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This Energy News contains excerpts of articles picked up from selected daily newspapers & magazines.
Residential and commercial complexes will have to allot 20% of their parking space for electric vehicle charging facilities, while eateries will have to reserve space for kiosks as per the new guidelines of the housing and urban development ministry. The department of town and country planning under the ministry has issued guidelines to provide for electric vehicle charging infrastructure through addendum to Model Building Bye-Laws, 2016 and Urban and Regional Development Plan Formulation and Implementation Guidelines, 2014. The guidelines on charging infrastructure mandate provisions in various buildings. “Based on the occupancy pattern and the total parking provisions in the premises of the various building types, charging infrastructures shall be provided only for electric vehicles, which is currently assumed to be 20% of all ‘vehicle holding capacity’ at the premise. Additionally, the building premises have to have an additional power load, equivalent to power of all the charging points operated simultaneously,” the guidelines said. For residential and institutional buildings, they recommend that the metering and payment be linked with the house owner’s monthly maintenance bills with metered units credited to their smart card that is plugged during charging. The buildings should provide open metering and on-spot payment options for visitors. “Charging bays shall be planned currently at 20% capacity of all vehicles including two-wheelers and cars,” the guidelines said. They also provide for
enhanced power load for each such building type by the power distribution company. "Connectivity regulations and safety norms will be the key for implementation of electric vehicle charging infrastructures both at individual and public premises," said Alekhya Datta, fellow and area convenor, electricity and fuels division, TERI. The power ministry last month issued guidelines for charging infrastructure under which it has asked public charging stations to install both Japanese and European charging platforms. The guidelines specify technical parameters for slow and fast varieties of CCS, CHAdeMO and Bharat platforms. CHAdeMO is a charging platform used by Japanese car makers like Suzuki and Toyota, while Combined Charging System (CCS) is promoted by 15 out of 20 major OEMs across the globe. The guidelines require one charging station to be set up every three km in cities and every 25 km on both sides of highways. The tariff for supply of electricity to electric vehicle public charging station shall not be more than the average cost of supply plus 15%, the guidelines said. States will fix ceiling on service charges of the public charging stations. The power ministry early last year issued a notification clarifying that setting up charging stations for electric vehicles will not require a separate licence under the Electricity Act of 2003.

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Green & Mean: Petrol 2-wheelers Face E-cess

Two-wheeler buyers may soon have to pay more to drive home motorcycles and scooters with the government planning to levy a ‘green cess’ on petrol-powered versions to subsidise the electric ones. The proposal seeks to impose a green cess of ₹800-1,000 on gasoline two-wheelers to incentivise and bring on road a million electric two-wheelers in the next 2-3 years. More than 21 million two-wheelers were sold in India last year. “Today, the price differential between a petrol and an electric twowheeler stands at ₹55,000-60,000. The idea is to reduce this gap as much as possible by levying a small cess on vehicles which are polluting. The incentive will help promote widespread usage of electric two-wheelers and thereby address the concerns about rising crude oil imports and vehicular pollution,” said a senior official in the know of the development. Interestingly, the proposal to impose a ‘green cess’ on two-
wheelers has come at a time when industry veterans Pawan Munjal (chairman, Hero MotoCorp), Rajiv Bajaj (managing director, Bajaj Auto), Venu Srinivasan (chairman, TVS Motor Company) have called for a reduction in Goods & Services Tax (GST) rate on motorcycles and scooters. In fact, prices may soon increase due to implementation of enhanced safety norms and transition to BS VI emission standards. “If there are issues regarding the prevalent taxation structure, it has to be looked into separately. A price increase on account of the green cess may bring down incremental growth slightly. Sale of electric two-wheelers can compensate for that moderation in growth. But if the one million (electric two-wheelers) does not happen now, then the next four million will not happen, the supply chain will not happen,” said the official. Two-wheeler sales rose by 12.8% to 21.6 million units in 2018. “There is now a convergence of views as far as the various government departments involved are concerned. If promoted properly, we can quickly bring on road a million two-wheelers. And once the critical mass is attained, component makers will quickly start investing and manufacturing locally,” said Sohinder Gill, director general, Society of Manufacturers of Electric Vehicles (SMEV). Large scale local manufacturing of components such as batteries, motor, controllers and power units will further help in reducing vehicle costs over the next few years. Honda Motorcycle and Scooter India (HMSI) and TVS Motor Company declined to comment on the issue, while Bajaj Auto did not respond to queries regarding the proposal till presstime Tuesday. Meanwhile, sources in the know said the ₹5,500 crore earmarked for implementing the second phase of the FAME (Faster Adoption and Manufacturing of Hybrid & Electric Vehicles) India Scheme will be used for better public transport and support induction of electric buses by state governments.

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Auto industry’s lobby group, Siam, has told Niti Aayog that it won’t be possible to meet the target of increasing the share of electric two-wheelers to 25% and three-wheelers to 50% by 2023 and sought that the deadline be pushed to 2030 while seeking “promotional” subsidy from the government. At a meeting with representatives from different departments and the automobile industry on January 14, the government think tank had said that greater focus of electric mobility should be on two and three-wheelers. It had sought feedback from the stakeholders on the target of increasing the sale of electric two-wheelers to nearly 87 lakh in 2022-23 and three-wheelers to around 4.7 lakh to make visible impact. Annually, almost 2 crore two wheelers are sold across the country. TOI has learnt that the government is considering to provide promotional subsidy in the range of Rs 30,000 to Rs 40,000 per vehicle to bring down the gap between the cost of a conventional two or three-wheeler and an electric one. Sources said the government’s new focus on these two categories of vehicles is aimed at taking the benefit to more number of people. According to official estimates, to meet the battery requirement of the proposed number of vehicles by 2023, India would need to create a battery storage capacity of 27 gigawatts, which would require around Rs 60,000 crore of investment. Sources said with hardly any lithiumion battery manufacturing facility in place, India would end up importing huge quantities of batteries from China. “Moreover, we need to decide the battery standards so that an uniformity is maintained and the batteries fit into different types of vehicles. The government is yet to take a call
on what all categories of vehicles will be covered under the subsidy regime. It has been more than a year since the government started talking of taking a big leap to promote EV, but the policy has not yet moved beyond mere ‘cosmetics’,” said an industry insider

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India’s EV goals are being realised on two wheels, not four

Hurt by high fuel prices, Vinod Gore, a farmer in Gove village in Maharashtra, ditched his petrol scooter for an electric model, underlining how two-wheelers are driving the country’s goal of electrification of its vehicles. Gore’s electric scooter, built by start-up Okinawa, runs for about 100-120 km on a single charge which costs the sugarcane farmer less than 10 per cent of the ₹150 he would otherwise have spent on fuel for the same distance. “I bought it to save money,” said Gore, who paid ₹75,000 for the scooter and expects to recover the cost in two to three years in terms of savings on petrol and maintenance. The Narendra Modi government has set a target of electric vehicles (EVs) making up 30 per cent of new sales of cars and two-wheelers by 2030 from less than 1 per cent today. But its efforts to convince carmakers to produce EVs have flopped mainly because of no clear policy to incentivise local manufacturing and sales, lack of public charging infrastructure and a high cost of batteries. Cost-conscious two-wheeler buyers like Gore might be a better bet. It would also open up a new market for global companies like Japan’s Yamaha Motor and Suzuki Motor that are drawing up initial plans to launch electric scooters and motorcycles in the country. The potential is huge. India is the world’s biggest market for scooters and motorcycles with annual domestic sales exceeding 19 million in FY18, six times that of car sales over the same period. Electric scooters make up a fraction of the total but are growing fast. In FY18, sales more than doubled to 54,800 from a year ago while electric car sales fell to 1,200 from 2,000 over the same period, according to data from the Society of Manufacturers of Electric Vehicles (SMEV). By 2030, sales of electric scooters are expected to cross 2 million a year, even as most carmakers resist bringing electric cars to India.
Fewer speed-breakers- The roadblocks for scooters are fewer. Compared with cars, scooters are lighter, which means they can use less powerful batteries that are cheaper. The scooters can also be charged quickly and more easily, often using existing plug points in homes, and their price is similar to petrol-powered models. The challenge is that most electric scooters sold today are utilitarian and not as powerful as models that run on petrol that can go faster and climb gradients easily. The supply chain is not robust which means manufacturers need to rely on importing components. Importantly, electricity supply in smaller towns and cities, where demand is picking up, is irregular. “India’s electric revolution will be led by two-wheelers. It is a value for money equation,” said Sohinder Gill, Global CEO of Hero Electric, the country’s top-selling e-scooter manufacturer.

