the city of Guwahati

Nayan Jyoti Pathak

Researcher and Systems Developer
Traffic Operations and Safety Laboratory
University of Wisconsin Madison, USA
pathak2@wisc.edu

Guwahati city has seen massive increase in population over last couple of decades. Along with that the city has also seen an exponential growth in number of motor vehicles and vehicle traffic. The transportation infrastructure has grown more in an organic fashion as opposed to a planned manner. In addition, enforcements are loosely imposed. As a result, our transportation system is suffering and it's far from being efficient. Immature, untrained and hasty drivers are making the situation worse. Needless to say our transportation system is unsafe both for commuters and pedestrians alike. This article brainstorms about few possible measures that might improve the present situation.

Better Commuter Solutions: Currently, Guwahati does not have decent public transportation options. Commuter options are limited to private buses, trackers and auto rickshaws. This encourages people to travel by their own private vehicles, which lead to more traffic. Better commuter solutions such as light rail and luxury coaches will encourage people to use more public transport thereby reducing the number of vehicles on the road.

Increased one-way traffic: For a city like Guwahati that has grown without much planning, it's very difficult to increase the available roadway width. Increasing the amount of one-way traffic wherever feasible may streamline the vehicle flow to a considerable degree thereby increasing the drivable roadway. This may lead to a situation where commuters will need to drive longer distances to reach their destinations. Therefore, feasibility studies are must before any implementation.

Census	Guwahati Population	% Growth
1901	11661	
1911	12481	7.03
1921	16480	32.04
1931	21797	32.26
1941	29598	35.79
1951	43615	47.36
1961	100707	130.90
1971	123783	22.91
1981	268945	117.27
1991	584342	117.27
2001	809895	38.60
2011	968549	19.59

No parking by roadside during peak hours: About half of Guwahati roads are filled

with parked cars anytime during the day. This reduces the drivable roadway substantially. In many situations the only way to overtake a car is to move to the oncoming traffic lane, which may lead to fatal crashes. Declaring no parking during rush hours may improve the situation to a considerable extent.

Introduction of dedicated bicycle lanes: Bicycles are the cleanest mode of transport. In addition, it involves physical activity; therefore it has a lot of health benefits. However, in a city like Guwahati commuting in bicycles is intimidating due to lack of dedicated bike lanes. Introduction of bicycle friendly lanes will encourage people to take advantage of this great mode of commute. Ability to carry bicycles in public commute such as light rail and buses will encourage people to use bicycles as a mode of transport. This will lead to a cleaner environment, reduce traffic and a healthier community.

Keeping footpaths obstacle free: Often, Guwahati's footpaths are full of obstacles such as building supplies, trash and small businesses. Pedestrians require to maneuver through the obstacles and often need to walk on the street. This has safety concerns. Keeping footpaths obstacle free is important for pedestrian safety.



Hands free calling only: With increasing number of connected devices, people are more distracted than ever in human history. Using cell phones and other devices while driving is one of the biggest causes of road accidents. Allowing hands free calling only and declaring no-phone zones will reduce distracted driving thereby improving public safety.

Traffic Safety Education: Guwahati's vehicle count has increased many folds during the last couple of years. Unfortunately, citizens are not well prepared for this enormous change. Traffic safety education is a must for both drivers as well as pedestrians. Clear traffic signs and guidelines would reduce confusion among people. With informed preparedness Guwahati can achieve a efficient and safe transportation system.

Success does not consists in making blunders, but in never making the same one a second time - Josh Billings



■ EVENTS

A report on the Geotechnical symposium organized in Assam Engineering College

On the 13th of October, 2012, a daylong national symposium on “Ground Improvement Techniques with reference to North-Eastern Region” was organised by Indian Geotechnical Society, Guwahati Chapter in association with Civil Department, Assam Engineering College under the chairmanship of Dr(Mrs) Binu Sarma and secretary Dr Utpal Barua. The keynote address was delivered by Dr T.Sanyal, chief consultant to the Ministry of Textiles, Government of India. The seminar was attended by various eminent personalities, faculties and students from

various organisations and institutions. Presentations were made in reference to the theme of the workshop by Dr A.Murali Krisna, Dr Arindam Dey, Dr D.Goswami, Er Raju Sonowal, Mr A.N.Singh and many others . The concluding session was presided over by Mr.Mohan Boro, Commissioner of PWD, Government of Assam



A glimpse of the national symposium

In a gentle way you can shake the world - Mahatma Gandhi



Achievements and Publications

PhDs conferred

1. **Dr. Malaya Chetia:** "A study on measuring methodologies and critical parameters influencing soil suction- water content relationship."

