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Study of noise on turtle beaches to assess impact on nesting, hatching

CSIR-CRRI

25th December, 2023

In a first-of-its-kind initiative, the Central Road Research Institute (CRRI) will measure the sound levels on the four protected turtle nesting beaches of Morjim, Mandrem, Agonda, and Galgibaga as part of a study on the repercussions of noise pollution on turtle nesting and hatching success.

The study, which is slated to commence in January 2024, will be instrumental in unravelling the effects of noise, an often overlooked menace, on nesting sites and will be used to propose mitigation measures.

“This study is vital for the conservation of sea turtles and their habitat. It will furnish scientific evidence and recommendations for policymakers and stakeholders to implement appropriate measures for controlling and reducing noise pollution in coastal areas,” said Dr. Akhtar.

Sea turtles, classified as endangered species, face many different threats from human activities, including poaching, fishing, coastal development, and pollution.

Chief scientist and leader of the project that is noise mapping the state, Dr. Nasim Akhtar, said that no investigation of this type has been conducted before.

Noise, he said, can disrupt the habitat of sea turtles and affect their natural behaviour.

The CRRI scientist said that animals and insects can perceive sounds ranging from 5 Hz to 40 Hz and may flee from noise sources, citing potential interference with communication, navigation, and orientation.

The CRRI study will compare the noise levels at various turtle nesting beaches in Goa with the ambient noise levels in the sea and surrounding areas.

It will also track the behaviour and movement of turtles using GPS tags and cameras.

Various tools and techniques, such as sound level metres, noise mapping software, GIS, and statistical analysis, will be used in the study, which will follow the guidelines and standards of the Central Pollution Control Board and the Ministry of Environment, Forest and Climate Change.

The Goa Coastal Zone Management Authority had previously taken measures to safeguard turtle nesting sites, declaring them silence zones. These areas prohibit loud music, parties, vehicles, and other noise sources. No-take zones have also been demarcated, restricting commercial activities and emphasising marine conservation efforts.

Union Minister Sarbananda Sonowal assures Rs 200 cr investment for CSIR-NEIST in Jorhat to boost medicinal plant market of northeast India

CSIR-NEIST

24th December , 2023

Fortified Rice Kernels (FRKs) are crucial for the country to collectively address malnutrition and anaemia as they have been scientifically proven nutritious, cost-effective, scalable and sustainable, said experts at a meeting today. They were speaking at a stakeholders meet on FRKs organised by CSIR-National Institute for Interdisciplinary Science and Technology (CSIR-NIIST) on its campus at Pappanamcode here.



The Union Minister Sonowal said, “Mother Nature has blessed this beautiful region of Northeast with rich flora and fauna. This rich bounty of nature must be used responsibly so that the ecology of the region is sustained, while the medicinal benefits from the herbs can be extracted responsibly to ramp up India’s rich heritage in traditional medicine. Under the inspiring leadership of Prime Minister Narendra Modi ji, India has once again discovered its glory with rich heritage of traditional medicine, which was once lost due to ignorance and arrogance of Congress governments in the past. Our rich heritage of traditional medicine, be it Ayurveda, Siddha, Yoga, Unani, Naturopathy, Sowa Rigpa or Homoeopathy, has proven its efficacy for generations after generations and has withstood all the challenges that time posed against it. Under Modi ji, we are revitalising the traditional medicine with a rational approach to scientifically validate its outcome so that more and more people can avail its life enriching benefit. As India leads the resurgence of traditional medicine globally, the Northeast, with its rich resource of medicinal plants and herbs, will play a crucial role to act as harbinger of growth for the healing industry of India.”

