

## CSIR-North East Institute of Science & Technology, Jorhat

Connecting Science & Technology for a Brighter Tomorrow

### CSIR-NEIST celebrated 77<sup>th</sup> CSIR Foundation Day



Mr J K Borah General Manager (Mining), North Eastern Coalfields, Coal India Limited, Tinsukia, Assam delivering the Foundation Day Lecture. Other dignitaries seated on the dais are (from right), Mr S C Kalita, Chief Scientist, CSIR-NEIST; Dr D Ramaiah, Former Director, CSIR-NEIST & Guest of Honour and Dr P Sengupta, Scientist-in-charge, CSIR-NEIST.

CSIR-NEIST celebrated the 77<sup>th</sup> Foundation Day of its apex body, Council of Scientific & Industrial Research (CSIR) with much zeal and enthusiasm on 26 September 2018. Befitting the occasion, a special programme was held at Dr J N Baruah Auditorium in the morning hour which was attended by an august gathering of dignitaries, invitees, eminent personalities from in and around Jorhat district, besides CSIR-NEIST fraternity. Mr J K Borah General Manager (Mining), North Eastern Coalfields, Coal India Limited, Margherita, Tinsukia, Assam graced the function as Chief Guest and delivered the Foundation Day Lecture while Dr D Ramaiah, Former Director, CSIR-NEIST was present as Guest of Honour. Dr P Sengupta, Scientist-in-charge, CSIR-NEIST presided over the function. In his welcome address, Dr Sengupta extended his warm greetings and highlighted significant technological interventions of CSIR over the years in various S&T sectors. He specially mentioned the contributions made in improving the quality of lives of the people, creating livelihood opportunities and other S&T applications in environment, health, food, housing, farm and non-farm sectors. He also briefed the recent achievements of CSIR-NEIST in



Release of CSIR-NEIST Annual Report 2017-18 by the dignitaries on the occasion.

terms of technologies developed & transferred, publications and the currently ongoing projects which have high societal and environmental implications. In his Foundation Day Lecture, Mr Borah emphasized for collaboration and synergism among scientific institutions and called for collective efforts in bringing solutions to future S&T challenges. He mentioned that healthcare, climate change, energy and agriculture are some challenging areas for future generations as the society treads for longevity, alternate energy sources, infrastructure development and increased productivity to feed growing population. Mr Borah also deliberated about the significance of coal industry in energy sector and mentioned that energy, steel and cement are three sectors which have huge economic impact and therefore bears huge responsibility for country's growth & development. While 67% of primary energy is provided from coal industry, Coal India Ltd., supplies coal for 85% generation of thermal energy in the country, he informed. He encouraged the august gathering and particularly the young scientists & researchers to evaluate their performance in terms of fund/revenue generation, publications and impact of their work in the society. Earlier, Mr Borah also mentioned that Coal India Limited has a long association with CSIR for various R&D projects & services extended by CSIR in coal mining. Addressing the occasion, Dr Ramaiah, appealed to all to introspect and identify

*A healthy attitude is contagious but don't wait to catch it from others, Be a carrier.*

## CSIR-North East Institute of Science & Technology, Jorhat

*Connecting Science & Technology for a Brighter Tomorrow*

gaps for innovating better technologies and products. He also emphasized for sustainability and doing things relevant to the needs and problems of the society. On the occasion, CSIR-NEIST Annual Report 2017-18 was released by the Chief Guest, Mr J K Borah in presence of the dignitaries. Also, the employees who retired during September'17 to August'18 were felicitated with CSIR Sanman Patras and Mementoes and also those who completed 25 years in Council's service were felicitated with token gifts. Certificates and prizes were also distributed to the winners of various competitions held under the occasion like Drawing, Essay, Debate and Quiz competitions held among the school students and staff members. On the occasion, CSIR-NEIST also transferred and handed the technology packages of its four technologies namely, 'Modular Bricks from Brahmaputra River bed sand', 'Improved varieties of Citronella (Jor Lab C-5) & Lemongrass (Jor Lab L-8)' and 'Liquid Deodorant Cleaner' to five parties from Assam and Uttar Pradesh. CSIR-NEIST also entered into an MoU with NESSIA, Jorhat for entrepreneurship development in the North East through training & dissemination of MSME technologies. It is also to be mentioned that like previous years, this year also, 'CSIR-NEIST Golden Jubilee Scholarship scheme for bright students of NE region' which started in 2013 with an aim to enthuse North East students towards basic science (in UG level) was continued and the scholarship for 2018 was awarded to 2 meritorious students for securing more than 70 percentage marks in class XII this year (belonging from economically weak background) and pursuing B.Sc (Chemistry honours) degree from DKD College, Dergaon. The programme concluded with vote of thanks by Mr S C Kalita, Chief Scientist. As a part of the celebration, CSIR-NEIST also observed 'Open Day' during 2.00 pm to 4.30 pm during which students from in and around Jorhat and general public visited the Institute and interacted with scientists.