Guide- Dr S.Sreedeeep.IIT Guwahati

Date of completion: 10.02.2012

2. **Dr. Utpal Kumar Nath:** "A study of pile group performance under lateral load"

Guide – Dr. Palash Jyoti Hazarika, Gauhati University

Degree awarded on: 23.03.2012

Partial list of Publications:

1. **Dr. Malaya Chetia:** (Asst Professor)

- Malaya, C. and Sreedeeep, S. (2012). "Critical evaluation on the drying water retention characteristics of a class F Indian fly ash", Journal of Materials in Civil Engineering, ASCE, Vol.24, No. 4, page count: 9.

2. **Dr. Bipul Talukdar**(Associate Professor)

- Talukdar Bipul , Deb Debasis and Srivastava D.K (2012). Development of Multi-objective Stochastic Dynamics programming (MOSDP) Reservoir operation model. Proc. of World Environmental and Water Resources Congress, 2012, Albuquerque, New Mexico, USA, 20-24 May 2012, organized by ASCE & EWRI.

3. **Dr.(Mrs.) Binu Sarma**(Professor)

- Liquid Limit Plastic Limit – Re-appraisal : Journal of Geotechnical & Geo-environmental Engineering, ASCE

4. **Dr. Utpal Kumar Nath (Asst Professor) and Dr. Palash Jyoti Hazarika**(Professor)

- Nath U.K., and Hazarika P.J., "Study of Pile Cap Lateral Resistance using Artificial Neural Networks", International Journal of Computer Applications (0975 – 8887), Volume 21–No.1, ISBN: 978-93-80749-22-7, pp. 20-25.

5. **Dr. Diganta Goswami** (Associate Professor)

- Shallow Tunneling through soft ground for mass rapid transit system and analysis of its effect on surface structure by 3-D finite element techniques. Proc. Of 26th National Convention of Civil Engineers, 2010, pp. 32-40

6. **Dr. Jayanta Pathak** (Professor)

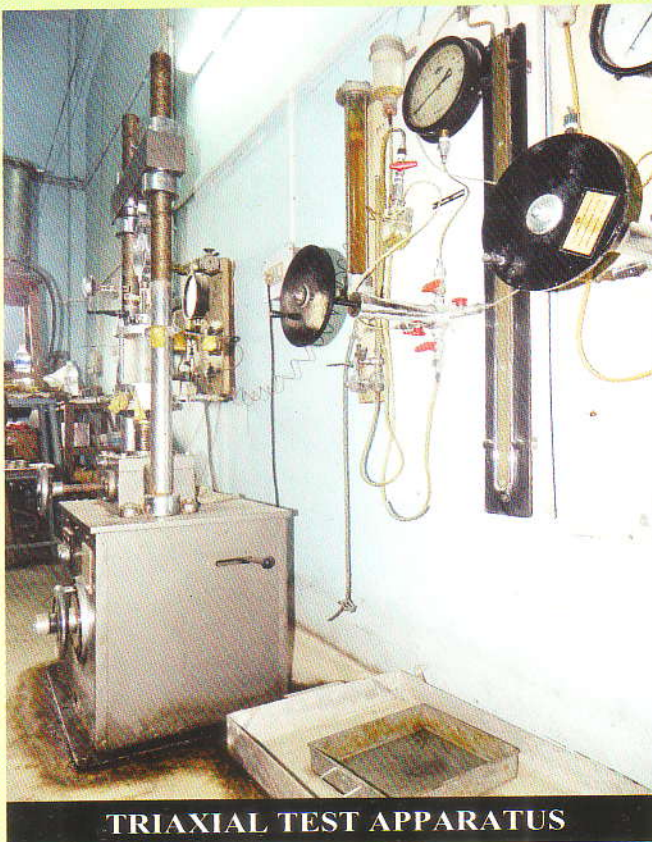
- Earthquake Vulnerability Assessment of Guwahati Urban Centre . 14th World Conference on Earthquake Engineering, 2008 in Beijing, China

