



AADHARSHILA

The Annual Newsletter of the Department of Civil Engineering
Assam Engineering College

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Principal's Message

It gives me immense pleasure to learn that the Department of Civil Engineering of Assam Engineering College is coming up with the 5th issue of their annual departmental newsletter titled "AADHARSHILA". I hope that it serves the purpose of successfully portraying the various facades of the department so that the upcoming generation of young civil engineers get enlightened by this and contribute towards creating a society that is not only technically sound but also socially vigilant. I wish them all the success for this issue and the future issues.

Dr. Atul Bora
Principal
Assam Engineering College

Message from the Head of Department

I am pleased to present the 5th issue of AADHARSHILA, the annual departmental newsletter of the Department of Civil Engineering, Assam Engineering College. I hereby extend my best wishes on the occasion and request all the concerned to make it a success.

Dr. P.J. Hazarika
Professor & Head
Civil Engineering Department
Assam Engineering College



EDITORIAL

At the very outset, we on behalf of the Department of Civil Engineering, Assam Engineering College, would like to heartily welcome you to the fifth edition of 'AADHARSHILA', our annual departmental newsletter. It seems yesterday when the first edition came out and reminds us how quickly years have rolled by. We feel a sense of immense satisfaction to see the seed that was sown a few years back have turned into a full grown tree. The newsletter is a testimony to the rich heritage of civil engineering department of Assam Engineering College. The newsletter is a reminiscence of the past year – chronicling the glorious legacy of the department and highlighting its achievements and milestones in 2016.

The inception of Civil Engineering department of Assam Engineering College dates back to 1955 when it was known as 'Assam Civil Engineering College'. Since then, the department has excelled in the field of research and academics and soon becoming a hub of technical education in North-East India. The thought of preserving and highlighting the rich heritage of the department led to the birth of 'AADHARSHILA' on 25th January 2013. The success of 'AADHARSHILA' prompted us to continue the tradition of publishing it every year. The newsletter has been a fulcrum in chronicling the achievements, research developments and glories of the department and at the same time providing the students with insights into the broad vistas of opportunities in the field of civil engineering. We feel privileged to be a part of this journey, and with the noble intention of upholding the tradition of our department, we are here out with the fifth edition of this newsletter.

Here, we would like to express our heartfelt gratitude to the people who played an inseparable part in the journey of this newsletter from our vision to black and white. First of all, we would like to express our sincere gratitude and heartiest thanks to Dr. Atul Bora, Principal, Assam Engineering College and Dr. Palash Jyoti Hazarika, Head of the Department, Civil Engineering, for giving us the opportunity to publish the newsletter. We feel privileged in extending our deep sense of gratitude and appreciation to Dr. Bibhash Sharma, professor-in-charge of 'AADHARSHILA' whose valuable guidance and unstinted help inspired us in the successful publication of this newsletter. We would also like to thank our respected faculty members and also the non-teaching staff of the department whose support and motivation have been relentless. And lastly, this whole journey of the newsletter would not have been possible without the tireless efforts of the fellow members of the Editorial board.

We are hopeful of our efforts being successful in not only providing a bird's eye view of the department but also revelation into the vast sundry of research work carried out by the faculty members and students in the field of civil engineering. With our heart filled with profound prayers of its success, we present before you the fifth edition of 'AADHARSHILA'.

*Rakesh Barman
Rupanjan Chakraborty*

The prime objectives of the newsletter are:

- To showcase the illustrious history of the Civil Engineering Department.
- To highlight the recent developments and events in the Department.
- To develop and encourage an interest in the research field among the 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.

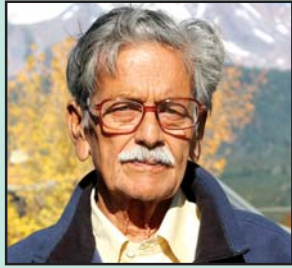


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Send us your comment, suggestions and feedback about the newsletter to aadharshila_ced@aec.ac.in



**An Immortal Soul:
Prof. A. K. Padmapati**

Prof Aparna Kumar Padmapati was born on 23rd October 1934 to a family of eminent lawyers at Tezpur. A brilliant student since his schooldays, Padmapati Sir after completing his B.Tech in Mechanical Engineering from IIT Kharagpur in 1958, he went to the U.S.A. to pursue Masters in Aerospace Engineering from Arizona State University. Subsequently, Prof Padmapati joined A.E.C. under Gauhati University as a faculty and later got promoted to the Principal of the College. Apart from being a passionate teacher, he was an erudite administrator. He served as the Director of Technical Education, Assam. He was not only confined to academics but also had immense interest in sports, nature and wildlife. His popularity was lofty among his students to whom he was a role model and a guardian. Prof Padmapati left for his heavenly abode on 16th September 2016 in his ancestral home at Tezpur. It was a bolt from the blue for his relatives, students and as a whole the fraternity of Assam Engineering College. Neither the void created by Sir's demise can be filled, nor his contribution to the overall development and upliftment of this college can be forgotten. The whole fraternity of Civil Engineering of Assam Engineering College pays tribute to this great educationist, visionary and most importantly a great human being. May his soul rest in peace.

“Living in deeds, not in years.....” Remembering Late Dr. P. K. Bora Sir

Dr. (Mrs.) Binu Sharma
Professor, Civil Department,
Assam Engineering College

To put in writing something on the immensely towering personality of Dr. Padma Kanta Bora is really difficult. As one explores him, one becomes fascinated by the awe and grandeur of this immensely luminous personality. His contribution to Assam and the technical community in large cannot be measured in words. A self-made man, he stands like a colossus amidst us.

