

CREATORS

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NEWSLETTER OF
BIONEST-IASST
IN ASSOCIATION WITH ISVEC

Editor's Desk

The current issue is an excellent platform to showcase the key highlights of the activities and achievements of BioNEST-IASST. The incessant support provided by the incubation centre in terms of awareness creation, handholding in diverse verticals and its success in making a footprint. The aim was, is and will be to inculcate the analytical and critical thinking skills through knowledge sharing amongst agri-preneurs, technocrats and ecosystem enablers. The 14th Issue is a compilation of such events like talks, exposure visits, and products developed by the incubatees of BioNEST-IASST to inspire the young minds to have inclinations towards entrepreneurship development.

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EVENTS AND WORKSHOPS

MARCH TO JUNE 2023

Celebration of International Women's Day 2023

IASST, Guwahati celebrated the "International Women's Day" on 7th March 2023. The event was organized jointly by Internal Complain Committee (ICC) and BioNEST, IASST at IASST auditorium. The programme started with the welcome address by Dr. A. Devi, Chairperson of ICC, IASST. It was followed by the inaugural speech by Prof. Neelotpal Sen Sarma, In-Charge, Director office, and Head, Physical Science Division. The Motivational talk by the invited speaker Dr. Sriparna B. Baruah, Former Head, CIE, Indian Institute of Entrepreneurship, Guwahati was the main attraction of the programme. More than 100 participants including faculty members, research scholars, post-docs, and other staff members of IASST attended the programme.

Celebration of International Day of Mathematics 2023

IASST celebrated the International Day of Mathematics 2023 on 14th March 2023 at IASST campus. The program is graced by the guest of honor, Prof. Anupam Saikia, Department of Mathematics, IIT Guwahati. The Director-IASST, Prof. Ashis K. Mukherjee, in his inaugural speech mentioned about significant contributions of Aryabhata, Brahmagupta, Bhaskara II, and Varāhamihira. Prof. Saikia delivered an exciting lecture titled "The Fascinating World of Numbers and Their Applications." Where they discussed the chronological development of the number theory, its applications in cryptography, and some century-old unsolved problems that provokes more profound thoughts about the fascinating world of numbers.

Celebration of Biophysics Week at IASST

IASST celebrated Biophysics Week as a part of the Biophysical Society, USA celebrations organized worldwide between March 20–24, 2023. This is a global celebration dedicated to promoting the field of biophysics and the essential contributions and discoveries biophysicists have made in advancing scientific research. Prof. Sujatha Sharma, Department of Biophysics, AIIMS Delhi, delivered the invited lecture on the topic "Biophysics: The Hero Emerging in Pandemics" on 20th March 2023, where she clearly explained the role of Biophysics and how it helped to win two pandemics namely AIDS and Covid-19 and emphasized the need for study in Biophysics. As a part of the program on 21st March 2023, a team led by Dr. Kamatchi Sankaranarayanan, Assistant Professor-Biophysics, IASST, demonstrated the fundamentals of Biophysics to school children the Parijat Academy, Guwahati.

Celebration of World Homeopathy Day at IASST

IASST commemorates "World Homeopathy Day" with a special educational address on homeopathy by Prof. Jayanta Kr. Barman on 10/04/2023, on the institute's premises. Dr. Jayanta Kr. Barman, professor at the Department of Community Medicine, SJN Homeopathic Medical College & Hospital, Guwahati, was invited as the guest of honour. Introducing homeopathy as a holistic medical therapy that is believed to stimulate the body's natural healing processes, Prof. A. K. Mukherjee, Director, IASST, spoke about the importance of conducting high-quality research on homeopathy to be applied in conjunction with other types of healthcare. Dr. Jayanta Kr. Barman, in his address, discussed the significance of this year's theme for the occasion-'Sarwajan Swasth- One Health, One Family' and explained how homeopathy therapy might be a low-cost strategy for families from disadvantaged groups.