Premium models- Most electric scooters currently on sale are basic in terms of design, range and performance so that the price can be kept affordable, especially in smaller towns where distances are shorter and buyers more frugal, said Kaushik Madhavan, Vice-President, and Mobility at consultant Frost & Sullivan. But he added that there is also a market for more premium models like those made by Bengaluru-based start-up Ather Energy which are designed to appeal to tech-savvy city commuters. Ather’s scooters are connected to the internet, come with a touchscreen and have a top speed of 80 kph. They cost about ₹1, 31,000 — nearly twice the amount Gore paid. Okinawa and Ather are both expanding their production facilities. While Okinawa is already building a new plant in northern India to more than treble its capacity to a million electric scooters a year, Ather is scouting for a site to set up its second plant. “There is a line of sight now,” said Ravneet Phokela, Chief Business Officer at Ather. “There has never been a better time to be in this business than now,” he said.

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'इलेक्ट्रिक कारों का इस्तेमाल करने सभी विभाग\n\केंद्र सरकार की 2030 तक 30 परसेंट गाड़ियों को इलेक्ट्रिक कीकल में बदलने की पॉलिसी को लेकर कोशिशें जारी हैं। इसी कड़ी में फाइनेंस मिनिस्ट्री ने सभी केंद्रीय मंत्रालयों और विभागों को ज्यादा से ज्यादा इलेक्ट्रिक कारों का उपयोग करने के लिए कहा है। खासतौर पर उन गाड़ियों के लिए यह निर्देश उन दिल्ली के अंदर इस्तेमाल को जा रही है। विद्रोह के मंत्रालय के मेमोरेंडम में यह कहा गया है कि इलेक्ट्रिक कीकल एनवायरमेंट फ्रेडल्टी हैं, रिंग कॉस्ट कम है और फासिलिटी प्ल्यूल बचाते हैं। ऐसे में सभी मंत्रालय
और विभागों को इन्हें अपनाने की कोषिशें करनी चाहिए। यह भी कहा गया है कि जिन गाड़ियों के कॉन्ट्रैक्ट जल्द ही खाल होंगे वाले हैं, उनकी जगह इलेक्ट्रिक गाड़ियों को हापर करने के बारे में सोचना चाहिए।
• 2030 तक 30% गाड़ियों को इलेक्ट्रिक कीकल में बदलने की पोलिसी को लेकर केंद्र सरकार की कोषिशें जारी
• जिन गाड़ियों के कॉन्ट्रैक्ट जल्द खाल होंगे वाले हैं, उनकी जगह इलेक्ट्रिक कीकल हापर करने की योजना

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इलेक्ट्रिक गाड़ियां बनाने और खरीदने वालों को तोहफों की सिफारिश

इलेक्ट्रिक गाड़ियां बनाने वाली कंपनियों और इन्हें खरीदने वाले ग्राहकों को कैबिनेट सचिव पी के सिखा की अनुवाद वाली एक समिति ने कई इंस्टीट्यूट देने की सिफारिश की है। आर्य इन सुझावों पर अमल हुआ तो देश में इ-मोबिलिटी को बढ़ावा मिलेगा। समिति ने कंपनियों पर बेसिक टंकर घटाने और कम जोरसती रेट की सिफारिश की है ताकि कंपनियां बड़े पैमाने पर इलेक्ट्रिक गाड़ियों का प्रभावण करें। इन गाड़ियों के खरीदारों के लिए समिति ने अलग रजिस्ट्रेशन चार्ज, रोड टैक्स और पार्किंग चार्जज से छूट देने के लिए सुझाव दिया है। इस कपड़े से वाकिफ एक सुट्ट ने बताया, ‘धारानमती कार्यालय में बुधध बने होंगे वाली हाई लेवल मीटिंग में इस बारे में अति फैसला लिया जाएगा।’ सुट्ट ने बताया कि फैसले होने के बाद रेखेस्ट्रोड संपाेटें, हेटी इंडस्ट्री रिपोर्ट्स और रोड ट्रांसपोर्ट मिनिस्ट्री से इसके लिए जरूरी कदम उठाने को कहा जाएगा। इ-मोबिलिटी के लिए इस बुप्रोट को देश दो दर्जन टॉप बुढोटेस्ट ने तैयार किया है। कैबिनेट सेकेंटरी की अध्यक्षता में पिछले महीने समिति की मीटिंग में सभी संबंधित मंत्रियों के सचिव लाने शामिल हुए थे। सरकार को पता है कि उनके नीति अपनाकर ही भारत इस मामले में उन्नयन दे सकता है। इसके लिए देश में बड़े पैमाने पर इलेक्ट्रिक गाड़ियों की मैनुफैक्चरिंग करनी होगी। इसके लिए सभी कंपनी और बैटरी का निर्माण भी देश में करने की योजना ही होगी। प्रधानमंत्री नरेंद्र मोदी ने पिछले साल सितंबर में इ-कीकल के लिए अच्छी पोलिसी लाने का वादा किया था। उन्होंने नीति आयोग के मोबिलिटी समिति में कहा था, ‘हम बैटरी से लेकर स्मार्ट चार्जिंग और इलेक्ट्रिक कीकल मैनुफैक्चरिंग तक के वेल्यू चेन में निवेश को बढ़ावा देना चाहते हैं।’ मोदी ने कहा था, ‘हम जल्द ही इलेक्ट्रिक और ऑटोनेट प्ल्यूट से चलने वाली गाड़ियों के लिए स्टेबल पोलिसी फ्रेमवर्क लाएंगे।’ इ-मोबिलिटी पोलिसी से सरकार तीन मकसद साधना चाहती है। वह इससे प्रदूषण कम करने, रोज़गार के नए अवसर पैदा करने और किसी तेल की खपत घटने की उम्मीद कर रहे हैं। भारत अभी अपनी 80 परसेंट तेल जरूरत को आयात से पूरा करता है। सरकार ने पहले कहा कि 2030 तक देश में सारी नई गाड़ियां बिजली से चलने वाली होंगी। हालांकि, इसके बावजूद भी ओपनवर्ग पोलिसी स्टेटमेंट्स नहीं माना गया। इसके बाद सरकार ने अपने पांच साल में कुल गाड़ियों की बिक्री में इलेक्ट्रिक कीकल की हिस्सेदारी 15 परसेंट करने की बात कही थी।
• इन गाड़ियों के खरीदारों के लिए समिति ने अलग रजिस्ट्रेशन चार्ज, रोड टैक्स और पार्किंग चार्जज से छूट देने के अपील की है।
• प्रधानमंत्री कार्यालय में आज होने वाली हाई लेवल मीटिंग में इस बारे में अति फैसला लिया जाएगा।

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After success of smart bikes, NDMC says it will rent out electric scooters

After the success of smart bikes, the New Delhi Municipal Council (NDMC) plans to introduce the rental concept to e-scooters for last mile connectivity in its area by end of September. The project will be implemented in two phases in NDMC’s jurisdiction, senior officials familiar with the development said. In the first phase, 500 e-scooters will be procured and provided on rent at 50 stations while remaining 500 will be made available in second phase by December 2019. The NDMC has invited tenders for designing, building, operation and maintenance of public e-scooter sharing system. “After finalising the model of the scooter, per minute charge for hiring them and other terms and conditions, we will assign the project to concessionaire, possibly by March-end,” said Naresh Kumar, chairman, NDMC. Two locations would be provided to charge the batteries of the e-scooters. “While the concessionaire will be responsible for installing charging points, we will be arranging for power supply at these places. The company can also establish monitoring station here,” said a senior NDMC official. “Considering these e-scooters will have smart removable/ swappable batteries, the company will have to mandatorily maintain 90% of fleet supply at any given point of time so that the overall services are not affected,” said the official further. People who wish avail this facility can do so by registering on NDMC’s app — ‘NDMC-311’. “After registration, app will immediately tell you the e-scooter stands close to your location. Users can use the touchpad on back of the e-scooters to unlock it through a one-time password (OTP) on their cellphone. The app records the time when the scooter is unlocked and the user is charged the fee accordingly,” he added. “One can also see the charge percentage of batteries while hiring the e-scooters,” the official said. The e-scooters will have a range of 80km on a full charge and can travel to speeds up to 55km per hour. The vehicle will cost around ₹1 lakh each. The civic agency plans to establish e-scooters stands near hospitals, Metro stations, religious places and offices. Officials said the sharing system would be based on the Smart Bike model. The NDMC is already promoting the use of smart bikes in its area and plans to make cycle friendly tracks, starting from Barakhamba Road. As of now, a total of 300 smart bikes have already been put under public use at 25 stations, spread over the entire NDMC area.