Dr. Padma Kanta Bora, a noted academician and a researcher, had been associated in the field of civil engineering for almost half a century. Born on 1st December 1937, at Nagaon, he joined the first batch of students in Civil Engineering in 1955 in the Assam Civil Engineering College which had started functioning in Chandmari, Guwahati. He completed his graduation in Civil Engineering from Assam Civil Engineering College in 1960. Late Bora Sir had initially joined the Public Works Department for a small period of time, but his passion was always in academics and research, and he joined Assam Engineering College as a lecturer in 1960. After serving in this premier college for some years, he left for Birmingham University in the U.K. to obtain his M.Sc. degree in Traffic and Highway Engineering in the year 1965 and also his PhD degree in Highway Engineering in 1968. The international acclaim that he received for his research works were astounding. He could have joined any foreign university, but late Bora Sir, came back to Assam



to serve his own people. He joined Assam Engineering College, but in 1977 he was transferred to Jorhat Engineering College as Professor and Head of the Department. He came back to Assam Engineering College in the same capacity in 1982 and continued in this post till he retired in 1995.

When the Assam Engineering College was established in 1955, it was the only engineering college in the entire North East India. At that time the laboratory facilities were not good in the civil department. Late Bora Sir took initiative in setting up all the laboratories of the department.

Late Bora Sir had his research interests in Highway, Traffic Engineering, Soil Mechanics and Foundation Engineering. The Soil Mechanics and the Transportation Engineering laboratories were upgraded by him till he succeeded in getting a second All India Council for Technical Education (AICTE) approved course on Soil Mechanics & Foundation Engineering in 1988. It was the second post-graduate course in engineering in North East India, the first course being on Watershed Management and Flood



Control. The modernized laboratories of the department fully met the academic demands of the two PG courses which were running smoothly as per AICTE norms. Thus, the stage was rightly set for the introduction of doctoral research in the college by late Bora Sir. With his initiative, doctoral research work started in Assam Engineering College. The first degree of PhD from Assam Engineering College under the Gauhati University was awarded in 1995. The doctoral work was done under his guidance. This was followed by six more PhDs under his guidance.

Late Bora Sir had therefore seen the full journey of the civil engineering department from almost a non-entity to a fully functional department with the introduction of Masters and PhD courses. Late Bora Sir's real passion was always in academics and research. His research interests led to twenty-one research publications in national and international journals and conferences. His research papers were published in international journals of repute like the American Society of Civil Engineers, American Society of Testing Materials and many more. I consider myself lucky to have done my PhD research work under him. Sir always told me during my work that I should have an enquiring mind with a thrust to find something new. With his inspiration and guidance, I have therefore carried out my work so far. As a research worker under him, I was stunned by the precise manuscript checking and editing done by him. Every comma and full stop had to be in place, every sentence correctly written. Having got myself trained under him is actually what has kept me going until the present

day. And the best part was the research environment and the positive environment created by him in the department. During my PhD research work in the department, all departmental staff members were ever ready to help me in my work. This was because late Bora Sir kept everyone happy in the department and a sense of belongingness was inculcated in them.

Another important attribute of late Bora Sir was that he was a person with punctuality as his second self. It was a habit inbuilt in his system. He strictly followed job wise time schedules and inspired everyone around him to do the same. I happened to be his lucky student in fifth semester Soil Mechanics and eight semester Transportation Engineering. I remember he would enter the class in time, all students would remain in complete silence awed by his delivery and by the time he ended his class, completed the roll call and took the register to leave the class, the college bell would ring reminding everyone about the end of the class and the start of the next class. His class lectures were excellent, very softly and simply delivered. It is difficult to comprehend how good his classes were until one actually attended them. Late Bora Sir was also known for his excellent oration both in Assamese and in English which left people spellbound. His fruitful sermons and practical perceptions carried him to that realm where many academicians aspire.

Discipline and perfection were what he demanded in different spheres of existence. This great versatile visionary teacher of the Civil Engineering department was a person who believed in accomplishing all works in a

chronometer like precision. All works had to be precise and perfect in the department. All laboratories of the department were in complete order with the maintenance of all the apparatus being done regularly. Academics run precisely and smoothly during his stint.

Apart from being an inspiration to us with his personal records in academics, late Bora Sir was found to be a down-to-earth person with love and warmth for all people around him. He regularly enquired about the well-being of all people around him.

After his retirement, late Bora Sir suffered from various ailments which confined him to his house. But I observed that he never complained about his physical ailments whenever I visited him. He only talked about academics and research. I observed that he overcame all the adversities that he faced due to his physical ailment. He still guided PhD thesis during this phase and also wrote a book which is about to be published. Writing the book was a big challenge to him. The name of the book is "***Conversations with myself- A quest upto the Twilight Zone of Science and Religion***".

Discourse on this magnificent and colossal personality will never cease to be discussed or written. Late Bora Sir had felt deep within him that he had to return to Assam Engineering College whatever knowledge he had acquired from this premier institute. He had indeed returned to this college more than the debt he owed.

I sincerely pray that the Civil Engineering Department and the Assam Engineering College, on the whole, should try to maintain the rich legacy he left behind. In this way, we can pay tribute to this great soul.

AEC-University of Melbourne Collaborative Workshop on Cross-Cultural Analysis and Capacity Building in Construction Management Practices focussing on Housing and Infrastructure Sectors in Assam and Australia, 13-16 Dec 2016

In collaboration with the Government of Assam and the University of Melbourne, a cutting edge professional course in Construction Management has been developed at the Assam Engineering College, under the leadership of Dr. Atul Bora. This workshop provided an overview of ongoing collaborative research between the Government of Assam and the University of Melbourne.