World Intellectual Property Day celebration

BioNEST IASST in association with IASST organized an interactive Session on the topic "Intellectual Property Rights for Safeguarding R&D-based Innovations and Entrepreneurship Development" on 26th April 2023 from 10 am onwards at IASST auditorium.

EVENTS AND WORKSHOPS

MARCH TO JUNE 2023

This year the theme for World Intellectual Property Day was Women and IP: Accelerating Innovation and Creativity. The session was moderated by Sagar Kumar, Manager (Incubation & Outreach) who introduced the speaker of the webinar – Mr. Debasish Dutta, Scientist, Patent Information Center (PIC), Science & Technology Division, Assam Science Technology & Environment Council (ASTEC). The inaugural speech was rendered by Prof. Ashis K Mukherjee, Honourable Director - IASST. The session continued with the awareness talk by Mr. Debasish Dutta and a total of 45 participants attended to understand the process and benefits of patenting and technology transfer.

The seminar ended with the felicitation of the 6 winning teams of FAME Biotech Hackathon 2.0 by Prof. Ashis K. Mukherjee, Honourable Director-IASST, and Prof N. Sen Sarma, Head PSD, and Chairman IPR Cell, IASST.

Celebration of 53rd Foundation Day of DST, GOI

IASST, Guwahati, observed the 53rd Foundation Day of the Department of Science and Technology (DST), GOI, on May 3, 2023, at the IASST campus. The event began with an inaugural statement by Prof. A.K. Mukherjee, Director of IASST. Dr. Manoranjan Mohanty, Head AI Division, DSR, GOI, also highlighted the role of science and technology in the country's development. The invited lecture for the event was delivered by Prof. Arun Bandyopadhyay, Director, CSIR-IICB Kolkata.

National Technology Day 2023

In conjunction with Swachhata Pakhwada, a national campaign to promote cleanliness and hygiene for a healthy and sustainable future, IASST in association with BioNEST-IASST celebrated National Technology Day on May 11th. The guest speaker, David Gogoi, Co-Founder and Director of Zerund Manufacturing Pvt. Ltd, shared his entrepreneurial journey of manufacturing sustainable construction material called 'plastic embedded lightweight bricks' from recycled plastic waste. The participants & innovators interacted with the speaker to converse about the technical details of the product and the manufacturing process used to produce it. National Technology Day highlighted the importance of sustainable development and the role of technology in achieving it.

Bio-Incubation exposure session

On May 23rd and 24th, 2023, the BioNEST facility at IASST held an incubation exposure session during the two-day college teachers' training and lab visit programme under the 'SC/ST Community Development Project'. Discussions on the technologies developed at BioNEST IASST in Medtech, Food-Tech, and Cosmetics were presented to enhance the participants' understanding of translating scientific knowledge into practical applications.

One-Day Workshop on Fluorescence Activated Cell Sorter

IASST & BioNEST IASST jointly organized a One-Day Workshop on Fluorescence Activated Cell Sorter (FACS) supported by BD India Pvt. Ltd on 29th May 2023 at IASST Campus. The workshop featured an interactive talk on the cytometer's workflow & applications and a live demo on sample preparation & data interpretation. A parallel session, known as the ServiceKamp focused on a training workshop for operators and technicians of FACS from IASST and nearby institutes.

Celebration of World Environment Day

IASST, in collaboration with the Indian Academy of Science, observed World Environment Day on June 5th, 2023. A series of events spanning from May 24th-June 5th, 2023 formed a comprehensive campaign to raise awareness on environmental issues & combat the use of single-use plastics. The expert talk series showcased inspiring speeches from Mr B. B. Dev Choudhury, Chairman APSC, Govt. of Assam & Prof. U. C. Kulshrestha, Professor, School of Envi. Sciences JNU & Deputy Director of the South Asian Nitrogen Centre.

