

CSIR in Media



75 Years of

CSIR Touching Lives

News Bulletin

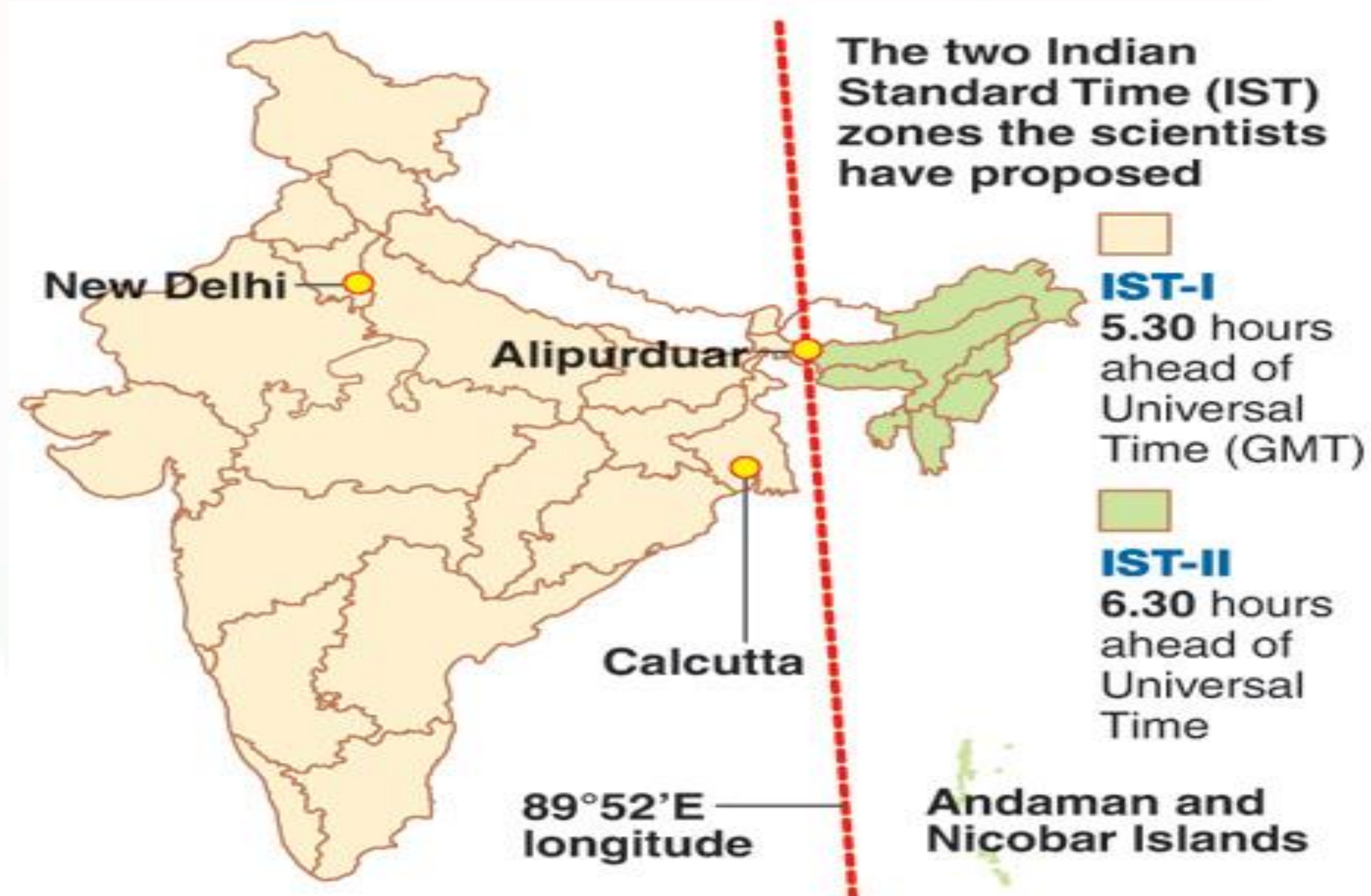
11th to 31st July 2018



Two times? Do not reset watch yet

CSIR-NPL

29th July, 2018



New Delhi: Government scientists have proposed two time zones in India with a demarcation line along the Bengal-Assam border that they say will meet long-standing demands of residents of the Northeast and address concerns that have stalled similar proposals earlier. The proposal means the scientific basis for any change in the future has been put on the table. But the change will be implemented only if the government decides to do so. Science alone need not guide the government, which could also be influenced by views that two time zones might

figuratively "split" the country into two. The scientists at the National Physical Laboratory in New Delhi have proposed 89° 52' east longitude near Alipurduar in Bengal as the line separating the two Indian Standard Time (IST) zones: IST-I, 5.30 hours ahead of Universal Time (GMT), and IST-II, 6.30 hours ahead. The creation of two time zones, specifically IST-II, will help people in the Northeast and on the Andaman and Nicobar islands synchronise their biological clocks to the day-night cycle as well as save significant energy, the NPL researchers said. They have estimated that the cumulative annual electricity savings in the states within the IST-II time zone would be 20 million kilowatt-hours, equivalent to 20 million 1,000-watt water heaters or 10 million 2,000-watt air-conditioners running for an hour. "This is a scientific exercise --it reveals the likely benefits," Dinesh Aswal, director of the NPL who led the analysis told **The Telegraph**. "We believe this will benefit people in the IST-II time zone,

improve work productivity, and help save power.“ The NPL, a laboratory under the Council of Scientific and Industrial Research (CSIR), is the nation's official time-keeper, tasked with generating and disseminating IST across the country. The IST generated by the NPL through atomic clocks and in coordination with a global time-keeping station in France has an accuracy of 20 billionths of a second and is used in transport, satellites, telecommunications among other sectors. Several technical experts have in the past proposed two time zones in India but the government has resisted the idea. The Union science and technology ministry, responding to a question in Parliament three years ago, had said a government panel had examined the issue in 2002 and "strongly rejected" the idea. The panel had also not recommended the adoption of a daylight saving time, citing concerns about its economic viability and "chaos and confusion" it might create in the railways and bus transport sectors. However, the panel had asked the eastern and northeastern states to consider advancing their work timings. The NPL scientists have acknowledged concerns that two time zones might increase the risk of railways accidents, particularly because signals along the railway networks have not been fully automated yet. But, they said, their choice of 89.52 east longitude as the demarcation line has been guided by both daylight hours available at sites in each of the two time zones and railway stations near the line. The line between the two time zones should have a narrow spatial width with few railway stations close by so that train timings while crossing the line can be managed manually, the scientists said. For the demarcation line they have proposed, only two railways stations at Alipurduar and New Cooch Behar need to be managed for time adjustment, they said.

Senior NPL scientists Ashish Agarwal, V.N. Ojha, T.D. Senguttuvan, among others, were part of the study.

Published in:
[The Telegraph](#)

Tribal students exposed to research activities at NML

Jamshedpur, July 28 : A group of 36 students from two schools namely Kasturba Gandhi Residential School and Saraikela and Varseni +2 High School, Sini accompanied by five teachers, Laxmi Kumari Bodra, Ria Hansda, Usha Devi, Nutan Mahanti and Sarswati Kumari Bhagat visited at CSIR-National Metallurgical Laboratory, Jamshedpur and interacted with scientists and research scholars this morning under the aegis 'Gigyasa programme'.

The objective of the programme is to provide exposures of research environment and simultaneously inculcate interest towards science

among school students and further pursue carrier in the science stream. The students were thrilled and curiosity was observed among students and teachers.

The programme was scheduled for five hours. Dr.P.N. Mishra, Principal Scientist, initiated the programme with welcome address and introduced students and teachers with the members of "Gigyasa programme" and further discussed about importance and uses of natural resources like minerals, ores and rocks. Contribution of CSIR-NML towards the utilization of natural resources further, discussed about fundamentals of science and



its various branches to inculcate interest towards science among students and request students to pursue science as carrier for further study.

Further P.N. Mishra and SNHembramhas organized laboratory visit. Students visited creep testing units of MTE Division and knew about the fatigue, creep,

fractures prevailing in different types of industrial components. Students get exposure of different machine like Servo Hydro Testing Machine, Servo Electrical Machine and furnace.

They further visited at Analytical Chemistry Centre, Electronic waste Units, and Museum. A live

demonstration was arranged at analytical chemistry division by Miss Soni Jha, introduced about conventional as well as non-conventional methods applied in chemical analysis of ores, minerals and different types of metals. Students asked number of question and answered by deputed research scholars. Students were surprised to observed the 68 years' history of NML at museum and they asked different question based on sample and poster pertaining to minerals based product and facilities.

Teachers and students requested for their next visit to the laboratory for gain deeper knowledge. Students

expressed their view and expressed that this programme has helped us in increasing knowledge base and motivated to pursue carrier in metallurgy and materials science. They were satisfied to know about the consistent effort and research emphasis in various sectors, especially in minerals based industries for the ultimate growth and development of India. They thanks to Ministry of Human Resources Development, Govt.of India to launch "Gigyasa Programme" that tie up with council of Scientific & Industrial Research to get opportunity to visit National Metallurgical Laboratory, Jamshedpur.