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Toyota, Panasonic to set up EV battery JV in 2020

Toyota Motor Corp and Panasonic Corp are set to launch a joint venture next year to produce batteries for electric vehicles (EV) in an effort to compete with Chinese rivals, a source familiar with the matter said. The joint venture, to be owned 51 percent by Toyota and the rest by Panasonic, could also provide batteries to Toyota's EV technology partners Mazda Corp and Subaru Corp, the source said on Sunday. The source declined to be identified because the talks on the joint venture are private. A joint venture would build on the agreement that the pair announced in late 2017 on joint development of batteries with higher energy density in a prismatic cell arrangement. Toyota and Panasonic each said the plan to set up a joint venture, first reported by the Nikkei business daily on Sunday, was not what they have publicly announced. A Toyota spokesman said the two companies have been working on the battery partnership announced in 2017. Panasonic made the same comment in a statement. Under a planned joint venture, Panasonic would shift most of its prismatic battery-related equipment and facilities in Japan and China to the joint venture, while those producing batteries for U.S. EV maker Tesla Inc. will remain under the company, the source said. Panasonic already makes prismatic batteries for Toyota, whereas for Tesla, it makes cylindrical batteries of a type similar to those used in laptops. The two companies may announce the joint venture plan as early as this week, according to the source. The battery joint venture will help Toyota achieve an annual sales target of around 1 million zero-emission battery EVs and fuel-cell vehicles (FCVs) by 2030. It will also give Panasonic cost and scale advantages in battery production at a time when China's Contemporary Amperex Technology has grown to be on par with the long-time industry leader on the back of the rapidly growing home market.

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Hybrid, CNG Vehicles Most Effective

Toshihiro Suzuki, president of Suzuki Motor Corporation, on Friday said that to combat carbon emissions in India, the company will be launching electric vehicles starting 2020, and stressed that the industry should also capitalise on hybrid and CNG-powered vehicles to curb pollution. “In the Indian context, we firmly believe that hybrid and CNG vehicles are the most effective solution, with the fastest results,” the Japanese businessman said at the Vibrant Gujarat Summit on Friday. “Suzuki will introduce cutting-edge hybrid vehicles aggressively with technical support from Toyota Motor Corporation,” he said.

The Suzuki Motors chief said that the company is currently road testing 50 electric vehicles in India to develop the right product for the market. He said that the company will also be localising other components required for e-mobility. He explained that both hybrid and fully electric vehicles use similar technologies and the company will first localise hybrid vehicle components followed by the latter. “In this approach, we will realise real Make in India in the field of vehicle electrification as well, which surely helps further expansion of Indian automobile industries,” he said. ET had earlier reported Suzuki Motor’s plan for opening the second manufacturing facility in Gujarat was on track. The carmaker on Friday said the plant, with an annual capacity of 2.5 lakh vehicles, has started producing the Swift this month. This is in addition to 2.5-lakh-vehicle capacity of the first plant. Meanwhile, Suzuki also said a third facility will open by 2020, taking the company’s combined manufacturing capacity in Gujarat to 7.5 lakh vehicles a year. The company's engine and transmission manufacturing facility in Gujarat too has started operations from January.

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बायोफ्यूल से उड़ेंगे अब लड़ाकू विमान

इस बार रिपब्लिक डे पर इंडियन एयरफोर्स के जहाज जब हवा में करता दिखाएंगे, तो उनके बीच एक ऐसा प्लेन भी होगा, जो बायोफ्यूल से उड़ रहा होगा। एएन-32 एक टूंस्पोर्ट एयरक्राफ्ट है। इसका कामयाबी से टेस्ट करने के बाद एयरफोर्स अब लड़ाकू विमान में भी बायोफ्यूल के टेस्ट की योजना बना रही है। अगर बायोफ्यूल का इस्तेमाल होने लगे, तो यह कच्चे तेल पर निरंतर संकट करेगा। रिपब्लिक डे पर एएन-32 एयरक्राफ्ट एयरफोर्स के दूसरे विमान और लड़ाकू विमान के साथ फ्लाईपास करेगा। इंडियन एयरफोर्स के एयर वाहन मार्शल आर्जीके कपूर ने कहा कि अभी हम बायोफ्यूल से विमान उड़ाने के प्रयोग कर रहे हैं। इसके टूंस्पोर्ट अभी भी रहे हैं। उन्होंने कहा कि अभी हमने लंबी अवधि की योजना नहीं बनाई है, दो फहराओं पर टेस्ट करेंगे।

एम डे हमें कहें कि बायोफ्यूल का सिस्टम इंजन पर क्या असर करता है। यह पहलू भी हमें कहें कि बायोफ्यूल का उत्पादन कहां से होगा और अगर हम पूरी तरह बायोफ्यूल में का इस्तेमाल करना चाहें तो कितने बायोफ्यूल की जरूरत होगी।

सरकार लेगी अंतिम फैसला- एयर वाइंस मार्शल कपूर ने कहा कि हम एक सिद्धांत को साबित करना चाहते हैं। एक बार यह साबित हो जाएगा कि यह हम कर सकते हैं, तो फिर इसे करना कोई बड़ा काम नहीं है। इससे हम रिपब्लिक डे पर एएन-32 लाएंगे। उन्होंने कहा कि बायोफ्यूल के इस्तेमाल से इंजन और सिस्टम पर क्या असर होगा, एयरक्राफ्ट की लाइफ पर कितना असर होगा और इसके क्या तकनीकी पहलु हैं, उसका आकलन करेंगे। फिर यह भी आकलन करना होगा कि उत्पादन कैसे होगा। इसके बाद का फैसला लेगी सरकार चाहें।

एयर वाइंस मार्शल ने बताया कि हमने टूंस्पोर्ट एयरक्राफ्ट एएन-32 की एक घंटे और दो घंटे की उड़ान भरी है। जैसे बायोफ्यूल के साथ सही तरीके से उड़ा। इसलिए हमें भरोसा है कि हम लंबी उड़ान के लिए भी तैयार हैं। उन्होंने कहा कि एएन-32 एयरक्राफ्ट टू इंजन एयरक्राफ्ट है। उसमें फ्यूल सिस्टम ऐसा है कि अगर कोई दिक्कत हो तो दूसरे इंजन से काम चल जाएगा।

What are you smoking? Study to monitor pollutants on the ground

An IIT-Kanpur source apportionment study for Delhi is being planned with real-time analysis to provide a better understanding of the sources of pollution plaguing the capital. Experts at IIT-Kanpur are already in talks with the Central Pollution Control Board for funding the study with the Environment Protection Charge fund. Sachchidanand Tripathi, senior scientist at IIT-Kanpur, said the idea is to work on realtime monitoring of pollutants for a detailed picture of the sources affecting Delhi. “We plan to take real-time measurements using a device called an ‘aerosol mass spectrometer’. This device can give chemical analysis of every organic matter, except dust particles. Every few seconds, we will get to know what the exact composition of pollutants are,” Tripathi told
TOI, adding that the study will be carried out at three locations — Rajendra Nagar, IIT-Delhi and Faridabad. According to the last source apportionment study by IITKanpur in 2015, the top four contributors to PM2.5 emissions in Delhi were road dust (38%), vehicles (20%), domestic fuel burning (12%) and industrial point sources (11%). The top four contributors to PM10 emissions were road dust (56%), concrete batching (10%), industrial point sources (10%) and vehicles (9%). So what is the difference between the earlier study and the one proposed by IIT now? According to Tripathi, earlier studies followed a sampling storage analysis format. Researchers collected samples in filters and bought it back to the lab for analysis. Offline chemical analysis was then carried out on these samples, collected for 8 hours or twice a day, after a couple of months. “There are a few issues with this. When you keep the samples stored, some of it goes back into gaseous state. From filter to different instruments, losses occur. There are also actual limitations related to offline analysis in terms of complex particles. Plus how does one differentiate between solid fuel and crop residue, local source and distant sources? This proposed study will help in that,” said Tripathi. The proposal is to conduct the study over two seasons, April-May-June and October-November-December, to study the different nature and composition of pollutants in both the seasons. Delhi government, too, had last year approved the environment department’s proposal to conduct a round-the-year air quality study to ascertain the sources of pollution in the capital. The project, Real-Time Source Apportionment Study for Air Pollution in Delhi, will be carried out by the department of energy, environmental & chemical engineering, University of Washington in St. Louise and will be completed at a cost of about Rs 1.2 crore within a period of 18 months.