A series of INDUSTRY and RESEARCH WORKSHOP was held from 13-16 December, 2016 with the participation of the interested stakeholders to explore opportunities for creating affordable, sustainable, context specific housing in the 'Smart Village' context. This hands-on workshop helped to define an appropriate house type and configuration, sufficiently flexible to meet the future needs of Assamese villagers. The speakers during the workshop were Dr. Atul Bora, Principal & DTE, Assam and PI, Assam Engineering College along with Dr. Hemanta Doloi, Senior Lecturer in Construction and PI, Prof. Mark Burry, Professor in Urban Futures, Dr. Robert Crawford, Senior Lecturer in Construction, Dr. Dominique Hes, Senior Lecturer in Sustainable Architecture, and Dr. David Week, Postdoctoral Research Fellow, from the University of Melbourne.

On day 1, Tuesday, 13 December 2016, during the inauguration, a presentation on 'Overview of Construction Management Program' was given by Dr. Atul Bora, followed by a lecture on 'Digital Modelling' presented by Prof. M Burry. Dr. David Week gave a presentation on 'Remote Rural Construction Management' and



Honourable Minister of Education, Assam, Sjt. Himanta Biswa Sarma launching the programme



Honourable Minister of Education, Assam, Sjt. Himanta Biswa Sarma addressing the workshop participants



Dr. Atul Bora, Principal & Director, D.T.E. Assam, addressing the workshop participants



Dr. Hemanta Doloi, Senior Lecturer in Construction, UOM, addressing the workshop participants

discussed the challenges of remote housing and infrastructure. Dr. H. Doloi made a presentation on 'Fundamentals of Project Management and Integrated Project Control and Delivery'.

On day 2, 14th December 2016, AEC Construction Management Program was launched by Honourable Minister of Education, Assam, Sjt. Himanta Biswa Sarma, in presence of senior government officials of the Education Deptt., Assam. Presentations were made by the experts on topics- Sustainability in Construction, Improving the Performance of Construction, Supply Chain Management, Prefabrication and Teaching and Learning in Construction

Management following the launching programme.

The following two days of the workshop also had presentations on 'Research for Smart Villages in Assam', with a discussion on the Doctoral Research Project by the doctoral fellow under the project, Ms. Velyne Katharpi and Mr. Arup Deka. The challenges and opportunities in rural Assam were presented by IITG colleagues.

This research project will explore the socio-economic and environmental characteristics of Assamese villages as well as local capabilities, and resource availabilities, in order to build local capacity for creating smart villages in Assam.



A Report on First International Conference on "Civil Engineering for Sustainable Development–Opportunities and Challenges (CESDOC 2016)", 19-21 December, 2016 held at Assam Engineering College

The First International Conference on "Civil Engineering for Sustainable Development – Opportunities and Challenges (CESDOC 2016)", organised by the Civil Engineering Department of Assam Engineering College (AEC), Jalukbari, was held with the participation of delegates from India and abroad from 19 - 21 December 2016. The inaugural function was attended by Dr. Mridul Hazarika, Vice Chancellor, Gauhati University (GU); Dr.Dhiraj Bora, Vice-Chancellor, Assam Science and Technology University (ASTU); Sjt. V.K. Singh, Director (Technical), North Eastern Electric Power Corporation (NEEPCO) as the guests of honour. Dr.Binu Sharma welcomed the gathering and briefed about the conference. The guest speakers collectively recognised the leadership role of engineers in sustainable development and their responsibility to provide effective and innovative solutions in addressing the challenges of sustainability. Dr. Atul Bora, Principal, AEC and Director, Technical Education; Dr. P.J. Hazarika, Head of the Department, Civil Engineering, AEC also addressed the gathering and emphasised on the role of engineering education to strengthen the internationally mandated approach for sustainable development.



Auspicious lighting of the lamp



Dr. Atul Bora, Chairman CESDOC



Dr. Binu Sharma, Organising Secretary



Dr. P. J. Hazarika, Working President, CESDOC

The conference provided a platform to technocrats to champion the effort towards building capacity for sustainable development and influence a policy framework that demands a more socially and environmentally responsible decision process for implementation of development projects.

The conference covered seven major themes and each major theme had sub-themes such as sustainable infrastructure development, sustainable urban development, sustainable rural development, sustainable

development by disaster risk management, sustainable development of water system, sustainable development through energy management and sustainable development through a new paradigm of engineering education. Covering all these themes, about 80 research papers from India and abroad were being presented during the conference. More than 200 delegates participated from India, Japan, Australia and Thailand. The conference witnessed a confluence



Prof. Ikuo Towhata



Dr. Nayan Sarma

Bangladesh. He mentioned about the US-Canada benefit sharing model for Columbia river wherein hydropower is shared and the US pays for Flood Control benefits.

Dr. S.K. Deb, Professor of Civil Engg., IIT Guwahati, presented the Innovative Base Isolation Systems for Reduction of Seismic Vulnerability of Low-rise Buildings, developed by his team at IIT Guwahati. The system has already been implemented in a building at Tawang, Arunachal Pradesh and the cost of such indigenously developed base isolation is 10 times lesser than the actual system.



Dr. Deepankar Choudhury

the Recent Advances in Design of Combined Pile-Raft Foundation and emphasised on the advantage of such foundations for tall structures, especially for a seismically active region like the North-East.