CSIR-NML

28th July, 2018

विद्यार्थियों ने किया एनएमएल का भ्रमण



जमशेदपुर. सरायकेला स्थित कस्तूरबा गांधी आवासीय विद्यालय और वार्षी प्लस टू हाइ स्कूल सीनी के पांच शिक्षकों के नेतृत्व में 36 विद्यार्थियों का दल शुक्रवार को बर्मागाइंस स्थित सीएसआइआर-एनएमएल पहुंचा. शिक्षकों में लक्ष्मी कुमारी बोदरा, रिया हांसदा, उषा देवी, नूतन महंती और सरस्वती कुमार भागत शामिल थे. सीएसआइआर-एनएमएल द्वारा चलाये जा रहे जिज्ञासा प्रोग्राम के तहत प्रिंसिपल साइंटिस्ट डॉ पीएन मिश्रा, एसएन हैब्रम ने विद्यार्थियों को अब तक किये गये प्रयोगों के बारे में बताया. सोनी झा ने लैब में किये जानेवाले प्रयोग की जानकारी दी.

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Prabhat Khabar, Page no. 18

Air pollution is depriving Delhi of vitamin D: Study

CSIR-NPL

28th July, 2018

Low Vitamin D levels can lead to bone mineralisation resulting in bone softening diseases such as rickets among children, and osteomalacia and osteoporosis in adults



Burning of agriculture waste is one of the reasons for high aerosol levels. (HT FILE)

Increasing air pollution levels in Delhi over the last 15 years is depriving its citizens of Vitamin D – the essential sunshine vitamin, finds a new study. New research by Delhi-based CSIR-National Physical Laboratory (NPL) found that an increase in aerosol optical depth (AOD), which indicates the amount of direct sunlight that is prevented from reaching the earth's surface by aerosols particles, has reduced solar ultraviolet (UV) radiation over the country's capital. Aerosols are solid and liquid particles in the atmosphere

originating from burning of agriculture waste and fossil fuels, and natural sources like windblown dust storms, volcanic ash and sea salts. “The ever increasing aerosol pollution over Delhi (due to industrialisation and urbanisation) during last one and a half decade might be one of the main reasons for decreasing trend of UVA and UVB. Such a significant decrease in UVB surface radiation over Delhi is alarming and may be related to Vitamin D deficiency in human population over the region,” stated the study whose principal investigator Sachchidanand Singh is affiliated to the environmental sciences and biomedical metrology division, CSIR-NPL. The study was published in Atmospheric Environment, an international peer reviewed journal, last month. Solar ultraviolet radiation in the range of 100 nanometres (nm) to 400 nm is divided into three bands, UVC (100–280 nm), UVB (280–315 nm) and UVA (315–400 nm). Using monthly data retrieved from Clouds and

Earth Radiant Energy System (CERES) developed for NASA's Earth Observing Satellite, between March 2000 and February 2016, the six-member team found an average 10% decrease in UVA and 20% decrease in UVB with an increase in AOD. More than 90% of UV reaching the earth's surface is UVA; excess exposure is linked to health effects on the skin, eyes and immune system. UVB –most of which is absorbed by the earth's atmosphere – is a major source of vitamin D in humans.

Various international and national studies have linked air pollution to cardiovascular diseases, respiratory ailments, and premature mortality. Results of NPL-led study assumes significance in the backdrop of an April report by ASSOCHAM Healthcare Committee which pegged that about 8 out of 10 people or 80% of Delhi's population suffers from Vitamin D deficiency with the highest concentration among those in the age group of 21-35 years.

Low Vitamin D levels can lead to bone mineralisation resulting in bone softening diseases such as rickets among children, and osteomalacia and osteoporosis in adults. Experts said rising levels of air pollution in Delhi has restricted its citizens to indoors resulting in lower than required level of exposure to the sun, which leads to Vitamin D deficiency. "Vitamin D is a very important fat soluble nutrient which helps ensure that the body absorbs and retains calcium and phosphorus. Both calcium and phosphorous are critical for bone formation and maintenance. Muscle strength is also affected by Vit D levels in our body," said Shweta Khandelwal, senior research scientist and associate professor, Public Health Foundation of India, Delhi.

"Exposure to outside air pollution, especially PM_{2.5} (aerosols), is already linked to increasing number of health impacts. Linking AOD to the decrease in UV over the past 17 years is an important finding, further emphasizing the urgency to address air pollution problem at source," said Sarath Guttikunda, founder-director, Delhi-based UrbanEmissions.info, who was not involved in the study.

Satellite and ground-based observations show a decrease in UVA and UVB in October and November due to high AOD levels, which research attribute to fossil fuel and biomass burning in north India. Maximum UVA and UVB radiation was during summer with highest in May and minimum in January. The CERES UVA and UVB data were compared with the measurements at NPL Delhi during October 2012 to September 2015 and were found to be in good agreement. Results showed that the daily average AOD (at 550 nanometres) ranged between 0.12 and 2.5 over Delhi during the study period. AOD levels in October and November was more than 1 that led to a decrease in UVA and UVB from reaching the earth's surface.

The National Oceanic and Atmospheric Organisation (NOAA), US, categorises AOD of 0.01 as extremely clean atmosphere, and 0.4 and above implies hazy conditions. During 2000-2016, an increase of 0.09 AOD resulted in a decrease of about 1.20 watt per square metre (W/m^2) in UVA and 0.05 W/m^2 in UVB reaching the earth's surface. Watts per square metre is the amount of power (or energy per second) that flows across a square metre surface. Trend analysis of monthly average for 17 years showed that UVA and UVB is decreasing at the rate of 0.07 W/m^2 and 0.003 W/m^2 every year with a 0.005 increase in AOD every year over Delhi.

Along with AOD data, the team also retrieved cloud optical depth (COD) from the Moderate Resolution Imaging Spectroradiometer, which is payload aboard NASA's Terra and Aqua satellites, to analyse the effect of atmospheric opacity on UV radiation. COD measures the scale at which clouds prevent light from passing and reaching the earth's surface.

The daily average COD (at 550 nanometres) ranged between 0.07 and 30. NOAA defines COD as higher the optical depth, thicker the clouds. AOD peaks in May and June due to dust storms, and as a result of local fossil fuel and biomass burning in October and November. As for COD, high value of more than 10 is seen during cloudy months of July-August and in December-January owing to foggy skies. AOD and COD values are low in February and September when skies are clear.

“Our study indicates that the CERES-derived UVA and UVB surface fluxes compare well with ground-based measurements over Delhi. Therefore, these satellite products could be used for long term trend analysis over the entire region and for connecting UVB and reported Vitamin-D deficiency over the tropical region,” stated the study.

Guttikunda said there can be no short-term solutions to the problem of air pollution. Long-term solutions include promoting public transport, walking, and cycling; immediate implementation of environmental standards for heavy and light industries; greening of roads; waste management and alternatives to firing fields. “One must note that firing fields takes place two-three weeks in a year, while rest of the sources emit all 52 weeks,” he said.

“Policy interventions for air pollution in general need to have a joint public health nutrition and environment lens. It is imperative to have policy makers from various ministries or departments like health, nutrition, agriculture and environment to sit in the same room and think of sustainable strategies to address these issues,” said Shweta Khandelwal, senior research scientist and associate professor, Public Health Foundation of India, Delhi.

Published in:
[Hindustan Times](#)

एसआरएमयू का आईआईटीआर के साथ एमओयू

लखनऊ। श्रीराम स्वरूप मेमोरियल यूनीवर्सिटी (एसआरएमयू) और इंडियन इंस्टीट्यूट ऑफ टॉक्सिकोलॉजी रिसर्च (आईआईटीआर) के बीच एक एमओयू हुआ है। यह एमओयू दोनों संस्थाओं के बीच शोधकार्य और वैज्ञानिक सहयोग के लिए है। इससे तकनीकी छात्रों को फायदा मिलेगा। एमओयू पर एसआरएमयू की तरफ से रजिस्ट्रार प्रो. यूके सिंह और आईआईटीआर से अनुसंधान योजना और व्यापार विकास के प्रमुख डॉ. केसी खुल्बे ने हस्ताक्षर किए।

CCMB working on stem cell biology for treating muscle diseases

CSIR-CCMB

26th July, 2018

Hyderabad, July 25 (UNI): Hyderabad-based Centre for Cellular and Molecular Biology (CCMB), a part of the Council of Scientific and Industrial Research (CSIR), is conducting basic research in stem cell biology for treating muscle diseases in coming future, said Dr Jyotsna Dhawan, Chief Scientist of CCMB, here on Wednesday.

Addressing in a press conference about the latest findings in Stem Cell Maintenance, Dr Dhawan said muscular dystrophy happens in our DNA because of mutation and in muscular dystrophy muscle starts to regenerate. Muscle stem cells sleep quietly by changing molecular partners, this is important for muscle regeneration.

"Muscular dystrophy is incurable disease and scientists all over the world are trying to find the medicine for it," she said.

"Most cells in adult tissues have permanently ceased proliferation. However, stem cells in regenerating tissues must attain and maintain a temporary state of quiescence so that a reserve pool is available for future unpredictable bouts of repair," the Chief Scientist said.

The programs that control the cell cycle and differentiation are coordinated to ensure the correct balance of stem cells and differentiated cells in regenerating tissue, but the mechanisms that direct cells into reversible vs. irreversible arrest are poorly understood, she said.

The latest paper from Dr. Jyoysna Dhawan's lab at CSIR- Centre for Cellular and Molecular Biology, Hyderabad published in the journal Science Signalling on July 24, brings in an unexpected interaction between Lef1 and Smad3.

This paper highlights the importance of the Lef1-Smad3 duo in maintenance of quiescence and self-renewal of muscle stem cells (MuSCs).