Tech-TALK

Achievement and hurdles behind launching Zerund bricks --David Gogoi, Director and Co-Founder, Zerund Manufacturing Pvt. Ltd



Idea behind inception

It is important to understand that technology is changing the course of Indian ecosystem in terms of entrepreneurship even in terms of business coming up in India. Startups are there to create impact through either innovative products or services. Therefore, it is required to find tangible solutions to the problems that are around, and for us finding an innovative solution to the existing building material was a challenge which initially started as a college project of Assam Engineering College in 2018. I along with my two co-founders thought to do something of our own in the civil domain as there was a deeper sense of belongingness associated with what we studied for the past 4 years of the academic curriculum. The idea was to use industrial waste to make brick as bricks are the major building material required in constructing any infrastructure. In India it's a \$25 billion market and has lot of opportunity since not much innovation is done and a more than 2000 year old technology of red brick is still the major practice prevalent.

Journey from inception to a successful startup

It started in the college lab as a final-year project. Through detailed research, hard work, and dedication, we have successfully developed our lightweight brick. It was a eureka moment when we were convinced and determined that the prototype works. This brick exhibits high strength, low water absorption, excellent insulation, and cost efficiency. At the same time, I was selected twice in campus interviews by two reputed companies. However, at the age of 23 when everyone was dreaming of a good job and a settled life, I chose not to settle for less and decided to explore the market and start my own business. As we were first-generation entrepreneurs, we didn't know much about business, accounts, or customer acquisition but time has taught us to understand at least what not to do. We gradually accumulated knowledge and got the courage to get off and find a solution. With our bricks, we are promising your family a strong home with a healthy environment for future generations. We're on a mission to make a positive impact on our planet and society by converting waste into wealth. We believe that entrepreneurship can drive sustainability, and create a better future for themselves and our planet.

Hurdles in launching the dream product

Funds were the major constraint as initially we managed to start with only Rs. 50K and utilized that to finalize the legal entity of our startup to a Private Limited Company in the name of Zerund Manufacturing Pvt. Ltd. Starting the business was tough and burning the money was easy because we kept on bringing in cash from different sources but realized if we don't strategize to increase the net sales, it will go to the pit hole. Immediately we switched to strong planning for marketing and sales for steady cash flows.

Waste to wealth

India produces 9.5 million tons of plastic annually, and Zerund currently has 10,000+ tons of waste materials (plastic waste, industrial waste) annually in its plants. In India, 42.64 MT of CO₂ is emitted by each Red Brick Industry annually. The energy consumption in the manufacturing of Zerund Brick is much less compared to red bricks, and no fertile agricultural soil is used in the manufacturing of Zerund Bricks. Due to the growing demand for Zerund Brick, we have consistently expanded our production capacity by adding additional manufacturing plants. Our total production capacity has now increased to 50,000 cubic meters per year.



Commitment to the society

- To attract, retain, motivate, and develop highly talented employees, empower them, and offer them challenging career paths in a healthy work environment.
- To allocate resources in the most effective manner, avoid wastage, and achieve optimal returns.
- To exceed customer expectations, continuously deliver to them the most relevant products and the best service levels.
- To ask questions with customers, partners, employees, and authorities while maintaining the highest levels of integrity and respect, and displaying fairness in all our interactions.
- To maintain the highest levels of quality throughout the organization and with all external stakeholders.
- To operate in a socially responsible manner.

Role of like-minded people in Team building

Rupam Choudhury is the co-founder of Zerund and holds a degree in civil engineering from Assam Engineering College. With over five years of experience in operations, he leads Zerund's operations, research and development, and all factories. Rupam's strong belief in a disciplined work culture is reflected in his leadership at Zerund. He is passionate about green technology and carbon reduction, which keeps the company motivated toward its goals. Mousum Talukdar is a civil engineer, who graduated from Assam engineering college. He has been working on green building materials since 2015. Lastly, myself-David Pratim Gogoi, a civil engineering graduate alumnus from Assam Engineering College, am the co-founder of Zerund. I have been leading Zerund's Sales and Marketing, Public Relations, and Corporate Communications for over five years. I believe in carbon-free green technology and envision disrupting the construction industry through Zerund's integration of this technology.