### Dr Jitendra Singh, Hon'ble Minister of Development of North Eastern Region (DoNER) lays the Foundation Stone for STINER TFC main hub at CSIR-NEIST



Dr Jitendra Singh, Hon'ble Minister of DoNER, laying the Foundation Stone of STINER TFC at CSIR-NEIST on 29 October 2018.



Hon'ble Minister delivering his address on the occasion at CSIR-NEIST.

The 'Science & Technology Intervention for North Eastern Region (STINER)' project supported by Min. of DoNER kick-started on 29 October 2018 at CSIR-NEIST. Dr Jitendra Singh, Hon'ble Minister of DoNER, Govt. of India laid the Foundation Stone of STINER TFC (Technology Facilitation Centre) at CSIR-NEIST and further inaugurated the STINER TFC at SASRD, Nagaland University through online mode during a special programme held at Dr J N Baruah Auditorium, CSIR-NEIST. The STINER TFC at SASRD, Nagaland University is one of the

*A healthy attitude is contagious but don't wait to catch it from others, Be a carrier.*

CSIR-North East Institute of Science & Technology, Jorhat  
*Connecting Science & Technology for a Brighter Tomorrow*



Hon'ble Minister interacting with beneficiaries and entrepreneurs at CSIR-NEIST.

spokes of STINER TFC main hub being set up at CSIR-NEIST and under which similar TFC spokes are aimed to be replicated in other North Eastern states besides Nagaland. The Hon'ble Minister was accompanied by Shri Kamakhya P Tasa, Hon'ble Member of Parliament, Jorhat; Hon'ble Secretary, North Eastern Council Shri Ram Muivah; Hon'ble Joint Secretary, Min. of DoNER, Shri S N Pradhan; Hon'ble Vice Chancellor, Nagaland University, Prof Pardeshi Lal; Hon'ble Chairman, Research Council, CSIR-NEIST, Dr G N Qazi; Former Director, CSIR-NEIST, Dr D Ramaiah and Dr Samit Chattopadhyay, Director, CSIR-NEIST. In his address, Hon'ble Minister spoke about the aspirations of STINER project and mentioned it as one of the steps being taken by the Govt. through MDoNER which considers NE region as a top priority for development in various spheres. He further expressed hope that the TFC will not only serve as a platform for technology dissemination but also empower the farmers, budding entrepreneurs, women self help groups etc. of the region to have a sustainable source of income and become self sufficient in future. The Minister also interacted with beneficiaries and entrepreneurs of CSIR-NEIST technologies during the visit. The programme was attended by invitees, guests and prominent personalities from Jorhat district along with CSIR-NEIST fraternity.

## North East BIO START Second Chapter held at CSIR-NEIST



Dr P Sengupta, Scientist-in-charge, CSIR-NEIST delivering his speech in the inaugural session. Other dignitaries seated on the dais are (from right), Dr B G Unni, Director (Research), Assam down town University; Dr Pawan Sharma, Visiting Research Professor, AAU; Dr K M Bujarbaruah, Vice Chancellor, AAU and Mr Vinod Seshan, Secretary, S&T, Govt. of Assam & CEO, GBP.