To emphasize the importance of the result, CCMB Director Dr. Rakesh Kumar Mishra said findings of this study- that cross talk between two signalling pathways that functions like a switch for a stem cell to decide whether to 'divide' or 'wait' uncovers an important phenomenon in biology.

That this switch can be modulated also presents a new era for medical intervention in diseases related to muscle.

Ajoy Aloysius, PhD student in Dr Dhawan's lab, who also the first author of this paper has worked on finding alternate mechanisms to activate Lef1-mediated genes in sleeping MuSCs, said sleeping stem cells make new molecular partnerships, this finding will help to devise new therapeutic

strategies to enhance the stock of stem cells in diseased muscles.

"Pursuing this line of research can potentially improve muscle regeneration and reduce muscle wasting." he added.

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[United News of India](#)

Government considering developing regional transport aircraft

CSIR-NAL

26th July, 2018

The government is considering developing regional transport aircraft as well as other types of planes and helicopters, the Lok Sabha was informed today. India is one of the fastest growing domestic aviation markets in the world and many airlines have embarked on fleet expansion to cater to the rising passenger traffic.

In a written reply to the House, Union minister Jayant Sinha said the issue of development of a Regional Transport Aircraft (RTA) under the National Civil Aircraft Development (NCAD) programme in India was considered during a meeting of a Committee of Secretaries on May 18, 2018.

Further actions have been taken up as per the decisions at the meeting, the Minister of State for Civil Aviation said.

However, he did not provide specific details about the decisions taken.

The minister's reply came to a query on whether the government proposes to manufacture civilian/ passenger aircraft in the country.

"A road map for manufacturing of other suitable aircraft, helicopters and associated ecosphere for parts, components and aviation equipment in India, including the setting up of a task force for the purpose, has also been taken up," Sinha said.

The minister also said that the country's domestic aviation sector has registered double-digit growth for more than four years.

In March 2017, the Science and Technology Ministry had said that a feasibility study has been carried out by CSIR-National Aerospace Laboratories (CSIR-NAL), Bengaluru for the NCAD programme.

"The programme for development of a 90-seater aircraft will have two phases namely, design and development phase and manufacturing phase.

"The total estimated budgetary requirements of the NCAD programme is Rs 7,555 crore, out of which Rs 4,355 crore is for design and development phase and Rs 3,200 crore for series production phase," it had said in a release.

Published in:
[The Economic Times](#)

India's largest lithium-ion battery factory to come up in Krishnagiri

CSIR-CECRI

25th July, 2018

The Raasi Group, in partnership with the Council of Scientific & Industrial Research-Central Electrochemical Research Institute (CSIR-CECRI), Karaikudi, is planning to set up a 1 GW lithium-ion battery manufacturing plant in Krishnagiri at an outlay of Rs. 1,000 crore. The company is co-developing lithium-ion cells with the two institutes under the Public Private Partnership (PPP) model. The proposed unit would be the country's largest indigenous lithium-ion battery manufacturing plant, C. Narasimhan, chairman and managing director, Raasi Group, told mediapersons after Governor Banwarilal Purohit inaugurated the country's first indigenous lithium-ion cell production facility on the CSIR-CECRI campus at Taramani in the city.

“We are planning to set up a 1 GW plant. This requires capital of Rs. 1,000 crore. This will be done in two phases,” Mr. Narasimhan said. Mr. Purohit, after inaugurating the plant, said, “Efforts such as these reinforce our faith in public private partnerships aimed at promoting national development. The benefits will be fully realised when the youth of the nation receive the right kind of skills training and are provided gainful employment.” The Governor said that with India's aspiration to achieve 100% electric vehicle sales by 2030, there was an expectation that the country would be among the top few nations in the world when it came to the manufacture and consumption of lithium-ion batteries. As the cost of batteries constituted almost a third of the purchase price of an electric vehicle, bringing down the battery cost could be a key element in the long-term success of India's automobile sector, he said. “India's market for EV batteries alone could be worth as much as \$300 billion by 2030, as the country moves towards achieving its goals for a rapid transition towards an economy focussed on low carbon emissions,” the Governor said.

Published in:

[The Hindu](#)

India, Rwanda ink 8 MoUs

CSIR-CLRI

24th July, 2018

Kigali [Rwanda], Jul 24 : India and Rwanda on Monday signed eight agreements in an effort to bolster bilateral cooperation between the two countries. According to a release by the Ministry of External Affairs (MEA), a Memorandum of Understanding (MoU) on agriculture signed in May 2007 was amended on the cooperation in the field of agriculture and animal resources.

The agreement will deepen cooperation in agriculture and livestock with a strong emphasis on research, technological development, capacity building and human resource development as well as investment mobilisation. An agreement on defence was signed for capacity building, industry, science, and technology.

An MoU on the cultural exchange programme for the year 2018-22 was signed. The areas of cooperation will be music and dance, theatre, exhibitions, seminars and conference, archaeology, archives, library, museums, literature, research, and documentation. Another MoU on dairy cooperation was signed on cooperation in agricultural research and education between RAB (Rwanda Agriculture Board) and ICAR (Indian Council of Agricultural Research).

The areas of cooperation in this agreement are - training and research in dairy, processing of dairy products, quality and safety of mil, biotechnological intervention in livestock. An agreement on trade cooperation framework was signed to facilitate, diversify, and promote trade and economic cooperation between the two countries. An MoU on collaboration in the areas of leather and allied sectors between NIRDA and CSIR-CLRI was signed by Dr. B. Chandrasekaran, Director, CSIR-CLRI and Director General, NIRDA, Kampeta Sayinzoga.

Two LOC (Line of Credit) agreements - one for USD 100 million for development of Industrial Parks and expansion of Kigali Special Economic Zones and the other for Agriculture irrigation scheme in Rwanda worth USD 100 million were signed between Chief General Manager, EXIM Bank, Nadeem Panjetan and Rwandan Minister of Finance and Economic Planning Dr. Uzziel Ndagijimana.

Prime Minister Narendra Modi is currently on a two-day visit to Rwanda. This is Prime Minister Modi's first visit to Rwanda and the first visit by an Indian Prime Minister to the East African country.

After finishing his engagements in Rwanda, Prime Minister Modi will travel to Uganda, where he will hold meetings and other engagements on Tuesday and Wednesday.

Published in:

[Outlook](#)

CSIR-CSMCRI

24th July, 2018

ભાવનગરની સેન્ટ્રલ સોલ્ટના વૈજ્ઞાનિકોએ આપેલ માર્ગદર્શન ચાંદખેડાની કેન્દ્રીય વિદ્યાલયમાં જીજ્ઞાસા કાર્યક્રમ યોજાયો



। ભાવનગર ।

ભાવનગરની સીએસઆર-સીએસએમસીઆરઆઈ સંસ્થા દ્વારા વિદ્યાર્થીઓના મનમાં રોજાંદા જીવનના વિજ્ઞાન વિશે ઉત્સુકતા પેદા કરવાના પ્રયાસરૂપે ચાંદખેડા સ્થિત કેન્દ્રીય વિદ્યાલયમાં જીજ્ઞાસા કાર્યક્રમ યોજવામાં આવ્યો હતો.

ભાવનગરની સેન્ટ્રલ સોલ્ટ એન્ડ મરિન કેમિકલ રિસર્ચ ઈન્સ્ટીટ્યૂટ દ્વારા કેન્દ્રીય વિદ્યાલય-ચાંદખેડામાં વિજ્ઞાનિકો અને વિદ્યાર્થીઓ વચ્ચે યોજાયેલા વાર્તાલાપમાં અમદાવાદની પાંચ કેન્દ્રીય વિદ્યાલયના ૧૫૦થી વધુ વિદ્યાર્થી અને ૧૫થી વધુ વિજ્ઞાન શિક્ષકોએ ભાગ લીધો હતો. તેમાં સીએસએમસીઆરઆઈના વિજ્ઞાની ડો.નિસારઅહમદએ ફોટો કેમિસ્ટ્રી, ઉપેતોમિકકણો, ઈલેક્ટ્રોન, પ્રોટોનના ભ્રમણ અને તેનાથી ઉત્પન્ન થતું ચુંબકીય ક્ષેત્ર, એલેક્ટ્રોમેગ્નેટિકકિરણ, સ્પેક્ટ્રમ વિશે જણાવી આ અલગ-અલગ કિરણો અલગ-અલગ ગણધર્મો ધરાવે છે. તેનો

ઉપયોગ કેવી રીતે કરાઈ, કલર કેવી રીતે દેખાય તે અંગે માર્ગદર્શન આપ્યું હતું.

જ્યારે વિજ્ઞાની ભૌમિક સુતરિયાએ પીવાના પાણીની કટોકટી, પાણીનું શુદ્ધિકરણ, પીવાના પાણીનું મહત્વ, કટોકટી, પાણીના શુદ્ધિકરણની કેડિસેલિનેશન/રિવર્સ ઓસ્મોસિસ પ્રક્રિયા, વરસાદના પાણીને શુદ્ધ કરી ઘર વપરાશમાં કેવી રીતે ઉપયોગમાં લેવું ? તેનું પ્રાયોગિક પ્રદર્શન દેખાડ્યું હતું. સાડા ચાર કલાક સુધી ચાલેલા કાર્યક્રમમાં વિદ્યાર્થીઓએ વિજ્ઞાનિક કેવી રીતે બનવું, ઈલેક્ટ્રોનની ગતિ કેમ માપવી, રિવર્સઓસ્મોસિસનું મોડ્યુલ કેવી રીતે કામ કરે છે ? વગેરે પ્રશ્નો પૂછ્યાં હતા. વધુમાં જિજ્ઞાસાનો બીજો કાર્યક્રમ આગામી તા.૩-૮ના રોજ કેન્દ્રીય વિદ્યાલય નં.૩, એએફ-બે, જામનગર ખાતે યોજનાર છે.