During this visit, the Minister reviewed the progress of different activities undertaken by the institute to strengthen the huge potential of medicinal plant market in the region. Of the proposed investment for capacity building at CSIR-NEIST, multiple cold storages will be set up for storage of herbal plants for commercial usage. An approximate investment of Ra 100 crores is set to develop these specialised cold storages for Medicinal Herbal plants. A Centre of Medicinal Herbs and Aromatic Plants is also proposed to be set up which will act as a lynchpin of research and development in medicinal plant from the region. The Centre of Excellence is proposed to be developed with an outlay of Rs 35 crores. In order to explore possibilities from the folk medicine, with scientifically validated outcome, for treatment of ailments, a hospital for traditional folk healers is also proposed. The cost for development of this hospital is pegged at Rs 50 crores.

Sonowal said, “The CSIR-NEIST have been doing some important work in the research of medicinal plants of the region. During our review today, I was briefed about various activities around medicinal and aromatic plants (MAPs) cultivation, as well as work done under Aroma Mission. Given the immense potential of the region, as a hotspot of medicinal plants, we are considering to set up cold storages so that commercial viability of medicinal herbs and plants can be explored and enhanced. To further the application from essence of the medicinal plants found in the region, a centre of excellence is also being considered to be set up in the region. Our rich wisdom in traditional and folk medicine needs careful exploration as well as validate through a scientific approach. A hospital for folk & traditional healers is being considered so that our age old treatments gets scientifically recorded and accorded treatment to the needy in a scientifically valid environment to enrich their quality of lives. Altogether this investment of more than Rs 100 crores is yet another step by the Narendra Modi ji led government to empower and enable traditional form of medicine for wider use by people as well as it becoming a major contributor to the global wellness movement towards enriching the quality of lives across the world. With Northeast as Asta Lakshmi with Mother Nature’s blessings, we can power the engine of India’s growth by investing in its natural advantages and becoming a hub of medicinal plants in the world.”

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Outreach programs are ongoing to percolate the message of IISF 2023 in the Society

CSIR

22nd December, 2023

The ninth edition of India International Science Festival (IISF-2023) has begun its outreach in different states of India starting from the first week of December 2023. The mega science festival will be held at RCB-THSTI campus, Faridabad (Haryana) from 17-20 January, 2024. The event is being jointly organized by Ministry of Science and Technology (MoST), Ministry of Earth Sciences (MoES), Department of Scientific and Industrial Research (DSIR), Department of Biotechnology (DBT), Department of Space (DoS), and Department of Atomic Energy (DAE) in collaboration with Vijnana Bharati.

Since 2015, IISF has been celebrating India's achievements and strengthening in the field of Science and Technology in an engaging and joyful manner. Even during the challenging COVID-19 time, in 2020, IISF was organized on a virtual platform. The IISF-2020 by erstwhile CSIR-National Institute of Science, Technology and Developmental Studies, NISTADS (now CSIR-NIScPR, National Institute of Science and Policy Research) was a true demonstration of the country's digital power as a festival was organised virtually. An online fair that was so much engaging even if it was on a digital mode, clearly showing the calibre of self-reliance and self-sufficiency.

In 2021, the Department of Space and Department of Atomic Energy also joined hands with IISF with a mission of making S&T innovation ecosystem stronger and more effective, thereby inspiring future generations.

With its primary objective to commemorate the world of science, making it accessible to all, this year too, IISF-2023 is ready to connect science with every section of the society with its theme of "Science and Technology Public Outreach in Amrit Kaal." The current year festival is being coordinated and implemented by the Department of Science & Technology (DST), Govt. of India, and the National Innovation Foundation (NIF) – India, an autonomous

institute of DST in cooperation with Vijnana Bharati, VIBHA India. Vijnana Bharati is a Swadeshi Science Movement with the aim to connect science with society. IISF organizes the outreach events in the schools and R&D institutes across the country to provide the message of IISF. Currently, the pre-fest outreach programs are in full swing. So far, around 40 outreach events has taken place in different laboratories across the nation. Next in line, 20 events are proposed. In total, 60 outreach events for IISF 2023 have been planned. On 3rd December 2023, it was organized at CSIR-Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow. CSIR-National Institute for Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram organised on December 6, 2023. CSIR-Central Food Technological Research Institute (CFTRI), Mysore organised the pre-fest outreach on December 9.