The North East BIO START Second Chapter was organized by Guwahati Biotech Park (GBP) in association with CSIR-NEIST on 4 October 2018 at Dr J N Baruah auditorium, CSIR-NEIST. The main objective of the programme was to sensitize the young researchers and entrepreneurs about start-up opportunities in the North East in the area of Life Sciences. The one-day intensive programme was inaugurated by Dr K M Bujarbaruah, Vice Chancellor, Assam Agricultural University (AAU), Jorhat in presence of Dr P Sengupta, Scientist-in-charge, CSIR-NEIST; Shri Vinod Seshan, Secretary, S&T, Govt. of Assam & Chief Executive Officer, Guwahati Biotech Park; Dr Pawan Sharma, Visiting Research Professor, AAU and Dr B G Unni, Director (Research), Assam down town University. Biotech Entrepreneurship in NE India by GBP, technologies suitable for MSME entrepreneurs at CSIR-NEIST, Opportunities & Initiatives of BIRAC, Govt. of India for promoting innovation start-up ecosystem, Assam Biotech Policy were some of the topics deliberated in the programme. The programme was attended by various researchers and budding entrepreneurs of NE region besides CSIR-NEIST fraternity.

*A healthy attitude is contagious but don't wait to catch it from others, Be a carrier.*

## CSIR-NEIST licensed OP-12 Bio-fertilizer technology for commercialization



Dr P Sengupta, Scientist-in-charge, CSIR-NEIST exchanged the technology transfer agreement with Mr Laxminarayan H Singh and Mr Radheshyam Pal, co-partners of M/s Yespie & Lyeon Agro Herbo, Mumbai in presence of the technology team and other staff members on 5 October 2018.

CSIR-NEIST licensed its technology on 'OP-12 Bio-fertilizer' to M/s Yespie & Lyeon Agro Herbo, Mumbai on 5 October 2018. OP-12 Bio-fertilizer provide osmotic stress tolerance capacity to plants in various environmental conditions such as normal as well as water deficit/drought conditions. Based on plant growth promoting rhizobacterial strain, the bio-fertilizer has active nitrogen fixation and phosphate solubilization properties and produces indole-3-acetic acid (IAA) like molecules, ammonia, hydrogen cyanide (HCN), siderophore etc.

## CSIR-NEIST licensed Modular Bricks technology for commercialization

CSIR-NEIST licensed its technology on 'Modular Bricks from Brahmaputra River bed sand' to M/s P S Enterprise, Jorhat on 18 September 2018. Modular bricks are generally used in construction of building structures, boundary wall and foundations etc. It is used as an alternative building material in place of traditional burn clay bricks. The modular brick technology developed by CSIR-NEIST, Jorhat is pollution free and environment friendly stabilized based process. The raw material used in modular brick is abundantly available Brahmaputra River bed sand.



Dr P Sengupta, Scientist-in-charge, CSIR-NEIST and Mr Samir Phukan & Mr Pranjal Sarmah of P S Enterprise, Jorhat exchanged the signed technology transfer agreement in presence of the technology team and other staff on 18 September 2018.

## Dr Ram Awatar Maurya, Scientist receives Young Scientist Award 2015-16

The Council of Science & Technology, Govt. of Uttar Pradesh has conferred the Young Scientist Award 2015-16 to Dr Ram Awatar Maurya, Scientist, in recognition of his significant contribution in the field of Science & Technology. The award carries a cash amount of Rs.1,00,000/-, Citation, Shawl and a Memento. The award was presented by the Hon'ble Chief Minister of U.P, Yogi Adityanath on 25 October 2018 to Dr Maurya at a special function held at Lok Bhawan, U.P.



Dr Ram Awatar Maurya, Scientist

## Honour/Recognition

Dr Mantu Bhuyan, Sr Scientist, MAEP Group has been admitted to the Fellowship of the prestigious Royal Entomological Society of London on 3 October 2018. Royal Entomological Society London is devoted to the promotion and development of entomological science. The Society supports international collaboration, research and publication. It aims to promote excellence in entomology and demonstrate the importance of studying insects to everyone.