સીએસએમસીઆરઆઈના વિજ્ઞાની ડો.નિસારઅહમદ અને ભૌમિક સુતરિયાએ કેન્દ્રીય વિદ્યાલયની મુલાકાત લીધી હતી.

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Improving the stability, bioavailability of TB FDC drug

CSIR-NCL

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By using caffeine and vanillic acid, the researchers were able to inhibit cross-reaction between isoniazid and rifampicin. The physical stability and bioavailability of a fixed-dose combination (FDC) drug containing four anti-TB medicines — rifampicin, isoniazid, pyrazinamide and ethambutol — has been vastly improved from 3-4 days (at 40 degree C and 75% relative humidity) to over 30 days by turning to crystal engineering. The use of FDC containing two, three and four anti-TB drugs for the treatment of TB was recommended by the World Health Organisation in 1994. The four-drug FDC was included in the WHO Model List of Essential Drugs in 1999.

The four-drug FDC suffers from stability and quality issues. The FDC tablets tend to undergo discolouration and become sticky, gummy mass thereby affecting its quality. The use of poor quality drugs can lead to treatment failures and development of drug resistance. A team led by Dr. Ashwini Nangia from Pune's National Chemical Laboratory addressed the problem of stability and poor bioavailability by making cocrystals (hydrogen-bonded multicomponent crystal) of isoniazid with either caffeic acid or vanillic acid. The results of the study were published in the *Journal of Pharmaceutical Sciences*.

“Rifampicin tends to cross react with isoniazid and this leads to changes in colour and composition of the four-drug FDC drug, and erratic bioavailability and therapeutic action,” says Dr. Nangia. By using caffeine and vanillic acid to form cocrystals with isoniazid, the researchers were able to inhibit cross-reaction between isoniazid and rifampicin. While FDC tablets used as control turned to liquid-like state within one week, the FDC containing isoniazid cocrystal remained stable for up to 30 days.

Whereas the cocrystal formed using vanilic acid showed slight colour change within one week and became dark brown at the end of four weeks, caffeic acid cocrystal showed slight change in colour after one week but remained in solid form for up to four weeks. As a result, caffeic acid cocrystal showed better stability.

“The reason why caffeic acid cocrystal performs better than vanilic acid cocrystal is due to better and strong hydrogen bonding in the crystal structure. This is absent in the vanillic acid cocrystal,” he says.

“We have tested the stability for one month. We expect the stability to be much longer because excipients [substances included for the purpose of long-term stabilisation] and additives will be added which make the formulation stable. Secondly, the tablet will be in closed strip and so the degradation will be much slower. The cocrystal FDC is much more stable than the drug mixture and hence should be explored in further formulation development,” says Dr. Nangia.

The researchers plan to test the stability of the four-drug FDC cocrystal for longer term and in new environments. “It is expected to perform superior to the drug combinations,” he says.

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[The Hindu](#)

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सकारात्मक सोच रखें छात्र-छात्राएं: डॉ. अतुल

रुड़की | हमारे संवाददाता

केंद्रीय भवन अनुसंधान संस्थान में सीबीआरआई की ओर से जिज्ञासा विद्यार्थी वैज्ञानिक संयोजन कार्यक्रम के तहत केंद्रीय विद्यालयों के छात्रों की कार्यशाला में कई बातें बताई गईं।

उन्हें भवन निर्माण सामग्रियों, संरचनाओं के स्वास्थ्य प्रबोधन व पुनर्वास, आपदा न्यूनीकरण, अग्नि सुरक्षा, ऊर्जा दक्ष ग्रामीण और शहरी आवास के संबंध में नवीन तकनीकियों के बारे में बताया गया।

कार्यक्रम में समन्वयक डॉ. अतुल अग्रवाल ने छात्र-छात्राओं को कारात्मक सोच रखने के लिए प्रोत्साहित किया। बताया कि विचारों में बहुत शक्ति होती है। डॉ. आर के गोयल ने सुरंग अभियांत्रिकी विषय पर व्याख्यान दिया। उन्होंने सुरंग, चट्टान समूह की भूवैज्ञानिक जानकारी, उत्खनन



रुड़की के सीबीआरआई में गुरुवार को आयोजित कार्यक्रम में उपस्थित छात्र-छात्राएं। • हिन्दुस्तान

प्रणाली तथा प्रभावी पद्धति सुरंग उत्खनन प्रक्रिया, निर्माण उपकरणों, चुनौतियां तथा मुख्य सुरक्षा उपायों के विषय में बताया। बीके लक्ष्मी चंद भाई ने तनाव और स्मृति प्रबंधन के बारे

में बताया। कहा कि सकारात्मकता, अध्यात्म और नैतिकता का संगम ही जीवन में तथा चरित्र निर्माण का शिल्पकार है। इस मौके पर डॉ. कुलवंत सिंह, डॉ. आभा मित्ति, डॉ. एलपी

सिंह, विपिन त्यागी, डॉ. अतुल अग्रवाल, अनीता बिष्ट, डॉ. इन्दर, अश्वती, शुभांगी, प्रतिभा, दिलशाद, डीके सहगल, डॉ. नवजीव सक्सेना मौजूद रहे।

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वैज्ञानिकों ने विद्यार्थियों का किया ज्ञानवर्द्धन

जागरण संवाददाता, रुड़की: केंद्रीय भवन अनुसंधान संस्थान (सीबीआरआइ) रुड़की में जिज्ञासा विद्यार्थी-वैज्ञानिक संयोजन कार्यक्रम के तहत केंद्रीय विद्यालयों के विद्यार्थियों के लिए आयोजित राज्य स्तरीय कार्यशाला का गुरुवार को दूसरा दिन रहा। इस दौरान वैज्ञानिकों की ओर से विभिन्न विषयों पर व्याख्यान प्रस्तुत कर विद्यार्थियों का ज्ञानवर्द्धन किया गया।

संस्थान के वरिष्ठ प्रधान वैज्ञानिक एवं कार्यक्रम समन्वयक डॉ. अतुल अग्रवाल ने विद्यार्थियों को सकारात्मक सोच रखने के लिए प्रोत्साहित किया। कहा कि सकारात्मक सोच से ही हम अपने साथ स्वयं से जुड़े लोगों के जीवन में ऊर्जा और उत्साह का संचार करने में सक्षम होते हैं। सीएसआइआर-सिम्फर धनबाद के रुड़की क्षेत्रीय केंद्र के प्रभारी डॉ. आरके गोयल ने सुरंग अभियांत्रिकी विषय पर व्याख्यान प्रस्तुत किया। उन्होंने विभिन्न प्रकार की सुरंग, चट्टान समूह की भूवैज्ञानिक जानकारी, उत्खनन



सीबीआरआइ रुड़की में आयोजित कार्यशाला में उपस्थित वैज्ञानिक व छात्र • जागरण

प्रणाली और प्रभावी पद्धति सुरंग उत्खनन प्रक्रिया, निर्माण उपकरणों, चुनौतियां व मुख्य सुरक्षा उपायों के विषय में जानकारी दी। माउंट आबू, राजस्थान के लक्ष्मी चंद ने तनाव और स्मृति प्रबंधन विषय पर व्याख्यान देते हुए जीवन जीने की कला के बारे में बताया। कहा कि सकारात्मकता, अध्यात्म, नैतिकता का

संगम ही जीवन और चरित्र निर्माण का शिल्पकार है। भाभा परमाणु अनुसंधान केंद्र, मुंबई के पदार्थ विज्ञान विभाग के वैज्ञानिक डॉ. कुलवंत सिंह ने मानव सेवा में भाभा परमाणु अनुसंधान केंद्र विषय पर व्याख्यान दिया। इस दौरान प्रतिभागियों के लिए प्रश्नोत्तरी प्रतियोगिता का आयोजन किया गया।

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केंद्रीय भवन अनुसंधान संस्थान के सभागार में जिज्ञासा विद्यार्थी वैज्ञानिक संयोजन कार्यक्रम शुभारंभ

बच्चे तनावमुक्त रहकर पढ़ाई करें: डॉ. गोपाल

कार्यक्रम

रुड़की | हमारे संवाददाता

केंद्रीय भवन अनुसंधान संस्थान में जिज्ञासा विद्यार्थी वैज्ञानिक संयोजन कार्यक्रम शुरू हुआ। इसमें राज्य के कई केंद्रीय विद्यालयों के छात्र-छात्राएं भाग ले रहे हैं। संस्थान निदेशक डॉ. एन गोपाल कृष्णन ने विद्यार्थियों को तनावमुक्त होकर पढ़ने के लिए प्रेरित किया।