On 11th December, 2023, CSIR-Central Institute of Mining and Fuel Research (CIMFR), Dhanbad, Jharkhand organised the outreach programme of India International Science Festival. CSIR-National Environmental Engineering Research Institute (NEERI), Nagpur also organised on the same day at Nagpur. CSIR-Indian Institute of Petroleum (IIP), Dehradun organised the IISF 2023 outreach on 12th December 2023. On December 13, the outreach programme took place at CSIR-Central Road Research Institute (CRRI) New Delhi, CSIR-Central Building Research Institute (CBRI), Roorkee, and Department of Atomic Energy (DAE) - Institute of Physics, Bhubaneswar (IOPB).

The outreach programmes were organised on 14th December 2023 at CSIR-National Physical Laboratory (NPL) New Delhi, CSIR-Central Leather Research Institute (CLRI) Chennai, CSIR-Central Drug Research Institute (CDRI) Lucknow. On 15th December 2023, outreach programs were organised at CSIR-Institute of Microbial Technology (IMTECH) Chandigarh, CSIR-National Aerospace Laboratories (NAL) Bengaluru, CSIR-Indian Institute of Chemical Biology (IICB) Kolkata, CSIR-Institute of Himalayan Bioresource Technology (IHBT) Palampur, CSIR-Institute of Genomics & Integrative Biology (IGIB) New Delhi, DBT-Centre for DNA Fingerprinting and Diagnostics (CDFD) Hyderabad, MoES-National Centre for Polar and Ocean Research (NCPOR), Goa.



Glimpses of the IISF 2023 outreach events organised at seven different laboratories across the nation on December 15, 2023. CSIR-IMTECH Chandigarh, CSIR-NAL Bengaluru, CSIR-IICB Kolkata, CSIR-IHBT Palampur, CSIR-IGIB New Delhi, DBT-CDFD Hyderabad, and MoES-NCPOR Goa.

CSIR-Indian Institute of Chemical Technology (IICT) Secunderabad, DBT-National Brain Research Centre (NBRC) Manesar organised on December 16, 2023. CSIR-Fourth Paradigm Institute (4PI) Bengaluru, CSIR- National Institute of Science Communication and Policy Research (NIScPR) New Delhi, CSIR-National Metallurgical Laboratory (NML) Jamshedpur, DAE-Institute of Physics Bhubaneswar (IOPB) second event, CSIR-Indian Institute of Integrative Medicine (IIIM) Jammu, DST-Wadia Institute of Himalayan Geology (WIHG) Dehradun, CSIR-National Institute of Oceanography (NIO) Goa organised the IISF outreach event on December 18, 2023.



Glimpses of IISF 2023 outreach events organised at seven different laboratories across the nation on December 18, 2023. CSIR-4PI (Bengaluru), CSIR-NIScPR (New Delhi), CSIR-NML (Jamshedpur), DAE- IOPB (Bhubaneswar), CSIR-IIIM (Jammu), CSIR-NIO (Goa), and DST-WIHG (Dehradun).



Science with Fun activity for Students as a part of the IISF 2023 outreach programme at CSIR-NIScPR, Pusa, New Delhi on December 18, 2023. CSIR-National Geophysical Research Institute (NGRI) Hyderabad, CSIR-Institute of Minerals and Materials Technology (IMMT) Bhubaneswar, CSIR-National Chemical Laboratory (NCL) Pune, and CSIR-Central Scientific Instruments Organisation (CSIO) Chandigarh, DAE-Institute of Physics Bhubaneswar (IOPB) Bhubaneswar (third event) organised the mega festival outreach on December 19, 2023.