7. **Dr. Bibhash Sarma**(Associate Professor)

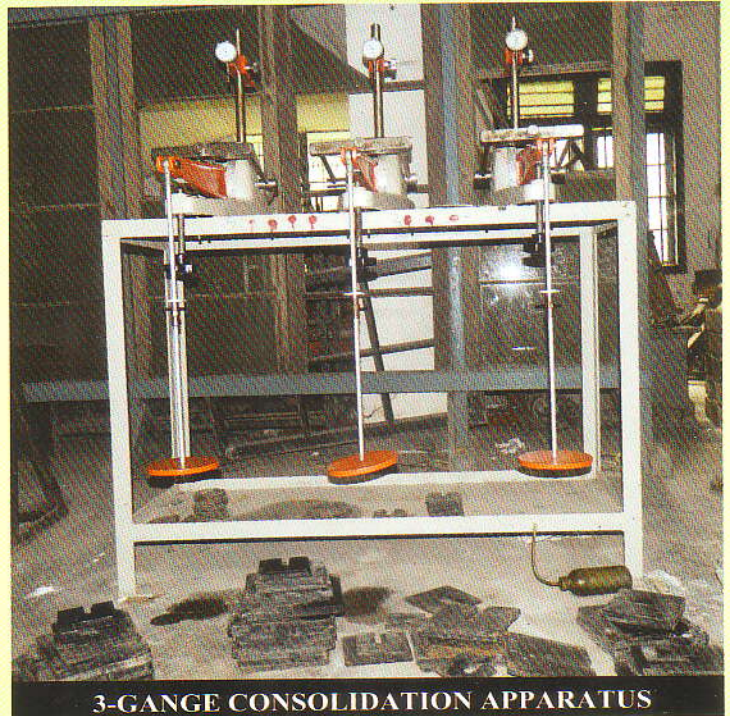
- Sarma.B(2011) "Water supply and Revalent Issues". Souvenir on 26th Water Resources Day.30th May,2011, The Institution of Engineers(India),Assam State Centre.

- Sarma.B(2010) "Master Plan for Basin Development", Souvenir on 25th Water Resources Day. 25th Water Resources Day.26th May,2010 The Institution of Engineers(India),Assam State Centre.

(Source : AEC website.)



TRIAxIAL TEST APPARATUS



3-GANGE CONSOLIDATION APPARATUS

"To climb, steep hills, require a slow pace at first"- William Shakespeare



■ CATALYST

Upcoming Conferences and Internship, Training Opportunities

1. 2nd International Conference on Hydrology and Groundwater Expo :

Conference Dates: 26-27 August 2013
 Venue: Rayleigh, NC, USA
 Web link:
<http://www.omicsgroup.com/conferences/hydrology-groundwater-expo-2013/index.php>

2. International Conference on Advances in Civil Engineering:

Conference Dates: 13-14 December 2013
 Paper Submission Deadline: 15th September 2013
 Venue: NCR, India

3. 29th Annual International Conference on Soils, Sediments, Water, and Energy

Conference Dates: 21-24 October 2013
 Abstract Submission Deadline: 8th February 2013
 Venue: University of Massachusetts at Amherst
 Web link: <http://www.umasssoils.com/>

4. International Symposium on Slope Stability in Open Pit Mining and Civil Engineering

Conference Dates: 25-27 September 2013
 Abstract Submission Deadline: 25th February 2013
 Venue: Sofitel Brisbane Central Hotel, Australia
 Web link:
<http://www.slopestability2013.com/>

5. 8th European Conference on Numerical Methods in Geotechnical Engineering

Conference Dates: 18-20 June 2014
 Abstract Submission Deadline: 1st June 2013
 Venue: Delft, Netherlands
 Web link: <http://www.numge2014.org/>

6. International Conference on Advances in Water Resources Development and Management

Conference Dates: 23-27 October 2013
 Abstract Submission Deadline: 15th June 2013