Dr. Nayan Sarma, Professor, Department of Water Resources Development and Management, IIT Roorkee and Honorary Professor of River Science, University of Nottingham, UK spoke on the prime sustainability issues on Brahmaputra river management and the alarming process of river bank erosion, unabated channel widening and deposition, climate change effects and hydro-politics. He warned about the looming possibility of future diversion of Yarlung Tsangpo to meet rising water demand in Northern/ Western China and expressed concern over the no water sharing agreement with China and

Mr. Bhargab Mohan Das, Chief Business Development Officer of Ritta Group, the largest Construction Group in Bangkok, Thailand and Co-Founder & President of Thai Global Energy Co. Ltd., spoke on Sustainable Energy Efficiency Enhancement Trends in Buildings in Asia: A Retrospection and the Perceived Way Forward. Mr. Das

of internationally acclaimed keynote speakers from across the world.

The Conference saw a panel of eminent speakers deliberating on various issues of sustainable development on the first day of the conference.

Prof. Ikuo Towhata from the University of Tokyo and Former President of Japanese Geotechnical Society deliberated on long-term effects of strong earthquake shaking on slope instability and its mitigation and spoke about co-seismic slope failure during 1950 Assam Earthquake and stated that disaster mitigation is not a topic of cost-benefit calculation

Dr. Deepankar Choudhury, Professor, Department of Civil Engineering, IIT Bombay spoke on



Mr. Bhargab Mohan Das



Dr. S.K. Deb



Audience



Dr. Bishwajit Bhattacharjee

spoke about Certification vs. Performance issues of energy efficiency requirement and told that the implementation should be guaranteed for the life-cycle of the buildings instead of just paperwork and the govt. should adopt and declare a clear cut policy to encourage investors.

The keynote session of the second day had presentations by several eminent speakers. Dr. Bishwajit Bhattacharjee, Professor of Civil Engineering, IIT Delhi spoke on Functional Requirements of Buildings: Sustainability Challenges. He mentioned about carbon dioxide emission and mentioned that OPC cement manufacturing is just next to fossil fuel in being responsible for emission. He also spoke about intelligent/smart buildings and importance of energy efficiency.

Dr. Arup. K. Sarma, Professor of Civil Engineering, IIT Guwahati,



Gourango Singha, Country head, Geobruigg

presented a Lecture on the Vegetative measure for controlling erosion in changing climate. He emphasized that applying Ecological Management Practices (EMP), sediment and water yield from a degraded watershed can be controlled significantly.



Dr. Arup. K. Sarma

Guna Nidhi Paudyal, Senior Flood Risk Management Expert, presented on how to reduce flood risks by Forecasting and Optimum Reservoir Operation. He shared findings from a study in Maharashtra and emphasized that reservoir operation must consider



Prof. Nitin Kumar Tripathi

downstream floods. He emphasised on the implementation of sustainable hydropower.

Prof. Nitin Kumar Tripathi from Asian Institute of Technology spoke on Urban Fire Risk Mapping and Management. He said that urban fire risk can be illustrated for

better understanding and building awareness for the land owners.

Gourango Singha, Country Head, Geobruigg India Pvt. Ltd. presented on the Rockfall Protection and Slope Stabilization along the trek route to Shri Mata Vaishno Devi Shrine, Katra, J&K.

The third day of the conference started with the keynote lecture by Dr. Hemanta Hazarika, Kyushu University, Fukuoka, Japan. He presented his work on Low Cost and Resilient Solution against Geodisaster- Case History based Adaptation. Dr. Hazarika described



Guna Nidhi Paudyal

the use of used vehicle tires in erosion protection. He said that the adaptation of innovative technique proposed is characterized by eco-friendliness and cost-saving. The use of the locally available materials and industrial waste materials for dike stabilization contributes towards the green infrastructure. Last but not least, the technique will work well in vulnerable waterfront areas, although it was tested only in the Vietnamese waterfronts.

The second keynote address was made by Dr. Achintya Bezbaruah of the Nanoenvirology Research

Group, Civil and Environmental Engineering Department, North Dakota State University. Dr. Bezbaruah spoke about the use of nano-technology for Fluoride removal, Arsenic removal and Bacterial removal addressing the Food-Energy-Water Nexus. He also spoke about Sustainable Development of Villages in Assam.

Dr. Hemanta Doloi, Senior Lecturer in Property and Construction Management and Technology at the University of Melbourne, Australia presented on the Social dimension of the sustainability equation and how can we integrate the needs and requirements of the community as a fundamental necessity in the planning process for achieving long-run success in projects. He emphasised that Social Value Outcome in projects is important to implement any infrastructure project. He mentioned about the proposed Guwahati metro rail project and the Lower Subansiri hydro power project and stressed the need for appropriate public participation and transparency in projecting the benefit to the community for successful implementation.

Dr. David Week, Postdoctoral Research Fellow, Project Manager,



Dr. Hemanta Hazarika



Dr. Achintya Bezbaruah



Dr. Hemanta Doloi



Dr. David Week

Smart Assam from the University of Melbourne presented a paper on Sustainability and Rural Development. He said that rural engineering is not urban engineering. He also mentioned about the problem of migration from rural areas to urban slums in search of employment, due to marriage and due to a reduction in farm land. He stressed on the need for livelihood creation in the rural Assam to decongest the urban slums and generate reverse migration with appropriate govt. policy formulation.

There were technology presentations by industry partners SM Group and Star Cement Ltd. Mr. Haurn Rashid from SM Group made a presentation on Total Building Solution and Truss-less roofing technology now brought to the north-east. Mr. Ankur Srivastava of Star Cement Ltd. presented on the sustainability issues in cement and concrete industry and challenges to contain CO₂ emission.

The conference ended with the participation of more than 200 delegates and presentation of about 80 technical papers from 20 institutions. The 2nd International Conference on "Civil Engineering for Sustainable Development – Opportunities and Challenges (CESDOC 2016)", will be held in 2018.