On 20th December 2023, the IISF outreach events were organised at North East Center for Technology Application and Reach (NECTAR) Shillong, MoES-National Centre for Medium Range Weather Forecasting (NCMRWF) Noida, CSIR- National Botanical Research Institute (NBRI) Lucknow, and MoES-Centre for Marine Living Resources & Ecology (CMLRE) Kochi. The outreach programs were organised on 21st December at CSIR-Central Mechanical Engineering Research Institute (CMERI) Durgapur, CSIR-Centre for Cellular & Molecular Biology (CCMB) Hyderabad, CSIR-Central Electrochemical Research Institute (CECRI) Karaikudi, Tamil Nadu, and CSIR-Indian Institute of Toxicology Research (IITR) Lucknow, DBT-National Agri-Food Biotechnology Institute (NABI) Mohali, DST-S.N. Bose National Centre for Basic Sciences (NCBS) Kolkata, DST-Indian Institute of Astrophysics (IIA) Bengaluru, DAE-Institute of Physics Bhubaneswar (IOPB).



A group photograph on IISF 2023 outreach programme at CSIR-CMERI, Durgapur, West Bengal on December 21, 2023.



IISF 2023 Outreach program organised by DAE-Institute of Physics (IOP), Bhubaneswar on December 21, 2023

CSIR-Central Salt & Marine Chemicals Research Institute (CSMCRI) Bhavnagar, DST-Indian Institute of Astrophysics (IIA) Bengaluru, DBT-National Institute of Plant Genome Research (NIPGR) New Delhi, and DAE-Institute of Physics Bhubaneswar (IOPB) organised on December 22, 2023.

Other proposed IISF's outreach events in the upcoming week are at CSIR-Central Electronics Engineering Research Institute (CEERI) Pilani, Rajasthan on December 24, MoES-Indian National Centre for Ocean Transformation Services (INCOIS) Hyderabad, DBT-National Agri-Food Biotechnology Institute (NABI) Mohali, DST-Indian Institute of Geomagnetism (IIG) Mumbai, DST-Birbal Sahni Institute of Palaeosciences (BSIP) Lucknow. CSIR-North East Institute of Science and Technology (NEIST) Jorhat, Assam will organise its outreach event on During 26-29 December, 2023 CSIR-Advanced Materials and Processes Research Institute (AMPRI) Bhopal, DAE- Variable Energy Cyclotron Centre (VECC), Kolkata and DST-Aryabhata Research Institute of Observational Sciences (ARIES) Nainital, Kumaon will organise IISF outreach events.

The Science Media Communication Cell (SMCC) at CSIR-National Institute of Science Communication & Policy Research (NIScPR) is coordinating and facilitating the media publicity of the India International Science Festival (IISF) 2023.

Don't flush that pet fish or turtle down the toilet: CCMB scientist

CSIR-CCMB

22nd December, 2023

Flushing pet fish or turtle down the toilet or releasing them in a pond, letting a pet bird fly away, abandoning a pet dog or cat does not only endanger their life but it can also set off a possible biological invasion in the future.

The much loved pet could become an invasive species and destroy an entire eco-system, said scientists at CSIR-Centre for Cellular and Molecular Biology (CCMB).

Stray cats and dogs are considered among the worst invasive species in the world and are responsible for killing scores of native birds and terrestrial animals annually. Invasive species are also responsible for incurring huge economic losses every year for the country, said invasion biologist Gopi Krishnan from Dr. G. Umapathy's lab in an official online post.

Biological invasion is a multi-step process wherein a species is intentionally or accidentally transported for agriculture, ornamental or recreation purposes and then introduced to a new location outside its natural range. This species may soon establish a self-sustaining population and disperse to other regions. Since it negatively impacts the new ecosystem it is called an invasive species, although they are not inherently invasive.

Mr. Gopi Krishnan took the example of the aquarium cleaning, catfish like 'armoured sailfin', which is just about two inches in size but can grow up to two feet in length when let out into a pond. Catfish species from South America are very popular among aquaculture hobbyists in the country as they do not need high maintenance and also help keep the tank clean by feeding on algal growth.

When the pet owner wants to give up the fish, usually it is released into a nearby pond or a lake where they grow into huge numbers and lead to decline of native fishes through

competition for food and other resources. Their sharp bony plates provide them protection against potential predators such as birds and other fishes. They can also damage fishermen nets when caught, though these fish are not a delicacy, he said.