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Obesity, malnutrition 2 sides of climate change

Three major problems confronting the world — climate change, obesity and malnutrition — are connected with each other and together form a “global syndemic” that poses the greatest threat to human and planetary health, particularly in low- and middle-income countries including India, according to a new report by The Lancet. A syndemic, or a combination of pandemics, is
defined as “the presence of two or more disease states that adversely interact with each other”. The report — The Global Syndemic of Obesity, Undernutrition and Climate Change: The Lancet Commission Report — which discusses how the issues are interrelated and often exacerbate the prevalence of each, was prepared by 43 health and climate experts from 14 countries, and was released on Monday by the Lancet Commission on Obesity. The main and common drivers for the “global syndemic”, according to the authors, are food and agriculture policies, transportation, urban design, and land use systems in general, and policies that incentivise large food corporations and the fossil fuel industry in particular. “The fossil fuel and food industries that are responsible for driving the Global Syndemic receive more than $5 trillion in annual subsidies from governments,” the report said. “Until now, undernutrition and obesity have been seen as polar opposites of either too few or too many calories. In reality, they are both driven by the same unhealthy, inequitable food systems, underpinned by the same political economy that is single-focused on economic growth, and ignores the negative health and equity outcomes. Climate change has the same story of profits and power ignoring the environmental damage caused by current food systems, transportation, urban design and land use,” said the Lancet commission’s co-chair, professor Boyd Swinburn of the University of Auckland. The report points out that climate change can drive obesity because rising temperatures in some parts of the world is restricting physical activity outdoors. It says that undernutrition and obesity also interact — undernutrition in early life is a predictor for later obesity in many countries. In India, 38% children under five years old are stunted (too short for their age); 21% are wasted (too thin for their height); 36% are underweight, and 58% are anaemic, according to National Family Health Survey data put together by Shitalika Goenka, one of the co-authors of The Lancet report and a professor at the Public Health Foundation of India (PHFI). “Radical changes are required in the country’s laws pertaining built-environments, roads and transport systems including public transport, support structures for active living and physical activity in daily living, green spaces; land use, urban design, agriculture, and food and economic and commercial policies to prevent further carnage and damage in the years and generations to come,” said Goenka.

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Touching rural lives with technology

Technology need not be high-end, urban, and expensive and designed for profit. It can also better and transform human lives and livelihoods in the hinterland. This is what the Appropriate Rural Technologies Institute (ARTI), based in Pune, has been quietly achieving through research initiatives over the last two decades. Converting post-harvest farm residue into fuel is one of the technologies the Ashden award-winning institute has pioneered. It involves burning sugarcane and crop stubble in a simple machine which is then compressed into char briquettes that serve as inexpensive household fuel. The institute has also developed a Sarai cooker in which food can be slow-cooked using briquettes. It is a multi-pan container that cooks as well as any cooker and can deliver a meal in 45 minutes. Add to that another innovation from ARTI — the improved biogas plant that uses food waste to produce biogas and is far more efficient than the conventional plant which uses dung to produce gas. Since food waste is starchy, 80 per cent of the input is utilised with hardly any waste. Similarly, the simple solar dryer developed by the institute is a great help for households and organisations that prepare sun-dried tomatoes and onions for the market.

Low-cost greenhouse- ARTI’s innovation doesn’t stop there. Realising that in India the conventional European-style greenhouse is not as effective due to tropical conditions, the institute designed a low-cost greenhouse that uses a bamboo frame lined with plastic sheets. This greenhouse protects saplings from cross-winds and exposure, besides trapping the carbon-dioxide produced by plants at night for improved photosynthesis. At a fraction of the price of the conventional model, it was a boon for rural households. However, it was found that the bamboo frame did not last long enough. To toughen it, ARTI developed a method of treating both the green (freshly harvested) bamboo and the dry bamboo. To treat the latter, the culm is drilled into and soaked in a mixture of sodium dichromate, copper sulphate and boric acid for three days. Being inorganic salts, these form chemical bonds with the bamboo tissue and strengthen it. In the case of freshly harvested green bamboo, the same solution is forced through the tissue of the bamboo culm at high pressure by injecting it. Bamboo thus treated can last 10-20 years and can also be used as building
material for sheds, houses and nurseries. Through its Rural Entrepreneurship Development Centre, ARTI has been disseminating information on its innovations in agriculture and technology. This has helped many in rural areas turn into small-scale entrepreneurs. But more than anything else, ARTI’s technologies have made a massive difference in the lives of women who have been trained at its Women Technology Park. Take the case of Dhanashri Badwe. A homemaker from Phaltan, Satara district, the heart of Maharashtra’s sugarcane belt, she has been earning an income the last few years during the sugarcane planting season due to the training she underwent at ARTI. Using sugarcane nodes, she uses a mixture of soil and compost to grow high-yielding saplings in three-holed plastic bags. The nodes are buried in the soil for a month-and-a-half, transforming them into saplings ready to be planted by the farmer. Through this method, fewer nodes are needed per acre and they give higher yields. Each sapling that Badwe prepares sells for ₹2. Since an average farmer requires 4,500 nodes per acre, a good income is ensured. Ahead of the planting season, which begins in June, farmers book saplings paying 50 per cent of the price. “I sell 7-8 lakh plant propagule saplings per year,” says Badwe.

**Improved chulha stoves** - Nilima Kadale, another homemaker, opted for training in making and selling improved chulha stoves. Using a mould, she has been building the smokeless cement contraption (Grihalakshmi model) and selling it for about ₹3,000 each for the past five years. This has helped her supplement the family’s earnings. Several women’s self-help groups (SHGs) have also tried out ARTI’s innovations. For instance, women in the forest villages of Raigad district use ARTI’s large-scale cutting machines to chop vegetables and fruit for pickles and chutneys. They sell the products at eateries and resorts in their vicinity. ARTI has also been able to make a difference by tweaking existing technology. For instance, the sal leaf plate and cup-moulding stoves are proving a boon for tribal communities in Odisha. Wherever an intervention is needed, the institute steps in to innovate.
If Surat can do it, so can you: NGT tells govt. to take lessons on idol immersion

A monitoring committee appointed by the National Green Tribunal has directed that a Delhi government official visit Surat and learn how to effectively manage idol immersions by ensuring no harmful chemicals or items are dumped into the Yamuna. In a report submitted to NGT, the two-member monitoring committee, which includes retired expert member BS Sajwan and former Delhi chief secretary Shailaja Chandra, expressed concern over the toxic water post-immersion in the Yamuna and asked Delhi to follow the Tapti example, where the administration ensured that no idol was immersed in the 2018 festive season. “The time from January until March should be used to plan effective management with the goal of controlling toxicity in the river... The divisional commissioner may consider visiting Surat along with the relevant police special or joint commissioner to get a first-hand idea of how things were managed there,” the committee has written to the Delhi government. Authorities in Surat ensured that no idol was immersed in the Tapti River. All 60,000-plus idols were
immersed either in 22 artificial ponds or at sea. According to experts, steps taken by the city administration of Surat, Ahmedabad and Rajkot should be studied to understand how the Ganapati immersion was managed there. “Delhi needs to create sufficient artificial ponds before issuing a notification that only designated ponds will be permitted. Instead of banning things, people should be made aware of the health hazards of high levels of heavy metal and faecal coliform that take place post-immersion to justify preventive steps, which the public should understand is for their protection,” it said. In 2018, after idol immersion of Durga Puja and Ganesh Chaturthi, organic pollution such as Biochemical Oxygen Demand (BOD) increased due to human influence and puja ingredients. Concentration of heavy metals increased in the river due to immersion of painted or polished idols with metallic ornaments and shiny materials, a Central Pollution Control Board report stated. After Durga Puja immersion, chromium increased from the Bureau of India Standards limit (0.05 mg/l) by 11 times; iron concentration increased from BIS limit (0.3 mg/l) by 71 times; and lead increased from BIS limit (0.01 mg/l) by two times in the Yamuna. After Ganesh Chaturthi immersion, arsenic increased from the BIS limit (0.01 mg/l) by 3 times; chromium increased by 2.8 times; copper concentration increased from BIS limit (0.05 mg/l) by 1.6 times; iron concentration increased by 331 times; lead increased to 25 times; nickel increased from BIS limit (0.02 mg/l) to 4 times and mercury increased from BIS limit (0.001 mg/l) by 0.6 times in the Delhi stretch of the river.