Closing session



Audience

SOME GLIMPSES OF CESDOC

2016





Felicitation of former faculty and staff of Civil Engineering Department during CESDOC, 2016



Cultural Night during CESDOC, 2016



Face of the issue: In conversation with Debi Charan Borah

Tania Choudhury, Nikhil Siva Deka,
Pallav Pratim Gayan and Arpan J Uzir

A renowned Civil Engineer and a proud AECian, Mr. Debi Charan Borah has carved out a niche for himself that continues to be the trademark of our technical ethics. From working as a consultant with Mott McDonalds for the New Brahmaputra Bridge to following his other passion and his love for old classic assamese songs, the man has a marvellous story that is to be heard by us all. *In his words.....*

Interviewer: *Sir, Can you tell us briefly about your journey in the field of Civil Engineering and how it began?*

Mr. Borah: I belong to the first regular batch of AEC to complete engineering in 4 years. After graduation, I joined as an assistant engineer in PWD, Lakhimpur on 2nd January, 1964. My first assignment was the construction of a road in an interior region of Garo Pahar where we had to stay in tents and were under constant threats from wild animals like elephants and tigers. During my stay there, I used to visit the nearby villages and spend quality time with the villagers singing Garo songs with them. I sometimes wish of traveling through that road and visit those villages once again. I also worked in Algeria as a technical expert under the Indo-Algerian pact. I also served as the Secretary, Public Health Department for 9 months. I was the first secretary to introduce computers in Assam Secretariat. In between my service years, I completed my masters in Construction from AIT, Thailand. I retired as Commissioner and Special Secretary on 2000. After retiring from Assam Secretariat, I joined APSC and retired as Chairman in January, 2004. In December 2006, I joined as a team leader in the construction of the New Brahmaputra Bridge. Under my supervision, many unconventional measures have been taken right from designing to execution in the construction of the new bridge.

Interviewer: *What role did AEC play in your highly illustrious career?*

Mr. Borah: AEC moulded me as an engineer. It provided me the foundation above which I could build my career. The Professors at that time were not just our mentors but also shared a brotherly feeling with



us. This helped me to get over my fears and conquer different challenges that I have faced in different aspects of my life. My friends in AEC were very helpful and we shared a very strong bond which was above any competitiveness.

Interviewer: *Can you enlighten us on your short-stay in Algeria?*

Mr. Borah: Under the Indo-Algerian Pact, there was an exchange of technical personnel and I was lucky enough to be selected for the same. I found the people there to be honest. I would like to share an interesting story back there. One day, while strolling through a

street in Algeria, I noticed that a shopkeeper left his shop open and went for Namaz. I was astonished by the fact that there was no fear of shoplifting or theft. The common languages spoken in Algeria are French and Arabic. So, in order to communicate with the local people, I learned French. I found the language to be very sweet. In Algeria, I worked with a Swiss firm which was constructing a retaining wall. During the assignment, I found that with a few modifications, the cost of construction could be reduced to one-tenth of the proposed cost. This was done by building a horizontal arch whose foundation was made by drilling rods into the rock at both ends.

Interviewer: *How can future Civil Engineers from Assam contribute to overall development of the state?*

Mr. Borah: When we graduated, there were very few options to work in like PWD, Flood Control, Irrigation or work as a lecturer. We had to work under the limited options available. But now, as we can see, construction has increased manifold. The state continuously keeps on sanctioning a large number of roads, RCC bridges for infrastructure development. Moreover, we find a lot of jobs where various roles for civil engineering are specified. One can join any of these roles and contribute towards the development of the state. Because of the booming of the construction industry, modern technologies have come up and there is a scope of learning and implementing those things along with teaching others, thereby effectively contributing to the state development.

Interviewer: *Sir, you have served as the APSC Chairman. Can you give some advice for the civil services aspirants?*

Mr. Borah: Actually, one should be very thorough with their subject. Also, they should be humble and soft spoken throughout the interview. The interviewer often asks wrong questions intentionally to record their reactions towards it.

Interviewer: *Sir, can you briefly tell us about your work in the construction of the New Brahmaputra Bridge?*

Mr. Borah: The bridge was built using a complete new technique with 11 wells and two pile foundations at both ends. It has a single girder which is the uniqueness of the bridge with cantilever construction method. There were a lot of challenges that we have faced during the



construction period of this bridge. There have been lot of alterations in the design of this bridge and I am fortunate to have contributed my part towards it.

Interviewer: *Sir, you have been actively involved with cultural activities. How big an influence has been music in your life?*

Mr. Borah: I am very passionate about music. I have always had a special place for music in my heart ever since my childhood days. The old melodies have been so powerful that even today it feels like I heard that song just yesterday. But lately I have tried to change the way we normally listen to songs. I thought rather than just listening to it why not test my vivid imaginations to picture the song in such a way so that everyone can easily connect to it. That way I believe it evokes life like images and the song hence leaves a stronger impact on the people's mind. Art too attracts me. There had been times when I have become too emotional looking at a certain painting, realising its true meaning.

Interviewer: *What is your message to all budding AECians?*

Mr. Borah: I feel in our days, we had more mutual respect, love and understanding among our friends. Mostly everyone wished the best for each other. Nowadays what I feel is that people are a little deviated from that. I see that bond is missing among people like we had in our days. Also, I believe everyone should exchange their thoughts and ideas about new technologies and above that life in general and correct each other's mistakes to bring out the best of one another. May be I want to see that friendship back. I want to see AEC as a one whole big family.