Other fish species like goldfish, alligator gar and arapaima, too, can grow into huge sizes, up to five feet in length. Rose-ringed parakeet, Burmese pythons, red-eared slider turtles are other examples of ‘pets’ becoming invasive species after initially moved as part of the pet trade, Mr. Gopi Krishnan explained.

He pointed out that Australia has been trying to control rabbit population there owing to the havoc they have been wreaking on crops, land and native biodiversity. This population originated from the 24 rabbits introduced for gaming in 1859.

Controlling invasive species is extremely difficult due to the lack of natural predators, high reproduction, adaptability to newer conditions, etc. Government departments and voluntary organisations have been working towards tackling invasive species by conducting eradication drives, monitoring illegal pet trades, etc., said the scientist, who called for “collective action”.

He urges citizens to register their pets – dogs, cats or any other animal — with the authorities, take licence/permission and learn about the species by consulting a biologist or doing a simple Google search. Most important, those wanting to give away their pet should contact animal shelters or animal welfare organisations instead of letting them loose into the open. Buying exotic and banned pet species should be avoided, added Mr. Gopi Krishnan.

Goa Pollution Control Board gets experts for mapping and mitigation of noise pollution

CSIR-CRRI

22nd December, 2023

With an aim to control the menace of noise pollution in the coastal State, the Goa State Pollution Control Board (GSPCB) has roped-in CSIR lab Central Road Research Institute (CRRI) for noise mapping.

In this regard, a workshop was organised on Noise Mapping, Hotspot Identification and Mitigation Measures on Thursday by GSPCB along with CRRI, ahead of the Sunburn electronic dance music (EDM) starting next week.

The workshop discussed various aspects of noise, mapping of the noise and identification of hotspot areas of noise in the State.

Director of CRRI, Dr Manoranjan Parida, who inaugurated the workshop, informed about various mitigation methods implemented by Japan, Hong Kong, Australia and Europe. The project of Noise Mapping will be executed by the CRRI for the period of one year.

The project is aimed towards development of noise maps of cities in Goa in terms of the day and night equivalent noise levels indicating hotspots areas.

The scope of work includes collection of primary data comprising of traffic volume data vehicular speed, road details, building layouts, metrological and topographical data for presentation of noise map and also mitigation measures to reduce noise pollution will be suggested during the project.

GSPCB Chairman Mahesh Patil stated that scientific and legal understanding of noise is very important while dealing with the noise pollution. He informed that the GSPCB had installed 12 noise meters to monitor noise in beach areas. He hoped that the project on noise mapping

will give a clear picture of noise pollution in the State and scientific mitigation methods to reduce the problem.

CSIR chief scientist Dr Nasim Akhtar said the support and cooperation from all the stakeholders towards reducing noise pollution will bring real change in the State. Small mitigation measures can achieve the best result in reducing noise nuisance, he added.

Technical Director Dr T Ravi Shekhar also spoke on the occasion. GSPCB scientist Jenica Sequeira was also present. Earlier, member secretary of GSPCB Shamila Monteiro welcomed the gathering. The workshop was attended by senior officers of various line departments of the government, hotels and industries.

Next year, India's longest steel slag road to come up near Surat Diamond Bourse

CSIR-CRRI

21st December , 2023

India's longest steel slag road is set to come up near the newly inaugurated Surat Diamond Bourse at Khajod by next year, officials said on Wednesday. Last year, Surat got the country's first steel slag road at Hazira. Made from industrial waste, such roads are cheaper to construct and are said to be more durable. A team of the Council of Scientific and Industrial Research- Central Road Research Institute



(CSIR-CRRI) on Wednesday visited Surat to review the site where the 8-km-long and 8-lane steel slag road is being constructed. The construction is being undertaken by Ramera Buildcon Pvt. Ltd, and Shree Manglam Buildcon (i) Private Limited.