Services to clients

We have clients and business expansions being made in North East, West Bengal, Bhutan in the East, and Maharashtra and Gujrat in the West. Soon to start an R&D Centre in Navi Mumbai for developing new products. We provide free installation guidance to the masons at the construction sites. We also provide free consultancy about the structure, especially on the brick walls. Budgetary quantitative estimation guidance to the customers also is a unique service feature that Zerund caters to. Our executives regularly visit sites for quality control management.

USP of Zerund Bricks

• Cost saving

Buildings made from our bricks can save up to 15-20% money in comparison to normal red bricks.

• Higher strength

Very high compressive strength than other lightweight bricks.

• Lightweight

50% Lighter than normal red bricks.

• Less Water Absorption

It helps to minimize cracks and excrescence.

• Fire resistance

Our reports prove that the product has 1.4 times more fire resistance than normal red clay brick.

• Sound insulation

Our products can be used extensively at places requiring high sound insulation like Auditoriums, move halls, hospitals, etc. This is because the bricks have air voids within them which creates a lot of sound insulation.

• Time-saving in construction.


The bricks are easy to handle and save a lot of time during their installation High tensile strength: The use of plastic helps to increase the tensile properties of the brick this as a result helps to reduce cracks in the product.


Success Stories

The 2 Starbucks in Guwahati, where the products were used because of the sustainability and cost efficiency. Zerund bricks are used by PWD Assam in Assam Secretariat because of the high heat and sound insulation. 400+ homes monthly are being built in the low-cost housing sector under Pradhan Mantri Awas Yojana, GOI. Clients like Numaligarh Refinery Limited (PSU) prefer our product because of high strength green building product and high earthquake resistance.

Complementary products of Zerund

Bharat Bond Adhesive is a ready-to-use, grey-cement-based, non-shrink, self-curing mortar designed to fix Zerund blocks. This thin jointing material has very high tensile adhesion strength. Zerund Premix, which can be a milestone in polymer technology. It will help lightweight brick manufacturers reduce raw material usage and significantly reduce the amount of water required in the process.

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DR. AKUMTOSHI LKR

Affordable and sustainable animal feed production in order to maximize the recovery of food waste by turning food from waste into a potential animal protein source by rearing an insect called Black Soldier Fly (BSF), along with other ingredients.



DR. KIRAN GOGOI

Development of a Novel Low Cost Modular Orchidarium to create a Community led Orchid Value Chain involving Tribal Women SHGs supported by a Central Laboratory, QC and Commercial center.



DR. MANIKA BURAGOHAIN

Development of a cell culture adapted duck plague virus vaccine formula which is highly contagious and fatal viral disease caused by duck enteritis virus. A cell-based vaccine production technology allows faster and shorter production cycles, greater capacity and a more reliable characterized product.



MONALISHA BORTHAKUR

Develop nutritious, gluten-free noodles and pasta from indigenous anthocyanin-rich rice varieties of NER that are 3 times high in fibre vs. other rice noodles/pasta available in the market. Aimed to produce functional food products and promote the marginal farmers



SHABIHA N HAZARIKA

Development and validation of microbial formulation against fusarial dieback disease and to reduce the chemical inputs in tea plantation and to nourish plants and improve soil health. This biological measure can regulate fungal pathogen populations and reduce chemical load.



TRAILUKYA DUTTA

Development of a deep penetrating anti-inflammatory Aged Garlic Oil (VIPILIC DOLOR OIL) from Brahmaputra Valley for the management of Arthritis inflammation and allied pain. It is a selective COX-2 inhibitor to mitigate the side affects of NSAIDs.

Grant-in-Aid support of Rs. 50 Lakhs to each

Products developed by incubatees of **BIONEST-IASST**