कार्यशाला का शुभारंभ केंद्रीय विद्यालय संगठन देहरादून के उपायुक्त सोमित श्रीवास्तव, सीबीआरआई निदेशक डॉ. एन. गोपालकृष्णन ने किया। केंद्रीय विद्यालय नंबर एक के विद्यार्थियों ने स्वागत गीत गाया। कार्यक्रम समन्वयक डॉ. अतुल अग्रवाल ने अतिथियों को तुलसी का पौधा भेंट किया। सोमित श्रीवास्तव ने सभी विद्यार्थियों का उत्साहवर्धन किया। उन्होंने विद्यार्थियों को प्राचीन भारतीय ग्रंथों और उपनिषदों का अध्ययन कर उनसे ज्ञान अर्जित करने को प्रेरित किया। उन्होंने बताया कि भारत में सभी धर्मों के ग्रन्थ और प्राचीन शास्त्र अध्यात्म के साथ ही विज्ञान नैतिकता और विकास की अमूल्य निधि है।



रुड़की के सीबीआरआई में बुधवार को कार्यक्रम में उपस्थित छात्र-छात्राएं। • हिन्दुस्तान

अध्यक्षीय सम्बोधन में संस्थान के निदेशक डॉ. एन. गोपालकृष्णन ने सभी विद्यार्थियों को तनाव मुक्त होकर पढ़ने के लिए प्रेरित किया। उन्होंने विद्यार्थियों को जिज्ञासा का महत्व समझाया। बताया कि हमें सदैव क्या, क्यों और कैसे जानने की प्रवृत्ति रखनी चाहिए। यह ही सीखने का प्रथम चरण है। इससे हमारे भीतर एक वैज्ञानिक दृष्टिकोण का सृजन होगा जो हमारे अंधविश्वासों और मिथकों को

तोड़ कर हमें विकास की राह पर अग्रसर करेगा।

राज्य के इन हिस्सों से पहुंचे छात्र: पौड़ी, लैसडौन, रायवाला, अल्मोड़ा, गौचर, श्रीनगर, हल्द्वानी, बीएचईएल हरिद्वार के 11 केंद्रीय विद्यालयों और रुड़की के केंद्रीय विद्यालय एक और दो से सौ से अधिक विद्यार्थी अपने शिक्षकों सहित कार्यक्रम में प्रतिभागिता कर रहे हैं।

तकनीकी प्रधानता को दर्शाती नाटिका का मंचन

उद्घाटन समारोह में केंद्रीय विद्यालय एक के विद्यार्थियों ने विज्ञान गीत, भारत की तकनीकी प्रधानता को दर्शाती नाटिका तथा स्वच्छ भारत नाटिका का सफल प्रदर्शन किया। कार्यक्रम में मौजूद लोगों ने उनकी प्रस्तुति को काफी सराहा। इस अवसर पर सीएसआईआर सीबीआरआई की द्विभाषी त्रैमासिक पत्रिका के नवीनतम अंक का विमोचन भी किया गया। कार्यक्रम के तहत विद्यार्थियों के बीच लिखित प्रश्नोत्तरी प्रतियोगिता भी कराई गई। इसमें सभी विद्यार्थियों ने विज्ञान के विभिन्न विषयों, भाषा परमाणु अनुसन्धान केंद्र, सीएसआईआरएफ, सीबीआरआई आदि संस्थानों को लेकर प्रश्नों के उत्तर दिए। इसके बाद विद्यार्थियों ने संस्थान की समृद्ध प्रयोगशालाओं और अग्नि अनुसंधान का दौरा कर वैज्ञानिकों के साथ संवाद में कई पहलुओं के बारे में जाना और अपने संशय दूर किए। कार्यक्रम के दौरान डॉ. एलपी सिंह, डॉ. सुवीर सिंह, डॉ. आभा मित्तल, श्री विनोद कुमार, डॉ. आर धर्मराज, डॉ. पूर्णिमा, पलक गोयल, महाराजदीन खां, विपिन कुमार त्यागी, अनिता बिष्ट, शिवानी चौधरी आदि मौजूद थे।



रुड़की के सीबीआरआई में बुधवार को आयोजित कार्यक्रम में प्रस्तुति देती छात्राएं।

स्कॉलर बैज सेरेमनी

रुड़की। पुहाना के दिल्ली पब्लिक स्कूल में स्कॉलर बैज सेरेमनी में चौथी तक के 350 होनहार छात्र-छात्राओं को पुरस्कृत किया गया। निदेशक प्रदीप वत्रा ने उत्तम प्रदर्शन करने वाले बच्चों को मेरिट सर्टिफिकेट व ट्राफी दी। कला में उत्कृष्ट प्रदर्शन पर बच्चों को विशेष योग्यता पुरस्कार से नवाजा गया। इस मौके पर निदेशक ने सभी बच्चों को मेहनत और ईमानदारी के साथ आगे बढ़ने को प्रेरित किया।

Published in:
Rastriya Sahara

Deafening blast: Pune too loud for comfort, finds Neeri report

CSIR-NEERI

19th July, 2018

According to a report by National environmental engineering research institute (Neeri), Pune is among the most noisiest cities in Maharashtra.



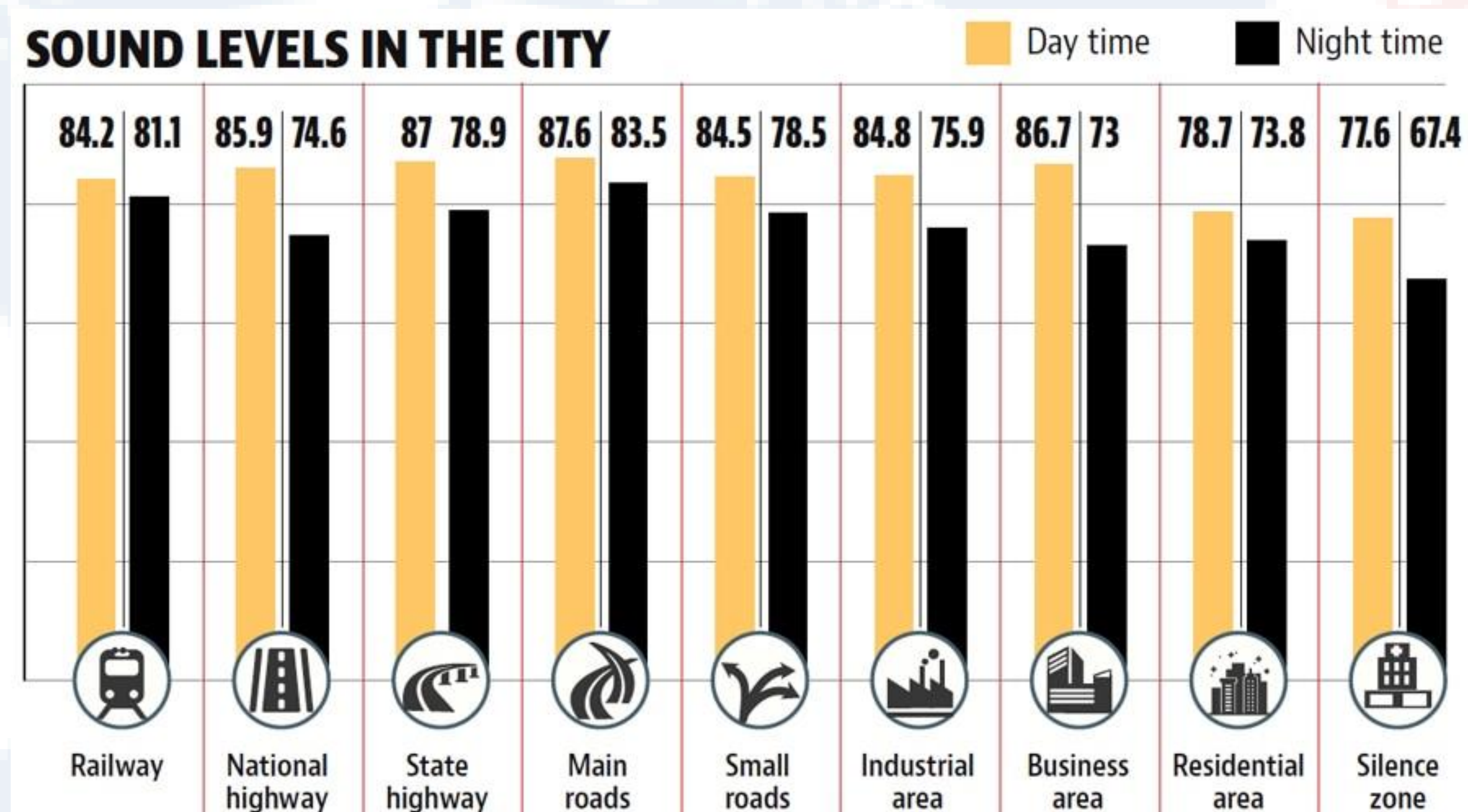
While the prescribed daytime noise limit for industrial areas is 75 dB, the recorded level of noise at such areas in the city was 84.8 dB. (Rahul Raut/HT PHOTO)

A recent report from the National environmental engineering research institute (Neeri) has stated that noise levels in Pune are considerably higher than the prescribed limit in many areas.

HOW LOUD IS THE CITY?