INCEPTION WORKSHOP AEC-NORSAR Collaborative Project on Earthquake Damage and Loss Estimation of Guwahati City for Scenario Earthquakes, 20th November 2016

Dr. Jayanta Pathak
AEC Professor

Dr. Atul Bora
Principal

AEC in collaboration with NORSAR, Norway and with the support of other partners such as the Indian Institute of Technology Roorkee (IITR), prepared and submitted a

of 1 year duration), Phase 1: Earthquake scenario-based risk model for Guwahati, Phase 2: Installation of local seismic network and Phase 3: Implementation of ELIAS

AEC (the Project Owner) has been signed on September 30, 2016 with research grant given to AEC as the project owner. The inception workshop was held on the 20th



Dr. Dominik Lang from NORSAR, Norway addressing the participants



Dr. Jayanta Pathak presenting the project proposal as the Project Coordinator



The officials from ASDMA, GMC, GMDA along with colleagues from NORSAR, Dr. Dominik, Dr. Abdel and Dr. Y.K. Singh, IIT Roorkee

proposal to the Assam State Disaster Management Authority (ASDMA), Guwahati, Assam India. The working title of the project is: "Earthquake Damage and Loss Estimation of Guwahati City for Scenario Earthquakes – a step towards Real-Time Earthquake Damage and Loss Information System" (ELIAS). The initially proposed Project is of three-year duration which is subdivided into three Project Phases (each Phase

The first phase of the project has been granted by ASDMA in August 2016 and a formal contract between ASDMA (the Funding Agency) and



Dr. Atul Bora, Principal and DTE, Assam addressing the workshop as the Project Head

November, 2016 at the ASDMA conference hall with participation of representatives from various government departments and stake holders viz. GDD, GMDA, GMC, PWD, APDCL, PHE, Water Resource Dept., Health Dept., Education Dept., AREIDA. The workshop was also attended by *Dr. Yogendra Singh*, Head of the Earthquake Engineering Dept. IIT Roorkee as a project partner.

Training of Engineers on Earthquake Resilient Technology

Mr. Sasanka Borah
Assistant Professor

Civil Engineering Department (CED), Assam Engineering College (AEC) in association with the Assam State Disaster Management Authority (ASDMA) successfully organised a “Training programme of Engineers on Earthquake Resilient Technology” in three phases from 21st November, 2016 to 7th December, 2016. The venue of the training programme was at the Seminar Hall, Training and Placement Cell, Multi-Disciplinary Centre, AEC.

The training programme was inaugurated and addressed by Dr. Atul Bora, DTE, Assam and Principal, AEC in the presence of Shri Pulak Mahanta, Additional Deputy Commissioner, Kamrup; Dr. Palash Jyoti Hazarika, HoD, CED, AEC and faculty members of CED, AEC.

The course of the training programme covered topics related to Elementary Seismology, Earthquake Hazards, Soil Liquefaction, Response Spectra, Philosophy and Principles of Earthquake Resistant Design of Reinforced Cement Concrete (RCC) and Masonry Structures. Topics related to the essence of Quality Control in construction, Non-Destructive Testing (NDT) procedures as well as retrofitting of RCC and Masonry structures were also discussed in the training programme.



Dr Atul Bora, DTE, Assam & Principal, AEC addressing the participants in the inauguration session.

122 numbers of engineers and officials of various districts of Assam State were trained on the various issues related to earthquake. The participants were from Public Works Dept.(PWD), Assam; Public Health Engineering Dept.(PHED), Assam; Water Resources Dept.(WRD), Assam; Irrigation Department, Assam; Sarba Shiksha Abhiyan (SSA), Assam; Municipal Bodies; Assam Power Distribution Company Ltd. (APDCL); Agricultural Department, Assam; National Rural Health Mission (NRHM), Assam; District Rural Development Agency (DRDA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA).

The course was coordinated by Mr. Sasanka Borah, Assistant Professor, CED, AEC with support from all the faculty, staff and post graduate students of CED, AEC.

Dr. Binu Sharma, Professor, AEC; Dr. Jayanta Pathak, Professor, AEC; Dr. Diganta Goswami, Associate Professor, AEC; Dr. Bipul Talukdar, Associate Professor, AEC; Mrs. Indira Baruah Gogoi, Retd. Associate Professor, AEC; Dr. Utpal Kr. Nath, Assistant Professor, AEC; Dr. Malaya Chetia, Assistant Professor, AEC; Mr. Sasanka Borah, Assistant Professor, AEC; and Mr. Rajesh Dutta, Engineering Consultant, ASDMA were the resource persons of the training programme.



A class in progress during the training.



Publications

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3. Kalita, P.P., Talukdar, J., Kashyap, R., Bharali, R., Deka, B., Pathak, J. and Hazarika, P.J. (2016). "Seismic Response of RCC Storage Tanks in High-Risk Seismic Zones", Proc. of the 1st International Conference on Civil Engineering for Sustainable Development- Opportunities and Challenges, 19-21 Dec, 2016, Guwahati, Assam.
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43. Das, N.J., Deori, M. and Borah, S. (2016). "Site Response Analysis: A case study of Guwahati city", Proc. of 1st International Conference on Civil Engineering for Sustainable Development-Opportunities and Challenges, 19-21 Dec, 2016, Assam Engineering College, Guwahati, Assam.
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56. Roy, M. and Kalamdhad, A.S. (2016). "Vermicomposting of Sewage Sludge using Jai Gopal (*perionyxceylanensis*) Earthworm- An approach in Solid Waste Management", Technical Volume of All India Seminar on Tackling Urban Environmental Concerns in Upcoming Smart Cities of our Country, 25-26 October, Guwahati, India.
57. Chakraborty, R., Barman, R., Das, K. and Roy, M. (2016). "Bio-medical waste management of Guwahati- A case study of Gauhati Medical College and Hospital", Proc. of the 1st International Conference on Civil Engineering for Sustainable development - Challenges and Opportunities, 19-21 Dec, 2016, Guwahati, Assam.
58. Barman, R., Chakraborty, R. and Bhattacharyya, S. (2016). "Recycled waste polyethylene for ground improvement - Saving the ecosystem and enriching the built environment", Proc. of the International Conference on Waste Management, Recycle, 1-2 April, 2016, Guwahati, India.
59. Bora, A., Haloi, B.J. and Sarma, N. (2016). "Artificial flood in Guwahati city and its mitigation", Proc. of the 1st International Conference on Civil Engineering for Sustainable development - Challenges and Opportunities, 19-21 Dec, 2016, Guwahati, Assam.