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चित्राजन: भारत का तापमान 2040 तक 1.5 डिग्री बढ़ जाएगा

गत वर्षों में भारत मौसम के विविध घटनाओं का गोल है। इसे तीन लाख के हजार में आई प्रविष्टकारी बढ़ जाने का विवरण बढ़ जाने का विवरण बढ़ जाने के लिए उत्तर भारत में घुल जाने की उत्तर भारत में घुल जाने की आवश्यकता है। मौसम विभाग ने चिताजन की है कि यदि वीणहवाला बढ़ने के उद्देश्य पर तथ्यांश अनुसार उनके लिए 1984 तक वित्तीय विवरण से बाहर हो जाएगा। जलवायु परिवर्तन पर समय के बाद की संरचना इतिहासी तथ्यों में चिताजन की है कि 2040 तक जलवायु का तापमान 1.5 डिग्री बढ़ जाएगा। जलवायु बदल की एक चिताजनी।

**तापमान में बदलाव**

+0.6

11 साल सबसे गर्म रहे 2004 के बाद से 15 में से 2009-18 सबसे गर्म दशक रिकॉर्ड किया गया।

**मौसम की गार (2018 में)**

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**जानलेवा बालिका**

223
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139
116
dरा रा ।
77
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* (सोते: आईएमडी, वर्ल्ड मैटर्स लिमिटेड और भारतीय रेलवे भारत की जलवायु की जलवायु पर दिया गया वक्तव्य)
यमुना में अमोनिया की मात्रा बढ़ने से पानी आपूर्ति प्रभावित

यमुना नदी में अमोनिया की मात्रा बढ़ने से रविवार की भी पानी की आपूर्ति प्रभावित रही। जल बोर्ड के अनुसार रविवार शाम नदी में अमोनिया का स्तर 1.7 पीपीएम (पार्ट पर मिलियन) होने से जल शोधन संयंत्र क्षमता से कम उत्पादन कर रहे हैं। साथ ही यमुना में अमोनिया की मात्रा लगातार बढ़ती जा रही है। मानक के हिसाब से यमुना में अमोनिया का स्तर 0.3 पीपीएम होना चाहिए।यमुना में शुक्रवार को ही अमोनिया की मात्रा मृदु दर्ज की गई थी। तब से वरिष्ठाबाद जललाभ में जल की गुणवत्ता प्रभावित है। चन्द्रभाग व ओखला पाव में भी पानी का उत्पादन प्रभावित हुआ है। हरियाणा से औद्योगिक कचरा बहाए जाने से रविवार शाम यमुना में 1.7 पीपीएम अमोनिया पाया गया है। हरियाणा में अमोनिया की मात्रा बढ़ने से के रोज 50 एमजीडी जललाभ प्रभावित हो रही है। 50 एमजीडी कम जल आपूर्ति: जल बोर्ड अपने सभी संयंत्रों से पानी का उत्पादन कर रोज 900 एमजीडी की आपूर्ति करता है। लेकिन, शुक्रवार से 850 एमजीडी पानी की आपूर्ति ही की जा पा रही है। दो दिनों के पहले हपटे में भी ऐसी दिक्कत आई थी। दो दिन के बाद समय हल हुई थी। पुरानी दिल्ली, दिल्ली, पहाड़ी जंगल, करोलबाग, चाँदनी चौक क्षेत्र, उत्तरी दिल्ली के बाहरी दिल्ली, सिविल लाइंस, सदर बाजार, कमरी में नई दिल्ली क्षेत्र के गोल मार्केट, चाँदनी चौक, तोधी, कॉनोनी व दलितों के कुछ भागों में पानी की आपूर्ति अमोनिया की मात्रा में सुधार होने तक प्रभावित रह सकती है।

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धरती को बचाने के लिए उठाने होंगे ये कदम

पिछले कुछ वर्षों में दुनिया ने विभिन्न प्रकृतिक आपदाओं की विभिन्न झेलों है। तुलसी, अंधी, सुनामी, भूकंप, बाढ़, सूखा और हाढ़ी में आग की घटनाओं ने लोगों के सामने जलवायु परिवर्तन का भयावह रूप सामने रखा है। दुनिया के हर क्षेत्र में जलवायु परिवर्तन के कारण कठिन परिस्थितियां आ रही हैं। 2019 में दुनिया की आपदाओं से बचाने के लिए ये छह कदम उठाने होंगे।

- बायु प्रदूषण से निजात पाने के लिए दिल्ली की एक स्टारटअप कंपनी ने 40 फुट लंबा ऐसा पूरीकरण बनाया है, जो उसके तीन किलोमीटर के दायरे में रह रहे 75 हजार लोगों की स्थान हवा दे सकता है। इससे प्रति दिन 3.2 करोड़ क्वीबिक मीटर की हवा स्वच्छ करने की क्षमता है।
- प्लास्टिक कचरे के कारण दुनियाभर में सभी जल समृद्ध प्रभावित हो रहे हैं। जपान के वैज्ञानिकों ने शोधों के दौरान अव्यावहारिक एक ऐसे एंजाइम की खोज की, जो प्लास्टिक को कुछ ही दिनों में सड़ा देता है। ये एंजाइम प्लास्टिक की पूरी तरह से नष्ट नहीं करता लेकिन इसे सड़कर रीसाइकल करने वाले स्तर पर ले आता है।
- अनुसंधानकर्ताओं ने एक नया पारदर्शी सौर सेल विकसित करने का दावा किया है, जिसे घर की खिड़कियों में लगाने से कम कीमत पर बिजली का उत्पादन किया जा सकता है। ये सौर सेल मुख्य तौर सामन्यतया तौर पर दिखने वाला प्रकाश नहीं, बल्कि इंफ्रारेड प्रकाश अवशोषित करके बिजली बनाते हैं। इससे ये मानव आंखों के लिए अद्वितीय पारदर्शी बन जाते हैं। इससे कमरे में रहने वाले लोग बाहर की चीजें आसानी से देख सकते हैं।
- सहारा मर्स्टेल के आपसी पेट्रोलियम औद्योगिक के लोग अब फोंग कलेक्टर की मदद से पानी की खेती करने लगे हैं। ये फोंग कलेक्टर ऐसे फ्रेम हैं जो कोहरे को सीखकर उसे पानी में बदल देते हैं और इस पानी को पापराइज़न के सहारे घरों में पहुंचाया जाता है। ये फ्रेम 74 मील प्रति घंटे की रफ्तार से चलते वाली हवाओं को आराम दे सकते हैं।

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DJB to drag Haryana to HC for industrial waste in Yamuna

Delhi Jal Board (DJB) will take Haryana to court over increased levels of ammonia and industrial pollutants in the Yamuna. “Raw water quality in Delhi has been affected time and again due to discharge of industrial waste by Haryana. This has been a perpetual problem and Delhitiites suffer due to it,” DJB vice-chairman Dinesh Mohaniya said on Monday. As the problem has again started impacting the water supply in the capital, DJB has decided to move Delhi high court for a solution, he added. The raw water quality at Wazirirad pond has deteriorated severely since Friday, with the present ammonia level in the Yamuna at 2.2ppm. DJB can treat up to 0.9ppm ammonia levels. Hence, the water production capacity at Wazirabad, Chandrawal and Okhla treatment plants has fallen by 30%, said an official. Further, rationalisation of drinking water has been done at other plants. DJB will plead in HC that the ammonia levels are almost double of what can be treated at Wazirabad and urgent
directions are required to be given to Central Pollution Control Board and other respondents to stop it. The Haryana irrigation department directly controls the pollutant sources and illegal bunds have recently come up in the channel DD-8, which can’t be done without the department’s consent, an official said referring to the draft petition. DD-8 is a channel through which additional water can be supplied to Delhi for diluting the pollution — in case it can’t be controlled — so that the water can be made drinkable at Wazirabad. Due to high levels of pollutants in the Wazirabad reservoir, the command areas, including NDMC and other central Delhi areas, have been impacted. Following the Supreme Court’s orders, the reservoir needs to be kept full at all times to meet Delhi’s drinking water requirement, the official said. “The Centre, with offices and residential complexes in NDMC areas, has been requested to direct Haryana to take action,” he added.

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This is the house that green practices built

The year 2019 may prove to be the inflection point for green building movement and energy efficiency that could lead to India being a green champion in the future. Driving the green dream in a big way is the CII-Indian Green Building Council formed in the IT hub of Hyderabad in 2000-01, with the country’s first platinum-rated centre of 20,000 sq ft coming up in 2003-04. By incorporating various standards and codes besides applying best practices, the Council has evolved rating systems for a number of sectors. During the recent Green Building Congress, the Council introduced new rating systems, including ‘net zero energy building rating systems’, and for green resorts and green hill habitats. The net zero energy rating assesses buildings that are self-sufficient in energy — their energy requirement is met
through their own generating system, be it solar or wind. With modern buildings, particularly, needing cooling and heating systems, this rating system is expected to play a big role in addressing greenhouse gas emissions. While green buildings consume 25-30 per cent less energy, this has potential to be further brought down, say experts. As the Council targets a green building footprint of 10 billion sq ft by the year 2022 when India will be @75 years of Independence, if the current pace of growth is anything to go by, this target may be achieved ahead of schedule. Says V Suresh, Chairman, and Indian Green Building Council (IGBC), “The green building movement is on an upward spiral. Our rating systems cover buildings of all asset classes, from campuses to smart cities, urban mobility and metros and even green villages. Special thrust is being given towards ‘green homes’ — with about 14 lakh homes and green footprint of 1.76 billion sq ft, covering residential units of all income categories, including affordable houses.” This growth would not have been possible without the involvement of various stakeholders working towards a shared vision. S Raghupathy, CII Deputy Director General, who has been spearheading the movement ever since the IGBC was created, says, “Projects from Jammu to Andaman, Surat to Shillong have adopted green ratings. The ratings have touched the lives of people from all sections of society, be it residents of rated green homes, students in green schools, commuters travelling through green metros, railways stations and airports, workers in green offices and factories or the common citizens living in green townships and green cities.”