Ramera Buildcon director Piyush Patel said, "We got a contract from the National Highway Authority of India (NHAI) last year and we started work in April 2022. So far, we have completed over 30 per cent of the work and over 60,000 tonnes of steel slag aggregates have been used. We are hopeful to complete the project by the middle of next year. Around four tonnes of steel slag from ArcelorMittal and Nippon Steel will be used on this road."

Principal Scientist of CSIR-CRRI Satish Pandey said, "The first-ever steel slag road of one km in the country was launched in Surat last year. More than 1 lakh tonne of steel slag was used. Near the Surat Diamond Bourse, the country's longest steel slag road of 8 km is coming up. Apart from Gujarat, we have constructed such roads of one km each in Arunachal Pradesh, Maharashtra, and Jharkhand." Surat Diamond Bourse was inaugurated by Prime Minister Narendra Modi on Sunday. It has been labelled as the world's largest office space building, ahead of Pentagon in the United States.

“In the coming days, such steel slag roads will be made in Andhra Pradesh. In normal roads, a combination of 95 per cent of aggregates and 5 per cent bitumen is used which would be replaced by 95 percent steel slag. Annually, around 19 million metric tonnes of steel slag is produced by different steel companies across the country and the usage of such steel slag roads will also replace the natural aggregates. It will also reduce air pollution emitted by steel slag.” Pandey further added, “In comparison to normal highways, the ones made out of steel slag are 30 per cent less thick because of better material characteristics. The construction costs of such steel slag roads are also around 30 per cent lesser.”

Head of Human Resources Industrial Relation and Administration of India Anil Matoo said, “Our plant has 10 MTPA capacity of steel production. Steel slag is known to be a replacement for natural aggregate for road making and construction. AMNSI has taken the initiative to build India’s first all-steel slag road using 100 per cent processed steel slag in all layers of the road under the technological guidance and supervision of senior scientists from CSIR-CRRI during the entire process of construction. We are selling the steel slag to the contractors, and it is utilised for the right cause as it benefits the environment.”

CSIR-IMMT Hosts The Outreach Programme Of India International Science Festival (IISF) 2023

CSIR-IMMT

21st December , 2023

The India International Science Festival (IISF) is a collaborative endeavour between Ministry of Science and Technology, Ministry of Earth Sciences, Department of Space and Department of Atomic Energy in partnership with Vijnana Bharati – a science movement spearheaded by scientists of the nation with swadeshi spirit.



An outreach program has been conducted at CSIR-IMMT, Bhubaneswar in presence of Chief Guest Dr Sanjeev K Varshney, Advisor & Head-International affairs, DST, GoI, Dr Ramanuj Narayan, Director, CSIR-IMMT. More than 800 participations from schools, colleges, faculty and researchers, scientists, startups and entrepreneurs and other professionals participated in this programme.

Dr Sanjeev K Varshney, Advisor & Head-International affairs, DST, GoI graced the occasion as chief guest and address the large gathering. Flash presentations by several scientists of the institute helped the participants to get an insight on the overall activities and contributions of IMMT. Dr Bikash K Jena gave a detailed overview of IISF-2023 and Dr D S Rao, Head-HRD preside the program with opening remarks. Dr T Pavan Kumar, Coordinator for this event conducted a session on Innovation and IPR with student centric approach along with the entire program management. Overall, the program witnessed an overwhelming response from all the participants making it a super hit event.

IISF's primary objective is to commemorate the world of science, making it accessible to all. The vision of IISF is the promotion of creativity in science, technology and innovation for prosperous India and the mission is to involve innovative and imaginative intellects in India

and worldwide in the celebration of science and to promote science and technology as catalysts for rapidly propelling India towards Amrit Kaal. Under the dynamic leadership of Hon'ble Prime Minister, India's S&T has transformed, with a commitment to innovation, transformative research, and technology-driven solutions. India is poised to emerge as a global leader in science and technology, dedicated to the upliftment of all.



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