ACTIVITIES

Dr. Diganta Goswami

- Chairman, Indian Geotechnical Society, Guwahati Chapter (NE).
- Delivered a lecture on "Quality Control and Quality Assurance in Civil Engineering Projects"-Workshop on Quality Control organized by Meghalaya PWD (Building) in Collaboration with Road Research Laboratory (R & B), Shillong on 13th and 14th May, 2016.

Dr. Jayanta Pathak

- Delivered a lecture on 'Earthquake Risk Mapping of Sustainable Development of Cities' at Milton Bender Auditorium, Asian Institute of Technology (AIT) Bangkok. The lecture was delivered on 20 Sept. 2016 on invitation from the School of Engineering and Technology (SET) of AIT as a part of STAR Seminar and was attended by the Master's, Doctoral students and the faculty of SET. Dr. Pennung Warnitchai, Prof. and leader of the Civil and Infrastructure Group along with Dr. Nitin Kumar Tripathi, Professor, RS and GIS participated and interacted during the presentation.



Dr. Pathak delivering lecture at AIT, Bangkok

Dr. Bibhash Sarma

- Resource person in MHRD TEQIP-II sponsored workshop on “Climate Change Assessment: Hydrologic Modelling and Perspective” organised by the Department of Civil Engineering, National Institute of Technology Silchar during the period 19th October to 23rd October 2016.
- Delivered lecture on “Proposal: Action Plan for Riverbank Protection” in the ‘Workshop on Thrust Areas of 100 Days Agenda of Hon’ble Chief Minister, Assam’, organised by Water Resources Department, Govt. of Assam under the focal theme ‘Management of flood and erosion of Brahmaputra-Barak basin’.
- Acted as a member of the Selection Board for the post of Engineering Consultant (Flood Mitigation) in Assam State Disaster Management Authority.
- Acted as a member of the UGC Expert Committee for Mid-term Evaluation of Construction of Sports Infrastructure facilities in colleges affiliated to Gauhati University
- Acted as a member of the panel for fixation of intake well location under the contract package “Design, Build and Operate Contract for water supply in South East Guwahati” for Assam Urban Infrastructure Investment Program (AUIIP).
- Resource person in Faculty Development Program for Technical Teachers organised by the Department of Civil Engineering, Girijananda Institute of Management and Technology, Guwahati during December 2016.
- Acted as a member of the UGC Expert Committee for evaluation of construction of Girl’s Hostel in colleges affiliated to Gauhati University.
- Visited erosion and flood affected areas of different parts of Assam on many occasions as a part of the Technical Advisory Committee (Govt. of Assam) and suggested solution measures.
- Co-authored a research paper titled “A Study on Erosional Depositional Activity and Landuse Mapping of Majuli river Island using Landsat Data” along with Dipsikha Devi, Nilutpal Phukan which won the ‘Best Research Paper’ award at the International Conference on Water, Environment, Energy and Society held at Bhopal during March 15-18, 2016.

Dr. Bipul Talukdar

- Delivered a lecture on “Flood and Erosion Management in Brahmaputra Basin” in the ‘Workshop on Thrust Areas of 100 Days Agenda of Hon’ble Chief Minister, Assam’, organised by Water Resources Department, Govt. of Assam under the focal theme ‘Management of flood and erosion of Brahmaputra-Barak basin’.
- Resource person in Faculty Development Program for Technical Teachers organised by the Department of Civil Engineering, Girijananda Institute of Management and Technology, Guwahati, December 2016.



Students during survey camp



Summer Industrial Training



Dr. Binu Sharma

- Delivered an invited lecture on soil liquefaction on the National Seminar on Earthquake Hazards – Effects, Mitigation and Management, 20-21 Jan, 2017 organized by Environmental Watch and Management Institute and sponsored by Ministry of Earth Sciences – Government of India.



Final year students during excursion at Manali



Biswakarma Puja Celebration



Teachers' Day Celebration

STUDENTS' ACHIEVEMENTS

Rupanjan Chakraborty, Rakesh Barman, 8th semester and Sarbajit Bhattacharyya, Graduate Engineer, won the 'Best Paper and Oral Presentation' award at the International Conference on Waste Management, Recycle 2016, held at IIT Guwahati during 1-2 April, 2016.

Priyanka Kotoky, Mriganka Saikia, M.E. 4th semester and Vicky Raj Ray, 6th semester, won 1st prize in the state level event 'Srijan', a structure designing competition organised during the technical festival 'Sastricas-2016' held at NITS Mirza.