Venue: Panjab University, Chandigarh
 Web link: Refer to www.nih.ernet.in

Internship, Training Opportunities

1. Summer Internship at IIT, Gandhinagar

Application Submission Deadline: not yet declared (applications are available)
 Web link:
http://www.iitgn.ac.in/summer_course.htm

2. Summer Fellowship at IIT, Madras (only for 3rd year BE students)
 Duration: 2 months



Stipend: Rs. 6500 (fixed)
 Application Submission Deadline: 18th February 2013
 Web link: <http://www.iitm.ac.in/iitm-summer-fellowship-programme-2013>

3. Summer Internship at IIT, Guwahati (only for 3rd year BE students)

Duration: June – July
 Application Submission Deadline: not yet declared
 Web link:
<http://www.iitg.ac.in/civil/ST.html>



This issues topic - “Scope of Civil Engineer during time of economic meltdown”

Bhargob deka, 6th semester

The task of a civil engineer to engineer the world at the times of economic crisis is of utmost difficulty. Two main problems that are of global proportions are poverty and the limited amount of scarce resources available in the present day world. In the modern day world, the scale of the problem is at a greater order of magnitude;

environmental constraints are dangerously close to being breached; worldwide competition for scarce resources could create international tensions; and the freedom to power our way into the future by burning fossil fuels is denied. So the scope as civil engineers is rather a challenge, now and in the future, to provide new infrastructures and renovate existing infrastructural facilities in a sustainable manner by synthesising new techniques such that the impact on the scarce resources is minimum and the citizen gets at least the minimum prerequisites of living a sustainable life.

Unman Parashar, 8th semester

The first and foremost bad effect of economic meltdown is on the banks. Since banks are the main sources of capital for major construction projects, so during the time of economic meltdown the companies skip the idea of taking in new projects and wait for the decrease in cost

of materials. As a result, the construction industry faces recession which badly affects the architects, engineers and mainly the workers. However, India presently is going through a fast development stage in the field of economy; and cutting through the recession period, the Indian economy should return to its normalcy in a few years and this should furthermore increase the scope for civil engineers not only in India but also in the other developing countries.

Bhushan Deuri, 4th semester

In an economic meltdown, a government in order to control the economic crisis usually invests in infrastructural development. As it will create job opportunities and help generate income.

We know the term 'infrastructural development' go hand-in-hand with civil engineering, which shows that there still would be opportunities for civil engineers.

At that time, it would be a hindrance to fresh graduates to get work, as competition will be high and only the reputed and experienced would be sought. But I believe that with strong leadership, management and inter-personal skills and also having good practical and creativity knowledge, civil engineers do have a scope even in an economic meltdown.

■ DEPARTMENT PROFILE

Civil Engineering Department at a glance

The department of Civil Engineering was established in the year 1956, the first branch to be introduced in this college. The department has qualified faculty members and well-equipped labs for field work. The Laboratory facilities include the Laboratories of Soil mechanics, Hydraulics, Strength of material, Transportation, Environmental, Survey store and CAD center.

The annual intake capacity is 90 students per semester in B.E. degree course and 25 students in the M.E. degree course. This department also offers a Ph.D. degree in Soil Mechanics and Hydraulics. The student to teacher ratio for each semester is 3:1.

Faculty list of the civil department, AEC

1. Prof N.N.Patwari(Head of the Department)
2. Dr(Mrs) Binu Sarma
3. Dr Palash Jyoti Hazarika
4. Dr Jayanta Pathak
5. Mr Sunit Kumar Bhagabati
6. Dr Diganta Goswami
7. Mr Mrinal Kumar Borah
8. Dr Bipul Talukdar
9. Dr Bibhash Sarma
10. Dr Utpal Kr Misra
11. Mr Bhaskar Jyoti Das
12. Dr Girindra Kr.Deka(Geology)
13. Mrs Indira.B.Gogoi(Geology)
14. Dr Malaya Chetia
15. Mrs Bharati Medhi
16. Dr Utpal Kr.Nath
17. Mr Pankaj Goswami
18. Mrs Puspanjali Sonowal
19. Mrs Rupjyoti Bordoloi
20. Mr Abinash Mahanta
21. Mr Sasanka Borah