Dr Mantu Bhuyan Sr Scientist

*A healthy attitude is contagious but don't wait to catch it from others, Be a carrier.*

## CSIR-NEIST organized demonstration cum training programme for representatives of Arunachal Pradesh State Council for Science & Technology



APSCST representatives undergoing demonstration cum training of 'Edible Mushroom cultivation' and 'Banana fibre extraction for making value added products' (below) under the supervision of CSIR-NEIST scientists.



Under the agreement signed with Arunachal Pradesh State Council for Science & Technology in August 2018 for setting up of Rural Technology Demonstration Centre at Kimin, Arunachal Pradesh, CSIR-NEIST organized an intensive demonstration cum training programme of its eight technologies viz., Mushroom cultivation, Vermicompost production, Cultivation of High Yielding Varieties of Citronella (Jor Lab C-5) and Lemongrass (Jor Lab L-8), Extraction of Banana Fibres, production of TP-16 Biofertilizer & Bacterial formulation for crop enhancement and Essential Oil Distillation Unit at its premises during 24 September to 5 October 2018. Five representatives

of APSCST received the demonstration extended by CSIR-NEIST along with hands-on training held under the supervision of CSIR-NEIST during this period.

## Papers published

### In International Peer Reviewed Journals

- Dey T, Kalita J, Weldon S, Taggart C C: Proteases and Their Inhibitors in Chronic Obstructive Pulmonary Disease, *Journal of Clinical Medicine*, 2018, 7(244), p: 1-20
- Sen T, Neog K, Sarma S, Manna P, Boruah H P D, Gogoi P, Singh A K: Efflux pump inhibition by 11H-pyrido[2,1-b]quinazolin-11-one analogues in mycobacteria, *Bioorganic Medicinal Chemistry*, 2018, 26 p: 4942-4951
- Manceau A, Merkulova M, Murdzek M, Batanova V, Baran R, Glatzel P, Saikia B K, Paktuncdogan, Lefticariu L: Chemical Forms of Mercury in Pyrite: Implications for Predicting Mercury Releases in Acid Mine Drainage Settings, *Environmental Science Technology*, 2018, 52 p: 10286-10296. **Highest Impact Factor Paper (IF: 6.653)**
- Gogoi R, Loying R, Sarma N, Munda S, Kumar P S, Lal M: A comparative study on antioxidant, anti-inflammatory, genotoxicity, anti-microbial activities and chemical composition of fruit and leaf essential oils of *Litsea cubeba* Pers from North-East India, *Industrial Crops and Products*, 2018, 125 p: 131-139
- Das I, Borah H, Sarmah D, Hazarika: Synthesis of PAMAM dendrimer and its derivative AMOL: determination of thermophysical properties by DFT, *Journal of Macromolecular Science, Part A Pure and Applied Chemistry*, 2018, 55(7), p: 544-551
- Borthakur P, Boruah P K, Das M R, Artemkina S, Poltarak P, Fedorov V: Metal free MoS<sub>2</sub> 2D sheets as a peroxidase enzyme and visible-light-induced photocatalyst towards detection and reduction of Cr(VI) ions, *New Journal of Chemistry*, 2018, 42 p: 16919--16929
- Baruah K, Goswami R, Gogoi M, Hazarika S: Performance Evaluation of Nanofiltration Mem-

*A healthy attitude is contagious but don't wait to catch it from others, Be a carrier.*