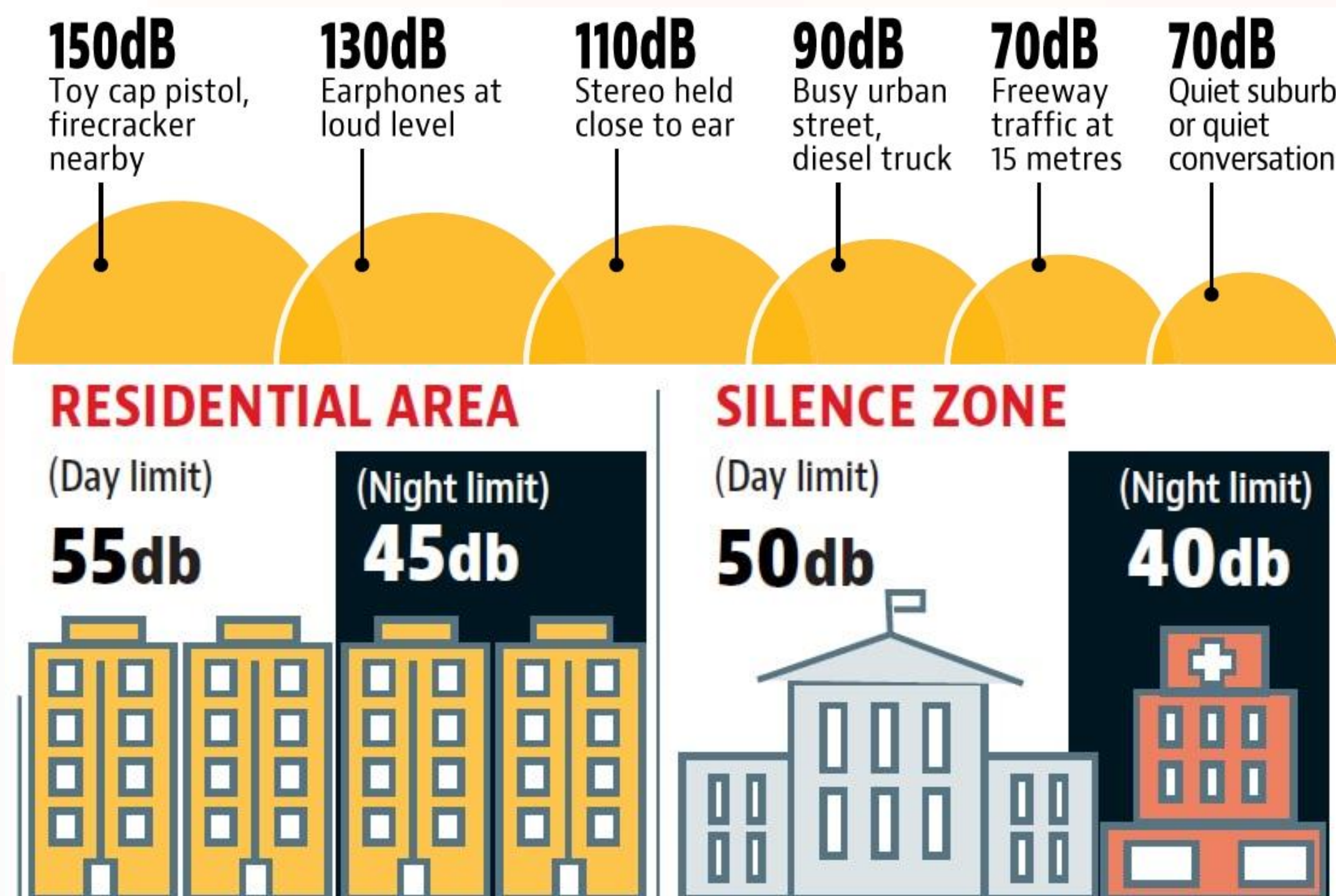
The national environmental engineering research institute (NEERI) has stated that noise levels in the city are considerably higher than the prescribed limit at many

areas. Here is a comprehensive list of how loud each area is.



HOW NOISE IS MEASURED

Decibel (dB) is a unit of sound measurement, and measures the loudness of a sound or the strength of a signal. "A" weighting is the most common of the different weightings created to give a loudness measurement that takes into account how the human ear actually perceives sound. Values corrected to account for human hearing are shown using units of dBA. Noise levels can be measured using microphones and mobile phone apps.



*DT: Day time (6am-10pm) *NT: Night time (10pm-6am) *All in dB (a) Leq *As per the Noise Pollution (Regulation and Control) Rules, 2000

WHAT THE LAW SAYS

"The noise levels at the boundary of public places, where loudspeakers or public address systems or any other noise source is being used, shall not exceed 10dB above the ambient noise standards for the area," reads Rule 5(4) of Noise Pollution (Regulation and Control) Rules, 2000.

The regulations also direct local governments to declare areas within 10 metre of any hospital, educational institute, court or religious place to be silence zones.

WHAT ARE THE POSSIBLE SOLUTIONS

- 1 Develop a system/device which can be installed in vehicles, which will reduce the noise level (honking intensity) with the speed of vehicle (work is being carried out on this subject at Indian institute of technology, Bombay)
- 2 Installation of sensors that limit the number of times a vehicle's horn can be used. The sensor will not allow a vehicle to exceed the number of times it can honk. After reaching the limit, a signal will come up on the dashboard and if the person honks again, a message will go via a network to the traffic department as a violation.
- 3 Unnecessary honking should be avoided and penalised. However, this requires innovation in identifying and taking action.
- 4 The formation of a city noise pollution control committee (CNPCC) to provide the guidelines for monitoring and controlling noise pollution in the city.

INDIRECT EFFECTS OF NOISE POLLUTION

Stress-related somatic effects

- Stress hormone
- Blood pressure
- Muscle spasm

Psychological effects

- Annoyance
- Sleep disturbance
- Mental health

Cognitive effects

- Reading, concentration, memory

(All data from World Health Organization's guidelines on deafness and hearing loss.)

While the prescribed daytime noise limit for industrial areas is 75 dB, the recorded level of noise at such areas in the city was 84.8 dB. Similarly, the recorded noise level in commercial areas was 86.7 dB, as against the prescribed limit of 65 dB. In residential areas, the daytime record was of 78.7 dB, against the prescribed limit of 55 dB. With the highest gradient, the recorded daytime noise levels were 77.6 dB, against the prescribed limit of 50 dB. One of the major findings of the report is that "honking is the most problematic of the causes, and traffic is, of course, a major source" of noise pollution, according to Dr Ritesh Vijay, principal scientist at Mumbai zonal office of Neeri. "The noise levels at the boundary of public places, where loudspeakers or public address systems or any other noise source is being used, shall not exceed 10dB above the ambient noise standards for the area," reads Rule 5(4) of Noise Pollution (Regulation and Control) Rules, 2000. The regulations also direct local governments to declare areas within 10 metre of any hospital, educational institute, court or religious place to be silence zones. The report was submitted to the Maharashtra pollution control board (MPCB) in June, which in turn sent it to the Bombay high court, according to Dr Vijay. The research institute undertook the study under the guidance of Dr Rakesh Kumar, director of Neeri, and Dr Vijay.

In conclusion, the report made various observations and suggestions pertaining to the reduction of noise pollution levels. The Bombay high court has taken note of Neeri's report and asked the involved municipal corporations to consider the observations and work accordingly. One of the suggestions include, "Develop a system/device which can be installed in vehicles, which will reduce the noise level (honking intensity) with the speed of vehicle (work is being carried out on this subject at Indian institute of technology, Bombay)." The study also suggests provisions and installation of sensors that limit the number of times a vehicle's horn can be used. "The sensor will not allow a vehicle to exceed the number of times it can honk. After reaching the limit, a signal will come up on the dashboard and if the person honks again, a message will go via a network to the traffic department as a violation," it reads, effectively advocating change in traffic police work as well.

Pointing towards another functional addition for the city traffic police, the report suggests, “Unnecessary honking should be avoided and penalised. However, this requires innovation in identifying and taking action.”

Another major highlight of the report was their suggestion for the formation of a city noise pollution control committee (CNPCC) “to provide the guidelines for monitoring and controlling noise pollution in the city” .

The survey was carried out in 10 major cities, including Pune, Mumbai, Aurangabad, Kalyan-Dombivli, Kolhapur, Nagpur, Navi-Mumbai, Solapur and Thane.

Published in:
[Hindustan Times](#)

MoU signed between CSIR-NPL and HPCL for indigenous development of petroleum certified reference materials

CSIR-NPL

19th July, 2018



MoU to save big chunk of foreign exchange through import substitution for CRMs. CSIR- National Physical laboratory (NPL) has signed a MoU with Hindustan Petroleum Corporation Limited (HPCL) for indigenous development of petroleum certified reference materials (CRMs) under trade name of *Bhartiya Niredeshak Dravyas* (BNDTM). This will not only ensure maintaining highest standard quality ecosystem for petroleum products used by all stakeholders including common man but also will *save vital foreign exchange* through import substitution for

CRMs. Certified Reference Materials (CRMs) play a pivotal role for the calibration of laboratory testing equipment for quality assurance. At present the traceability of these CRMs to SI unit is mostly achieved through foreign National Measurement Institutes (NMIs). CSIR-NPL, the National Measurement Institute of India is disseminating SI traceability through indigenous development of Certified Indian Reference Materials with tradename *Bhartiya Nirdeshak Dravyas* (BNDTM). Recently, CSIR-NPL has developed BNDs for high purity Gold, Coal, and Water & building materials. HPCL, a Navratna PSU under Ministry of Petroleum & Natural Gas (MoPNG) is a pioneer in producing CRMs in India in the field of petroleum sector under Make in India initiative. CSIR NPL & HPCL have now joined hands to be part of the national initiative for developing BNDs used in Petroleum sector in India.