**Transforming old buildings too-** With 25 ratings launched thus far by the IGBC, covering residential, commercial, industrial, healthcare, railways, campuses, townships and cities, there has also been significant movement in retrofitting and transforming older homes and properties. Niranjan Hiranandani, President, Naredco, says, “In the uber-luxury segment of premium residential real estate, home buyers support measures that are less polluting or restrict damage to the environment — they are okay with the additional spend on a ‘green’ residential building.” These buildings not only improve the environment and ecology, but can reduce energy consumption by 20-30 per cent, water usage by 30-50 per cent and significantly reduce waste generation by extensive recycling. With an estimated 5 per cent of Indian construction following the Green Building norms, there is definitely scope for future expansion and growth. The government has come up with some guidelines that result in savings as regards land revenue, so that is an additional sweetener to prod those planning new projects to opt for a green building. “The customer profile in residential real estate is changing, where the
‘new buyer’ segment — the Millennials — want homes that include some aspects of ‘green buildings.’ They ensure that developers focus on eco-friendly buildings,” Hiranandani says. It is not just about construction methodology and building material usage but also enhancing the quality of life, for those who opt for such facilities. C. Sekhar Reddy, former national president of Credai, explains, “What started with zero has now grown to 25 ratings. The number of accredited professionals has gone up to 3,000 and efforts are on to take this up to 10,000. We have barely touched the tip of the pyramid, now the focus is on expanding and reaching out to the bottom of the pyramid.” “The foundation has been laid and now the Council has chapters in 22 States. Not only States, a number of cities, including smart cities such as Dolera, and the upcoming greenfield city of Amaravati are keen to develop into green cities,” says Reddy. Aiding the green city push is a rapidly growing pool of GreenPro rated products, whose number has swelled to over 500, accounting for about 60 per cent of the cost of construction, excluding land and labour. The target is to take this to 90-100 per cent of the construction cost,” says Reddy. The cost differential, which was about 18 per cent in 2003 with payback of 5-8 years, for a green building, has now come down to 1-3 per cent with 2-3 years payback.

Needed: Proactive govt. support- While the green building movement is driven by the private sector thus far, in a voluntary mode, there is need for proactive support from the Centre and States to provide further impetus by considering some direct concessions to GreenPro-rated building products. Secondly, buildings that have already gone green or are in the process may be offered municipal tax concessions so that they get incentivised. “One of the things that States could do is encourage usage of GreenPro rated products so that they get mainstream faster and people are spurred to use them. Smart Cities will not happen unless they have green buildings,” Reddy says. And if States too pitch in with some innovative policy initiatives, the green building movement could be accelerated, he explains.

India making progress- All in all, the country has been making steady progress towards energy-efficiency in construction. What started with commercial buildings and factories has gradually gained acceptance in residential projects. It is estimated that a million sq ft of green building could save up to 12,000 tonnes of CO2, save about 15,000 MWh of energy, 45,000 KL of water and help in diverting 450 tonnes of construction waste for landfills. Not surprisingly, we now have more than 12, 50,000 dwelling units, over 250 plus green factories, more than 16,000 green
offices, 45-plus green townships, several green villages and green cities. Facilities of Hindustan Zinc, hospitality projects, ITC Green centre in Gurgaon, Suzlon One Earth in Pune, for instance, have demonstrated how they could bring down energy consumption. Be it corporates or individuals, going energy-efficient adds to the overall happiness index. Imagine not having to worry about monthly power bills or sudden blackouts, thanks to one’s own solar energy/wind systems.

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In Delhi, clean air plan could add over 3 yrs to residents’ lives

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<th>How NCAP can improve life expectancy</th>
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<td>PM2.5 (µg/m³)</td>
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<td>Delhi</td>
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Calculations are based on PM2.5 averages for 2016 from satellite measurements. Source: Energy Policy Institute at the University of Chicago (EPIC-India)

Delhi residents could hope to live 3.35 years longer if the National Clean Air Programme (NCAP) is implemented and the reduction in air pollution is sustained, according to Michael Greenstone, the Milton Friedman professor in economics at University of Chicago and the director of the Energy Policy Institute (EPIC). Greenstone is one of the creators of the Air Quality Life Index of AQLI which measures the impact of particulate matter pollution on life expectancy. According to the World Health Organisation, Delhi is among the most polluted cities in the world. NCAP, which was launched by India’s environment minister Harsh Vardhan last week, aims to reduce the concentration of PM 2.5 (fine, respirable pollution particles with a diameter of
less than 2.5 micron) and PM 10 (coarse pollution particles) in 102 non-attainment cities (cities which didn’t meet the annual PM 10 national standard from 2011 to 2015) by 20% to 30% by 2024 over their 2017 annual average levels. NCAP was criticised by environmental experts for not having legally binding air pollution reduction targets. It aims to take a “participatory and collaborative” approach Greenstone said the targets could also be achieved by providing incentives or disincentives. “I think it’s terrifically important that the government get deeply engaged in air pollution reduction. NCAP reflects that the public is beginning to demand improvements in air quality. It’s an important step,” Greenstone said, adding that NCAP has very ambitious goals. “As is so often the case here too, the devil is in the detail. I assume there will be a lot of hard work in successfully meeting those goals. Money helps focus people’s minds. Empower people to meet targets, give them incentives to deliver it.” In the US, under the Clean Air Act, if states failed to get their counties to comply with standards, then the money to build highways was withheld. “What’s at stake here is an opportunity for people to live longer,” he added. Greenstone who has worked with and tracked the air pollution reduction strategies in China for decades said India’s neighbour has achieved improvements through a “methodical focus.” “In China, the work on air pollution was set out by the demands from the public. India is the biggest thriving democracy in the world; China has more of a single party rule. It’s been quite surprising to me how responsive the Chinese government has been to air pollution, even though China doesn’t have a history of democracy,” he said. “After the US passed the clean air act in 1970, it probably took 12 to 15 years for reduction in pollution in US to be as large as what China has achieved in only four years...,” he said. Greenstone recommends targeting the biggest polluters first through NCAP. “Go to the biggest polluters and fix them.”

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The Hindu Lit for Life will go zero waste to reduce carbon footprint

Chennai’s most-awaited annual literature festival, The Hindu Lit for Life (LFL), is all set to become greener with a host of initiatives this year. As part of moving towards a zero-waste programme, bottled water will not be available at the venue. Instead, visitors are encouraged to carry their own water bottles and make use of the water dispensers installed at various spots across the venue. Also, to encourage a zero-waste practice, The Hindu LFL will introduce ‘BYOB — bring your own bottle, bicycle and bag — party’, under which people who reach the venue using public transport will be rewarded if they submit their travel tickets at the zero-waste counter. “Festivals often end up hurting people unless it is planned well, and since this festival itself mentions life, we thought of introducing the initiative this year,” said environmental activist Nityanand Jayaraman, who and a group of volunteers are planning the path towards a zero-waste festival. “All the 57 signages on the venue are being made with cloth banners painted by local artisans,” Jayaraman added.

The zero-waste counter will also host talks on topics such as composting, understanding the Tamil Nadu plastic ban, alternatives to plastic, quiz programmes and a soapbox for festival attendees to voice their opinion on various environmental issues. Chennai Kalai Thiruvizha, a zero-waste festival by itself, is assisting The Hindu Lit for Life in moving towards a zero-waste environment. “Zero waste essentially means reduced environmental footprint and enlarged social footprint,” Jayaraman said. The ninth edition of The Hindu LFL, to be held between from January 12 to 14, will see eminent writers, novelists and artists from across the globe perform, converse, discuss and conduct workshops for literary enthusiasts in the city. The festival, which began as one-day show in 2010, has expanded to a three-day festival, expanding its scope to cover fiction, non-fiction, politics, history, the arts, cinema and regional literature, and has been enriching the literary space in the city. Since 2018, The Hindu Lit for Life has also been hosting a Tamil literary festival in association with The Hindu Tamil, which includes conversations and presentations with eminent Tamil writers. Lit for Life also has a dedicated children’s fest to engage with children between the ages of five and 12 and inculcate them into the world of books. The children’s fest will have sessions such as storytelling, workshops and interaction with writers and experts.

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US carbon emissions surged even as coal plants closed

America’s carbon dioxide emissions rose by 3.4% in 2018, the biggest increase in eight years, according to a preliminary estimate published on Tuesday. Strikingly, the sharp uptick in emissions occurred even as a near-record number of coal plants around the US retired last year, illustrating how difficult it could be for the country to make further progress on climate change in the years to come, particularly as the Trump administration pushes to roll back federal regulations that limit greenhouse gas emissions. The estimate, by research firm Rhodium Group, pointed to a stark reversal. Fossil fuel emissions in the US have fallen significantly since 2005 and declined each of the previous three years, in part because of a boom in cheap natural gas and renewable energy, which have been rapidly displacing dirtier coal-fired power. Yet even a steep drop in coal use last year wasn’t enough to offset rising emissions in other parts of the economy. As the US economy grew at a strong pace last year, emissions from factories, planes and trucks soared. And there are few policies in place to clean those sectors up. “The big takeaway for me is that we haven’t successfully decoupled US emissions growth from economic growth,” said Trevor Houser, a climate and energy analyst at the Rhodium Group. As US manufacturing boomed, for instance, emissions from the nation’s industrial sectors —
including steel, cement, chemicals and refineries — increased by 5.7%. Policymakers working on climate change at the federal and state level have so far largely shied away from regulating heavy industry, which directly contributes about one-sixth of the country’s carbon emissions.