Jitendra Deka, M.E. 2nd semester:-

Publication-

- Memory lane (poetry anthology)
- Lazy spider (poetry anthology)
- Golden spoon (novel)

Participation-

- Guest speaker at North East Literary festival, Rivertalks held at Royal Group of Institutions
- Honorary speaker at Tihu Literary festival
- Poem presenter at North East Book Fair

Arpan J. Uzir, 8th semester:-

Won 1st prize in the 'Glories of the North East' category for the photograph titled 'Colourful bliss' in 'Pohor-IV', the annual photography exhibition cum competition organised by 'Photography club of Assam'

Tania Choudhury, 8th semester:-

- Current state rank 1, with 2 gold medals in State Lawn Bowls Championship, Guwahati
- Presently part of the Indian Lawn Bowl team training for XXI Commonwealth Games to be held in Gold Coast, Australia

Arnav Duarah, 8th semester:-

- Winner of Inter Institute Football Tournament held at Tezpur University
- 3rd position at Lawn Tennis event held during 'Spirit' at IIT Guwahati
- Runners up at Guwahati City Championship of Reliance Youth Football Tournament held at Nehru stadium
- Won the Golden ball at the Reliance Youth Football Tournament for the Guwahati region selected for trials at the Santosh Trophy Camp

- Winner of Inter College Late Amulyacharan Choudhury Football tournament held at Assam Engineering College

Mousum Talukdar, Priyam Deka, Isfaqul Ahmed, Chayanika Devi, Gunendra Sharma, 6th semester,

won 3rd prize in the event 'Instridge' held at IIT Kharagpur.

Ankur Kalita, Tulika Das, Himangshu Sekhar Saud, Salma Nasrin, Abhishek Singh, 6th semester,

won 2nd prize in the event 'Instridge' held at IIT Kharagpur.

Ullash Uttam Borah, 6th semester,

won 2nd prize in the Basketball event at 'Spirit', IIT Guwahati.

Bedanta Bezbaruah, 4th semester:-

Acted in the following TV soap operas-

- Proticchobi
- Behorbari Outpost
- Kun muraapun
- Urania mon

Acted in the music video-

- Ki koreibolbotomoi
- Faguniaaabeli

Also acted in short film Bivixika

Krishanu Narayan Das, 4th semester,

attended workshop on Remote Controlled Aircrafts, organised by Seismech, IIT Guwahati.

Biswajit Das, Bikash Dibra, Rakesh Barman, 8th semester were



'Colourful bliss' by Arpan J Uzir

student members (event management) in the International Workshop on "Cross-Cultural Analysis and Capacity Building in Construction Management Practices on Housing and Infrastructure Sectors in Assam and Australia" held at Assam Engineering College in collaboration with the Government of Assam and the University of Melbourne.

Rakesh Barman, Akash Borah, Tania Choudhury, Arpan J Uzir, Biswajit Das, Bikash Dibra, Abu Waydah Rahman, Abhijit Das, Abinash Kashyap, 8th semester participated in the International Workshop on "Cross-Cultural Analysis and Capacity Building in Construction Management Practices on Housing and Infrastructure Sectors in Assam and Australia" held at Assam Engineering College in collaboration with the Government of Assam and the University of Melbourne.



Stakeholders' Meeting on Smart City Mission

Bikash Dibra and Akash Sah

'Stakeholders' Meeting on Smart City Mission' was convened by Guwahati Municipal Corporation to find ways and means to make Guwahati a 'Smart City' at Kanaklal Barua Auditorium, Assam State Museum. The symposium chaired by Mr. Narayan Konwar, Commissioner, Guwahati Municipal Corporation, IAS got the attendance of the delegates from different government organization and a good number of technical Institutes of Northeast India like IITG, AEC, NERIM, NEHU, SITM and schools like Delhi Public School, Kendriya Vidyalaya etc. The objective of the meeting was to harness the ideas and views relevant to the development of the Guwahati city into smart City from the delegates and stakeholders. The delegates and stakeholders from various institutes and Government organizations shared their views and ideas for the best planning of Smart City in Guwahati in terms of infrastructure and the major issues of the city.

The plan prepared and submitted to the Government of India after a series of initiatives by Guwahati Municipal Corporation got selected among the 20 winners of the Smart City Challenge Competition. Guwahati secured the 17th rank with a total score of 57.66%. Guwahati has been selected as one of the top 20 cities that will be developed as a smartcity.



Editorial Team, Aadharshila 2017

Departmental Profile

The department of Civil Engineering, established in the year 1955, was the first branch to be introduced in Assam Engineering College. The department boasts of highly qualified faculty members and well equipped laboratories for field works. These includes the Soil Mechanics lab, Hydraulics lab, Strength of Materials lab, Transport Engg. Lab, Environmental Engg. lab, Geology lab, Survey store and the CAD centre. The annual intake capacity is 90 students per semester in B.E. degree course and 36 students in M.E. degree course. The department also offers PhD courses. The department is actively engaged in consultancy services in all disciplines of Civil Engineering.

Faculty List

Dr. Palash Jyoti Hazarika (HOD)
Dr. Binu Sharma
Dr. Jayanta Pathak
Mr. Sunit Kumar Bhagabati
Dr. Mrinal Kumar Borah
Dr. Diganta Goswami
Dr. Bipul Talukdar
Dr. Bibhash Sarma
Dr. Utpal Kumar Misra
Mr. Bhaskar Jyoti Das
Dr. Triptimoni Borah
Dr. Utpal Kumar Nath
Dr. Malaya Chetia
Dr. Pankaj Goswami
Ms. Bharati Medhi Das
Ms. Puspanjali Sonowal
Ms. Rupjyoti Bordoloi
Mr. Abinash Mahanta
Mr. Sasanka Borah
Guest Faculty:
Ms. Indira Baruah Gogoi (Geology)
Ms Rhitwika Barman
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