Published in:

[PIB](#)

'Digital database of plants for Mumbai, Nagpur, Chanda ready'

CSIR-NEERI



“The digital databases of plants for Mumbai, Nagpur, and Chandrapur have been developed. Mumbai has the richest biodiversity in Maharashtra having 165 families of plants, and Nagpur has 120 families of plants,” said Dr T Srinivasu, Professor & Head, Department of Botany, Rashtrasant Tukadoji Maharaj Nagpur University (RTMNU). Dr Srinivasu was delivering Dr Ashok S Juwarkar memorial lecture organised by CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) at NEERI Auditorium here on Monday.

19th July, 2018

Dr Sadhana Rayalu, Senior Most Scientist, CSIR-NEERI; Dr A N Vaidya, Chief Scientist, CSIR-NEERI; and Prakash Kumbhare, Senior Principal Scientist, CSIR-NEERI, also shared the dais on this occasion. Delivering the lecture on ‘Electronic Herbarium and Digital Biodiversity Database of Nagpur’, Dr Srinivasu said that digital herbarium was more advantageous than conventional herbarium as it greatly increased the user interaction. Conventional herbarium leads to loss of biodiversity, he added. He briefed the audience about user-friendly software Description Language for Taxonomy (DELTA) being used worldwide to develop digital databases of plants. DELTA also helps in finding out endemic, non-endemic, rare or threatened species of plants, said Dr Srinivasu. He informed the audience that ‘Spigelia anthelmia’ had recently been reported from Mumbai and Nagpur. It has medicinal properties, he added. The digital databases of plants are helping to prepare study material for various universities’

curricula of Botany, he said. Earlier, in her welcome address, Dr Sadhana Rayalu outlined the significant contributions of late Dr Ashok S Juwarkar. She said that the research work done by Dr Juwarkar laid a new foundation in the area of agriculture and environment, and NEERI was continuously progressing in this area. She also spoke on other significant contributions of CSIR-NEERI.

Dr A N Vaidya introduced Dr Srinivasu. Akanksha conducted the proceedings and Prakash Kumbhare proposed a vote of thanks.

Published in:
[The Hitvada](#)

स्टीविया की खेती ने बस्तर के किसानों को दिलाई अंतरराष्ट्रीय पहचान

मृगेन्द्र पांडेय, रायपुर

जिस नक्सल प्रभावित बस्तर संभाग (छत्तीसगढ़) से अच्छी खबरें जरा कम ही निकलती हैं, वहां के प्रगतिशील किसानों ने मुस्कुराने का एक मौका जरूर दिया है। स्टीविया (मीठी तुलसी) की खेती ने यहां के किसानों को अब अंतरराष्ट्रीय पहचान दिलाई है। दरअसल, कोंडागांव के 400 किसानों ने मां दंतेश्वरी हर्बल समूह बनाकर स्टीविया की खेती शुरू की। मधुमेह, हृदय रोग, मोटापा और उच्च रक्तचाप में बतौर औषधि स्टीविया रामबाण के रूप में सामने आया है।

किसानों के इस अनोखे प्रयोग को अब भारत सरकार के उपक्रम सीएसआइआर (काउंसिल ऑफ साइंटिफिक एंड इंडस्ट्रियल रिसर्च) ने भी मान्यता दे दी है। बहुत जल्द केंद्र के सहयोग से कोंडागांव में मीठी तुलसी की पत्ती से शक्कर बनाने का कारखाना भी शुरू होने जा रहा है। यह देश का ऐसा पहला कारखाना होगा जहां मीठी तुलसी से शुगर फ्री शक्कर बनेगी। मां दंतेश्वरी हर्बल समूह से जुड़े राजाराम त्रिपाठी बताते हैं कि अब छत्तीसगढ़ के साथ-साथ आंध्र प्रदेश और ओडिशा के भी किसान इस समूह से जुड़ने लगे हैं। बस्तर में एक हजार एकड़ में इसकी औषधीय खेती की जा रही है। इसकी मार्केटिंग के लिए किसानों ने मां दंतेश्वरी हर्बल समूह का गठन किया है। यह समूह किसानों को आर्थिक रूप से समृद्ध करने का भी काम कर रहा है। बस्तर के स्टीविया की मांग दूसरे कई देशों में भी बढ़ रही है। कई विदेशी कंपनियां स्टीविया का इस्तेमाल दवा बनाने के लिए कर रही हैं।

जागरण विशेष

मीठी तुलसी की पत्ती से शक्कर बनाने का देश में पहला कारखाना खुल रहा है कोंडागांव में

मां दंतेश्वरी हर्बल समूह ने शुरू की है खेती, सीएसआइआर से हुआ एमओयू



महाराष्ट्र से आए कृषक दल को स्टीविया के बारे में जानकारी देते प्रगतिशील किसान राजाराम त्रिपाठी।

जागरण

यह है स्टीविया की खास बात

गन्ने से बने शक्कर की तुलना में स्टीविया के स्टीवियासाइड में 300 गुना ज्यादा मिठास होती है। यह मिठास एक प्राकृतिक विकल्प है। इसमें अनेक औषधीय गुण और जीवाणुरोधी तत्व हैं। स्टीविया शरीर में चीनी की तरह दुष्प्रभाव भी नहीं डालता। शुरुआती दौर में स्टीविया के पौधों में थोड़ी कड़वाहट थी, लेकिन सीएसआइआर और दंतेश्वरी समूह ने मिलकर नई प्रजाति तैयार की। इससे इसकी कड़वाहट अब बेहद कम हो गई है।



स्टीविया के रूप में खेत में अपनी मेहनत को देखते-परखते प्रगतिशील किसान।

जागरण विशेष की अन्य खबरें पढ़ें
www.jagran.com/topics/jagran-special

जागरण विशेष

स्टीविया की खेती से बस्तर के किसानों को मिली पहचान

रायपुर : नक्सल प्रभावित बस्तर संभाग (छत्तीसगढ़) के किसानों को स्टीविया



(मीठी तुलसी) की खेती ने अंतरराष्ट्रीय पहचान दिलाई है। दरअसल, कोंडागांव के 400 किसानों ने

मां दंतेश्वरी हर्बल समूह बनाकर स्टीविया की खेती शुरू की। मधुमेह, हृदय रोग, मोटापे में बतौर औषधि स्टीविया रामबाण के रूप में सामने आई है। किसानों के इस प्रयोग को अब काउंसिल ऑफ साइंटिफिक एंड इंडस्ट्रियल रिसर्च ने भी मान्यता दे दी है। (पेज-13)

AI-based movement detection system to boost border security

Jatinder Kaur Tur

• letterschd@hindustantimes.com

CHANDIGARH: The Border Security Force (BSF) is set to secure the border along Pakistan in Punjab and Jammu and Kashmir, besides the border with Bangladesh, with high-tech seismic sensors buried underground to detect human movement.

The technology, which can differentiate human movement from that of vehicles and cattle, is part of a pilot project of the BSF, the Comprehensive Integrated Border Management System (CIBMS), in J&K, and will now be replicated along the rest of the border to check terrorism, drug influx and ensure foolproof border security, it is learnt.

The technology has been developed by Chandigarh-based CSIR-Central Scientific Instruments Organisation, and talks are now on between the CSIO and BSF for large-scale application. It must be mentioned here that BSF director general KK Sharma on a recent visit to the city had said that the pilot projects under CIBMS in the valley will comprise a wide array of latest sophis-

THE TECHNOLOGY THAT CAN DIFFERENTIATE HUMAN MOVEMENT FROM THAT OF VEHICLES AND CATTLE IS PART OF A PILOT PROJECT OF BSF

ticated surveillance devices, including the sensors, ground-based radar systems and lasers.

The warning time is in tens of second, depending on the installation of sensors with respect to vital installations. It generates an alarm and sends key information of the event via email and text message to the registered users.

The system is based on artificial intelligence (AI)-driven earthquake warning system developed by the CSIO, which has also found takers for such sensors in Delhi Metro. While it already has copyright for this indigenous technology, it has also applied for patent.

CSIO director RK Sinha said the organisation has been engaged in design, development and batch production of these seismological instruments “tak-

ing India on the international map of a selected few countries in possession of this technology”. He said it has “direct operational value” and is being used by various user departments, such as the Defence Research and Development Organisation, IMD, IIT’s Kurukshetra University, and the Railways.

Satish Kumar, senior principal scientist, CSIO department of advanced materials and sensors, said the institute has taken a quantum jump towards the system development around AI-driven seismic signal analytics. Ripul Ghosh, scientist with the organisation’s department of computation instrumentation and a member of the team which developed the Earthquake Warning System based on this technology, said it is aimed at activating appropriate actions for safety.

As per Dr Aparna Akula, another scientist, it is currently involved in a pilot deployment of Intelligent Elephant Movement Detection and Alert System near railway tracks in Rajaji National Park, Dehradun, in collaboration with WII, WWF-India and Uttarakhand forest department.

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Hindustan Times

'Cluster of academic institutes, research labs need of the hour'

ADVANCEMENT Principal scientific adviser to central govt discusses possibility of university-national lab

HT Correspondent

chandigarh@hindustantimes.com

CHANDIGARH: Principal scientific adviser to the central government, K Vijay Raghavan visited Chandigarh Region Innovation and Knowledge Cluster (CRIKC) institutions on Saturday to look at the possibility of adopting the model for 'University-National Research Laboratory (U-NRL) Hub' (North-western region).

At first, he visited Panjab University where a presentation was made by vice-chancellor Arun K Grover, who is also a founder member of CRIKC, on the evolution, and the laid-out action plan of the CRIKC society.