- brane for Separation of Primary Alcohols from Dilute Solutions, *Journal of Membrane Science Technology*, 2018, 8(2), p: 1000185
- Das I, Borah H, Hazarika S: enzyme catalyzed synthesis of dendrimer in organic solvents: an engineering approach, *Canadian Journal of Pure and Applied Sciences*, 2018, 12(2), p: 4553-4559
  - Goswami R, Gogoi M, Borah H J, Ingole P G, Hazarika S: Preparation and performance evaluation of nanoparticles incorporated polysulfone membrane for removal of dye, *Journal of Environmental Chemical Engineering*, 2018, 6 p: 6139-6146
  - Saikia P, Goswamee R L: Catalytic partial oxidation of CH<sub>4</sub> to syn gas (H<sub>2</sub>/CO) in presence of N<sub>2</sub>O over periclase type SiO<sub>2</sub>@Ni(MgAl)O catalyst synthesized by non aqueous route, *Catalysis Communications*, 2018, 119 p: 1-5
  - Devi R, Gogoi S, Barua S, Sankar Dutta H, Bordoloi M, Khan R: Electrochemical detection of monosodium glutamate in foodstuffs based on Au@MoS<sub>2</sub>/chitosan modified glassy carbon electrode, *Food Chemistry*, 2018, 276 p: 350-357
  - Borah G, Ramaiah D, Patel P: Synthesis of Isoquinoline from Benzimidates via Ru(II)-Catalyzed C-H Alkylation/Annulations with Diazo Compounds, *Chemistry Select*, 2018, 3(37), p: 10333-10337
  - Goswami R, Gogoi M, Borah H J, Ingole P G, Hazarika S: Biogenic synthesized Pd-nanoparticle incorporated antifouling polymeric membrane for removal of crystal violet dye, *Journal of Environmental Chemical Engineering*, 2018, 6(5), p: 6139-6146
  - Gogoi K, Manna P, Dey T, Kalita J, Unni bala G, Ozah DI, Baruah P K: Circulatory heavy metals (cadmium, lead, mercury, and chromium) inversely correlate with plasma GST activity and GSH level in COPD patients and impair NOX4/Nrf2/GCLC/GST signaling pathway in cultured monocytes, *Toxicology In Vitro*, 2018, 54 p: 269-279
  - Munda S, Dutta S, Haldar S, Lal M: Chemical Analysis and Therapeutic Uses of Ginger (*Zingiber officinale* Rosc.) Essential Oil: A Review, *Journal of Essential Oil-Bearing Plants*, 2018, 21(4), p: 994-1002
- ### Proceedings of Seminars/Conferences
- Pant M, Ray K, Sharma T K, Rawat S, Bandyopadhyay A: Frequency Fractal Behavior in the Retina Nano-Center-Fed Dipole Antenna Network of a Human Eye (P. Singh, R. Doti, J. E. Lugo, J. Faubert, S. Rawat, S. Ghosh et al.) *Soft Computing: Theories and Applications: Proceedings of SoCTA 2016, Volume 2 Series: Advances in Intelligent Systems and Computing 584*, 2018 p:201-21, 29/10/2018
  - Pant M, Ray K, Sharma T K, Rawat S, Bandyopadhyay A: DNA as an Electromagnetic Fractal Cavity Resonator: Its Universal Sensing and Fractal Antenna Behavior (P. Singh, R. Doti, J. E. Lugo, J. Faubert, S. Rawat, S. Ghosh et al.) *Soft Computing: Theories and Applications: Proceedings of SoCTA 2016, Volume 2 Series: Advances in Intelligent Systems and Computing 584*, Springer Singapore, 2018, p:213-223, 29/10/2018
  - Singh P, Doti R, Lugo J E, Faubert J, Rawat S, Ghosh S E: Biological Infrared Antenna and Radar, *Soft Computing: Theories and Applications: Proceedings of SoCTA 2016, Volume 2 Series: Advances in Intelligent Systems and Computing 584* ED By Millie Pant, Kanad Ray, Tarun K Sharma, Sanyog Rawat, Anirban Bandyopadhyay, 2018 p:323-332, 29/10/2018
  - Agrawal L, Chhajed R, Ghosh S, Ghosh B, Ray K, Sahu S E: Fractal Information Theory (FIT)-Derived Geometric Musical Language (GML) for Brain-Inspired Hypercomputing, *Soft Computing: Theories and Applications: Proceedings of SoCTA 2016, Volume 2 Series: Advances in Intelligent Systems and Computing 584*, ED By Millie Pant, Kanad Ray, Tarun K. Sharma, Sanyog Rawat, Anirban Bandyopadhyay, published by Springer Singapore, 2018 p- 343-372 29/10/2018
- ### Farewell
- The following member(s) of the staff have retired from Council's service on superannuation from CSIR-NEIST w.e.f 30 September 2018.
1. **Mr Sabarmal Balmiki, Group C**