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Study shows alarming levels of toxic metals in Nov-Dec air

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<th>SAMPLES TAKEN</th>
<th>NEW DELHI</th>
<th>GURUGRAM</th>
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**PM2.5**: Between 1.5 and 9.4 times higher than the prescribed standards in all samples

**MANGANESE**: In five of the seven samples exceeded the WHO annual health-based guidelines value of **0.15 ug/m³**.

**LEAD**: In two samples exceeded the WHO annual health-based guidelines value of **0.05 ug/m³**

**NICKEL**: In all samples exceeded the WHO annual health-based guidelines value of **0.0025 ug/m³**

**BARIUM**:

- **21.5 µg/m³**: Levels in the sample a day before Diwali
- **5.8 µg/m³**: On the day of Diwali
- **2.4 µg/m³**: A day after Diwali

**< 0.05 µg/m³**: typical levels

The samples of air taken for a study from Delhi and Gurugram in November and December 2018 reveal presence of alarming levels of toxic heavy metals, including carcinogens such as Nickel. The metals detected in the seven samples included manganese, nickel and lead along with excess of Particulate Matter 2.5 (PM2.5) that is known to cause serious short-term to long-term health impact, including damage to the brain. The study titled “Death in Every Breath” was released by Lung Care Foundation. Environmental experts, however, say
that the study lacked scale. Four monitoring locations were picked in Gurugram and three in Delhi’s Safdarjung Enclave. All samples were taken from open balconies of residential homes. High levels of Barium — that is usually found in fireworks — were also detected in all the three samples that were collected a day before, on the day and a day after the festival of Diwali in Delhi. The Barium level in the sample a day before Diwali was 21.5 μg/m³, on the day of Diwali was 5.8 μg/m³, and a day after was 2.4 μg/m³, which is high when compared to the permissible limit of <0.05 μg/m³. Three levels of PM2.5 detected in the Delhi air were under “hazardous” limits capable of triggering a health warning of emergency conditions. “Children are particularly vulnerable as all these metals are known neurotoxins and nervous systems of children are still developing and are hence are more susceptible to the effect of poison that these metals are,” said Arvind Kumar, founder, Lung Care Foundation. A professor of environmental science at IIT-Delhi, requesting anonymity, however, said, “The sample size is too small, and the method and type of data collected is insufficient to draw the correlation that the study seems to hint at.”

“While there is certainly a probability in what they are saying, there is no attempt to gather evidence in the form of long-term data. There is no hypothesis, it is merely observational,” he said. Dr Arvind Kumar, says, “It was a pilot study; now that we have the results, we will plan to do at more places and different cities.”

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IBM weather data to help XShip boost vessel management, performance

Leading marine consultants XShip Design and Analytics will integrate real-time weather data from IBM with its XShip performance platform to boost vessel management and performance. Global players such as Mediterranean Shipping Company (MSC) and MTM will reap the benefits, said Himanshu Goyal, Sales and Alliances Leader, The Weather Company, an IBM Business.

Data, main driver- “Data-driven energy management is the present and the future of vessel performance management,” Goyal told BusinessLine. “For an
industry where fuel costs represent as much as 50- to 60 per cent of the total costs, any initiative to save fuel makes a lot of sense,” he added. Marine transport heavily depends on weather for efficient planning of a voyage. Accurate weather forecasts combined with technical innovation to predict how the weather can affect the vessel’s performance are important information in this aspect. The Weather Company claims to be the world’s largest private weather enterprise offering accurate, personalised and actionable weather data and insights to consumers and businesses. Sandith Thandasherry, Chief Naval Architect and CEO, XShip, said that his company uses its core technology and expertise to help save fuel through data-driven energy management.

Massive savings- It manages 250 vessels and logs in an average consumption of 25 tonnes a day, committing $781 million annually. An estimated that $4.3 million could be saved optimising the chartering process. Additionally, harnessing weather forecasts for route optimisation could lead to savings of up to three per cent. This would amount to extra savings of $6 million. The XShip performance platform comprises of modules which will be upgraded and integrated with IBM weather data and new advanced add-ons introduced. “Route optimisation application based on accurate weather data is under trial. We may release it soon,” said Syam Krishnan, Head of Vessel Performance Research, XShip. Fuel consumption is a function of the ship speed, cargo carried and environmental conditions, he said. XShip has a proprietary algorithm which can calculate fuel consumption for a combination of any of the above factors with accuracy rate of 90- to 95 per cent. Route optimisation is a major savings determinant and is based on weather forecasts. Using accurate marine weather forecasts will suggest optimal routes with comparably low fuel consumption. “Here, estimated time of arrival is met even if the distance travelled is high. Route optimisation does not just avoid bad weather, but helps with selection of the best possible route. This can be done with a combination of accurate weather prediction and suitable consumption models,” adds Krishnan.

Cool solution: A machine to make potable water from air

Maithri Aquatech and CSIR-Indian Institute of Chemical Technology (IICT), both from Hyderabad, have developed an atmospheric water generator (AWG) using the established technique of condensation to make potable water from
atmosphere. The market-ready version, called Meghdoot, was developed at the Water Development Centre and R&D Incubation at the IICT campus. “The lab is providing filtration and mineral dosing technology, and incubation support,” said S Chandrasekhar, Director, IICT.

**MoU with BEL** - Maithri Aquatech has signed a memorandum of understanding with Bharat Electronics Ltd (BEL). The AWG will be jointly manufactured to meet the demands of the defence, strategic sectors and export markets. Under the MoU, 10,000 units of AWG will be supplied. M Ramkrishna, Managing Director of the company, said: “The AWG is available in different models, with water generation capacity ranging from 30 to 1,000 litres per day, depending on the temperature and humidity conditions. Currently, we have an order for 100 units from South Africa.” Ramkrishna told BusinessLine: “We are exploring the possibilities with the Railways, North-East States, Lakshadweep, Andaman & Nicobar Islands, as also East African and West Asian countries. It is ideal for countries facing water scarcity, such as South Africa, Kenya, Tanzania, Ghana and the UAE.”

**Price range** - A 1,000 LPD model will cost more than ₹10 lakh and a 100 LPD unit ₹2 lakh in India. Comparable products in the developed world cost much more, he said. Scarcity of clean drinking water is a major issue in urban, rural and tribal areas. Water-borne diseases are the second biggest killer of children worldwide, with roughly 1.8 million succumbing annually to diseases caused by unclean water. The low power-consuming, low-maintenance device works in a wide variety of temperature and humidity conditions, from 20 degrees C to 45 degrees C and relative humidity of 30 to 100 per cent. The water produced is 100 per cent microbe-free. The process is environment-friendly and generates no waste water unlike the reverse osmosis (RO) machine, where over 60 per cent of water processed is discarded. The machine can be installed easily at any place of choice. The device is ideal for offices, hospitals and hostels.

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18 Indian institutions to study nitrogen pollution