"Cluster of academic institutions and national research laboratories is the need of the hour for meaningful deliverance of technologies for societal and economic needs of the nation. A CRIKC model can act as a template for the functioning of University-National Research Laboratories (U-NRL) Hubs, created recently by the Office of Principal Scientific Adviser (PSA)," said Vijay Raghavan.

Council of Scientific and



Principal scientific adviser to the central government K Vijay Raghavan addressing a gathering during his visit to the CSIR-IMTECH, Chandigarh, on Saturday.

HT PHOTO

Industrial Research (CSIR)-The Institute of Microbial Technology (IMTECH) director Anil Koul unfolded the innovations emerging out of the institute and the futuristic tie-ups with multinational firms.

Professor Rupinder Tewari, coordinator, DST-Centre for Policy Research at PU, talked about the recommendations for the promotion of university-industry collaborations at the national and regional levels. His suggestion of

connecting the industries (micro, small, medium and large) to the universities with the active participation of already established District Industries Centres (DICs) was highly appreciated by the PSA. This endeavour can be a game changer for bridging the gap between industry and academia.

During the industry academia panel discussion, eminent personnel from industries expressed their concern about the lack of interest shown by academia to undertake R&D problems of the industry.

During the interactive session, Prof CR Suri, scientist, IMTECH, talked about the Nanobioprobe mediated DNA aptamers for explosive detection. On the occasion, two memoranda of understanding (MoU) were signed between academia and industry.

One of the MoUs, with Medzone Life Sciences, was for the transfer of a rapid diagnostics technology for detection of typhoid.

The other was between CRIKC and The IndUS Entrepreneurs (TIE) for promotion of entrepreneurship.

Published in:

Hindustan Times

चंडीगढ़

चंडीगढ़, रविवार 15 जुलाई, 2018 | 02

‘हाई सिक्योरिटी इंक’ से अनपढ़ भी आसानी से पहचान लेगा नकली नोट

नमक की झील से लिए बैक्टीरिया से बनाई ऐसी इंक, लाइट पड़ते ही ट्रांसपेरेंट हो जाएगी स्याही, सीएसआईआर-इमटेक ने एगजीबिशन में पेश की यह तकनीक

ननु जोगिंदर सिंह | चंडीगढ़

8 साल पहले शुरू किया काम: डॉ. प्रसाद

दांतों की सर्जरी होगी आसान और सस्ती



नोट या स्टॉप पेपर पर लाइट मारिए तो एक जगह विशेष की स्याही बिल्कुल गायब हो जाएगी। थोड़ी देर के लिए ट्रांसपेरेंट होने वाले इस डॉक्यूमेंट या नोट को जब छाया में रखा जाएगा तो वह फिर से रंगीन हो जाएगा। ‘माइक्रोबियल प्रोटीन इंक फॉर करंसी नोट’ को तैयार किया है डॉ. ई सैथिल प्रसाद ने। काउंसिल ऑफ साइंटिफिक एंड इंडस्ट्रियल रिसर्च के इंस्टीट्यूट ऑफ माइक्रोबियल टेक्नोलॉजी (सीएसआईआर-इमटेक) ने इस तकनीक को पेश किया था शनिवार को लगी प्रदर्शनी में। जिसमें केंद्र सरकार के प्रिंसिपल साइंटिफिक एडवाइजर प्रो. के विजय राघवन आए हुए थे। उनके सामने ऐसी तकनीकें रखी गईं जो कमर्शियलाइज हो चुकी हैं या फिर कमर्शियलाइज होनी हैं।



डॉ. प्रसाद ने बताया कि उन्होंने इन विषय पर करीब 8 साल पहले काम करना शुरू किया था। नमक की झील में मिलने वाले ‘हेलेबैक्टीरियम’ नामक बैक्टीरिया से प्रोटीन कल्चर करना शुरू किया। पहले इसके लिए रशिया से मदद मांगी लेकिन वहाँ मिली। समय के साथ उन्होंने अपनी लैब में ही प्रोटीन कल्चर करना शुरू किया। कहते हैं कि हजारों देर के नोट पर खिंचा गया जी की तस्वीर के कुछ भी गेड इन इंडिया नहीं है। कहने को भारतीय नोट में 14 सिक्क्योरिटी फीचर हैं लेकिन इन्हें हर कोई नहीं पहचान सकता। इसलिए उन्होंने ऐसी इंक डेवलप कर दी है जिससे कोई अनपढ़ व्यक्ति भी नोट असली है या नकली से पहचान सकता है। इस बैक्टीरिया के प्रोटीन का इस्तेमाल हाई सिक्क्योरिटी क्रेडिट कार्ड या डेबिट कार्ड के लिए भी हो सकता है।



पंजाब इंजीनियरिंग कॉलेज (पेक) डीम्ड टू बी यूनिवर्सिटी के स्टूडेंट वरुण अरोड़ा ने अपने गाइड डॉ संजीव कुमार, प्रो. प्रवीण कालड़ा की गाइडेंस में ‘सर्जिकल गाइड विद इम्प्रूव्ड एक्सटर्नल इरीगेशन फॉर डेंटल इम्प्लांट सर्जरी’ तैयार किया है जो बाजार में मौजूदा डेंटल ड्रिल गाइड से तीन गुणा सस्ता है। इसमें हड्डी का गर्म होना मार्केट में मौजूद डेंटल ड्रिल गाइड के मुकाबले 20 फीसदी तक कम है। इस रिसर्च में डॉ. राहुल दत्ता ने भी उनकी मदद की। इसे डेवलप करने में करीब द्वाइ साल लगे और इसके लैब ट्रायल कामयाब रहे हैं। टेक्नोलॉजी इनफॉर्मेशन फोर कास्टिंग एंड असेसमेंट काउंसिल ने इसको पेटेंट कराने के लिए अप्रुवल दे दी है। वही इसका खर्च उठाएंगे। उनकी तकनीक पांच से छह हजार में उपलब्ध हो जाएगी। जहां पर मरीज के दांत नहीं होते वहां पोजिशनिंग ऑफ दि इम्प्लांट के लिए थ्री डी स्कैन से गाइड डेवलप कर देते हैं। इससे डॉ. एग्जैक्ट जगह, डायरेक्शन और साइज का पता लग जाता है और वह इसकी तैयारी कर लेते हैं। इसकी ड्रिल भी अलग आती है।

Research must impact society: CFTRI director

CSIR-CFTRI

14th July, 2018



MYSURU: Exhorting scientists to indulge in research that would make a difference to the society, director of Council of Scientific and Industrial Research (CSIR) – Central Food Technological Research Institute Jitendra J Jadhav on Friday said that paper publication alone was not the ‘be all and end all’ of research. Jadhav, who was attending the CFTRI’s symposium on ‘Advances in Biological Research’, said, “Although research is extensive in India, when it comes to its impact on society, the nation is lagging behind.” Lamenting the failure of research institutes in India to

solve some of the country’s basic problems, he added, “Various institutes are working for the development of the country, and the people. However, we fail to solve the basic issues faced by the common man.” Urging young researchers to locate problem areas crying for a solution, Jadhav said, “There are a lot of simple problems such as animals venturing into human habitats, waste management, and sea waste management.” Pointing to the broad scope of research in the life sciences, he added, “India is gearing up to make an impact the world over in life sciences. Biotechnology and life science researchers play a key role in the growth of the country.” Calling on researchers to seek out entrepreneurial opportunities, chief scientist and advisor at CSIR-CFTRI R Subramanian pointed out that both the central and state governments were working towards ensuring a conducive environment for startups in the country. Many individuals have obtained required material from CFTRI, and other research institutes, through

Transfer Of Technology (TOT) and have established successful businesses,” Subramanian said. Chairman of the department of studies in biochemistry at University of Mysore (UoM) Prof. K Kemparaju, who delivered the plenary lecture on ‘Exploring Neutrophils: The Sentinels of Innate Immunity’, said, “Lifestyle diseases such as diabetes, gangrene, cancer and cardiovascular disorders can be kept at bay through one’s food habits Endorsing the observation, superintendent of Apollo Hospital Dr Anjali Arun, who spoke on ‘Research in human subjects, ethical aspects, limitations and opportunities’, said, “Lifestyle diseases are alarmingly high nowadays. Youngsters aged between 20 and 30 are being diagnosed with diabetes, hypertension and cancer, which is a disturbing trend.”

Referring patients of today as ‘Google Patients’, Dr Anjali added, “They are well informed because of the access to information related to all ailments on Google. On the other hand, we also have patients who repose faith in the doctor, and expect the latter to take a call.”

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VIT inks MoU with CSIR4PI on cyber security, AI, data analytics

CSIR-CSIR4PI

14th July, 2018



of the solar lotus is very effective for watching the activities in any place from a distance through video surveillance technology and that high-resolution videos with in-built compression will allow footage to be analysed. Parents could also see the activities of their children inside the park complex from home or other places through this in-built surveillance system.

A solar lotus was inaugurated at the CSIR-CMERI Colony Children Park in West Bengal's Durgapur recently. The solar lotus having a capacity of 3.6 KW has been designed and developed by CSIR-CMERI and can be installed at any place like in government offices, airport complex, city parks, resorts, luxury hotels, golf courses and others with a minimum ground area of one square meter to generate power for illumination. Ravi Prakash Tripathy, Member (Technical) of DVC Kolkata inaugurated the solar lotus. Harish Hirani, director of CSIR-CMERI said that the in-built surveillance system

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