Eighteen research institutions in India are among a group of 50 institutions — called the South Asian Nitrogen Hub (SANH) — in the United Kingdom and South Asia that have secured £20 million (about ₹200 crore) from the U.K. government to assess and study the quantum and impact of “nitrogen pollution” in South Asia. While nitrogen is the dominant gas in the atmosphere, it is inert and doesn’t react. However, when it is released as part of compounds from agriculture, sewage and biological waste, nitrogen is considered “reactive”, and it may be polluting and even exert a potent greenhouse gas (heat trapping) effect. “So far, we have focussed on carbon dioxide and its impact on global warming. Nitrous oxide (N2O) is 300 times more potent than carbon dioxide but isn’t as prevalent in the atmosphere. However, this is poised to grow,” said N. Raghuram, Chairman, International Nitrogen Initiative (INI) and Professor of Biotechnology at Guru Gobind Singh Indraprastha University, New Delhi. “In the future, reactive nitrogen pollution will be a matter of significant global discussion and, unlike carbon, India and South Asia cannot wake up at the last minute, realising that it has no updated, scientific assessment of its inventory.” Other than air pollution, nitrogen is also linked to the loss of biodiversity, the pollution of rivers and seas, ozone depletion, health, economy, and livelihoods. Nitrogen pollution is caused, for example, by emissions from chemical fertilisers, livestock manure and burning fossil fuels. Gases such as ammonia (NH3) and nitrogen dioxide (NO2) contribute to poor air quality and can aggravate respiratory and heart conditions, leading to millions of premature deaths across the world. Nitrate from chemical fertilisers, manure and industry pollutes the rivers and seas, posing a health risk for humans, fish, coral and plant life. The Indian partner institutions are the Aligarh Muslim University, Centre for Marine Living Resources & Ecology, Council of Scientific & Industrial Research National Institute of Oceanography, Guru Gobind Singh Indraprastha University, Indian Council of Agricultural Research-Indian Agricultural Research Institute and National Rice Research Institute, Integrated Coastal and Marine Area Management Project Directorate- National Institute of Ocean Technology Campus, Indian Institute of Tropical Meteorology, Indian Ocean Rim Association Ecological Solutions, Jawaharlal Nehru University, Kalinga Institute of Industrial Technology, National Centre for Sustainable Coastal Management, National Physical Laboratory, Society for Conservation of Nature, Sustainable India Trust, The Energy and Resources Institute (TERI) University. Last year, Dr. Raghuram led a consortium
of researchers who assessed trends in nitrogen emissions in India, where NOx emissions grew at 52% from 1991 to 2001 and 69% from 2001 to 2011. Though agriculture remained the largest contributor to nitrogen emissions, non-agricultural emissions of nitrogen oxides and nitrous oxide were growing rapidly, with sewage and fossil-fuel burning — for power, transport and industry — leading the trend. The SANH will study the impacts of the different forms of pollution to form a “coherent picture” of the nitrogen cycle. In particular, it will look at nitrogen in agriculture in eight countries — India, Pakistan, Bangladesh, Nepal, Afghanistan, Sri Lanka, Bhutan and Maldives. Tapan Adhya, Hub Co-Director for Science, who is from the Kalinga Institute of Industrial Technology, said: “High doses of fertiliser input of nitrogen to agriculture combined with low nitrogen-use efficiency means that research on nitrogen pollution must be a priority for South Asia. This is emphasised by the scale of nitrogen subsidies across South Asia at around $10 billion per year. Better nitrogen management will have huge economic and environmental benefits.”

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**India has a 26,000-tonne plastic waste problem**

India generates 25,940 tonnes of plastic waste every day, but 40% of it remains uncollected causing choking of drainage and river systems, littering of the marine ecosystem, soil and water pollution, ingestion by stray animals, and open air burning leading to adverse impact on human health and environment.
These facts are stated in the Centre’s latest missive to states and Union territories on phasing out single-use plastics which are neither biodegradable nor recyclable. It noted that nearly onesixth of the total plastic waste is generated by 60 major cities, with Delhi, Chennai, Kolkata, Mumbai and Bengaluru together generating more than 50% of the total ‘contribution’ from these cities. The Central Pollution Control Board (CPCB) had conducted a study in these 60 major cities of India, finding that they generate in total 4,059 tonnes of plastic waste every day. Extrapolating this data from the cities covering the 2010-12 period, the board had last year estimated countrywide data and submitted it to the environment ministry. It found that 10,376 tonnes (40%) of the 25,940 tonnes of such waste generated per day stays uncollected. Taking cognizance of the menace, India had last year voluntarily committed to eliminate, at the least, singleuse plastics by 2022. Union environment secretary C K Mishra shared standard guidelines with states and UTs on Monday, asking them to step up prohibitive actions so that the country can meet its 2022 goal on phasing out single-use plastics. The guidelines suggest different sets of actions, including legal ones, which states may take to minimise production and use of single-use plastics. Asked about the move, Gopal Krishna of the Toxic Watch Alliance (TWA) said, “It’s certainly a step in the right direction, but more steps require to be taken. The campaign should not be limited to single-use plastics.” As a first major step, he said, the government should immediately ban “import of plastic waste”. “China and Malaysia did it. Why can’t India,” asked Krishna, who has been following the issue of hazardous and municipal solid waste (MSW), including plastic waste, for long. “The government banned import of plastic waste, especially PET bottles, in 2015. But a 2016 amendment done at the behest of foreign and domestic plastic waste traders has let in imports in Special Economic Zones,” he said. The study found that average plastic waste generation is around 6.9% of the total MSW in the country. It varies from 3.1% (Chandigarh) to 12.4% (Surat). Plastic waste is over 10% of total MSW in Delhi, over 9% in Chennai and over 6% in Mumbai. The study noted that around 94% of total plastic waste comprises of “thermoplastic” content which is recyclable, such as PET.

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Plastic waste imports to India go up

In spite of a ban on the import of plastic waste into India, the influx of PET bottles has quadrupled from 2017 to 2018 thanks to legal loophole, says a Delhi-based environmentalist organisation, Pandit Deendayal Upadhyay Smriti Manch (PDUSM). “Indian firms are importing plastic scraps from China, Italy, Japan and Malawi for recycling and the imports of PET bottle scrap & flakes has increased from 12,000 tonnes in FY 16-17 to 48,000 tonnes in FY 17-18 growing @ 290%. India has already imported 25,000 MT in the first 3 months of FY 18-19,” says a note by the organisation.

Wide gap- Government and industry estimates suggest that India consumes about 13 million tonnes of plastic and recycles only about 4 million tonnes. A lack of an efficient waste segregation system and inadequate collection is the root cause, according to experts, for much of the plastic not making its way to recycling centres. To incentivise domestic plastic recycling units, the government had banned the import of plastic waste, particularly PET bottles in 2015. In 2016, an amendment allowed such imports as long as they were carried out by agencies situated in Special Economic Zones. It’s this loophole that’s been exploited. A senior Union environment ministry official, who declined to be identified, told The Hindu that while the ministry couldn’t vouch for whether such plastic imports had quadrupled, it was true that the imports had “substantially increased” and action was being contemplated. “We’ve been apprised of these imports and they’re quite substantial. We’re beginning internal investigations to see how this can be addressed,” the official added. Ravi Agrawal, director of Toxics Link, an organisation that works on plastic waste management, said that figures were “plausible” as China, once a major global importer of plastic waste for recycling, had banned such imports. “It’s possible that some of that is making its way to India but I can’t be sure of these numbers,” Mr. Agrawal said.

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Eastern e-way cuts air pollution in Delhi by 7%, says CRRI study

The Eastern Peripheral Expressway, which was launched in May 2018, has brought down vehicular pollution in Delhi by at least 7%, a recent study has indicated. The Central Road Research Institute (CRRI) conducted the study on behalf of the Delhi government’s environment department, taking the source apportionment study done by IIT Kanpur in 2016, as its basis. “..The results have been submitted to the environment department,” said Ravindra Kumar, head of transportation planning and environment at CSIR-CRRI. A senior official of the environment department said the results of the latest study show that while levels of nitrogen dioxide has shot up by 7% along EPE the level of carbon monoxide has increased by 2.5%. The level of particulate matter has also gone up by 0.9% along the EPE because of increased vehicular activities after the expressway was thrown open in May 2018. “The EPE was expected to reduce the number of heavy diesel truck traffic that enters the national capital triggering traffic chaos and air pollution. The fact that pollution levels along the EPE have gone up, indicates that the same amount of pollution has gone down inside the city,” said a senior official of the Delhi environment department, who is privy to the report. The study, which was conducted over a period of 48 hours in mid-November 2018, shows that on an average 10,000 vehicles were using the EPE every day. Out of this, around 32% are trucks and 60% are cars. Around 8% of the vehicles are other types of vehicles, including buses and tractors, the official said. An IIT Kanpur-study had earlier stated that vehicles contribute around 36% of nitrogen dioxide and 20% of PM2.5 in Delhi. A further breakdown of pollution sources done by The Energy and Resources Institute (TERI) and Automotive Research Association of India (ARAI) in 2018 revealed that among the vehicles, trucks contribute the highest pollution of 8%, followed by two-wheelers (7%), and threewheelers (5%). “That the vehicular pollution is showing a decreasing trend because of the EPE is a good sign. Vehicular pollution is expected to go down further because of the inauguration of the Western Peripheral Expressway,” said Sunita Narain, member of the Supreme Court appointed body Environment Pollution (Prevention and Control) Authority (EPCA). It was estimated that around 25,000-30,000 heavy goods
vehicles, which pay the environment compensation charge (ECC), would use the six-lane Eastern Peripheral Expressway every day. But since it opened, only around 16,000 of them use the EPE per day, an audit report prepared by the National Highways Authority of India (NHAI) earlier in September 2018 had stated. The report was submitted to the SC-appointed Environment Pollution (Prevention and Control) Authority (EPCA) the same month. Eastern Peripheral Expressway was aimed at diverting at least 50,000 vehicles going to Jammu and Kashmir, Punjab, Haryana, Uttarakhand, Uttar Pradesh and Rajasthan, decongesting the national Capital and bringing down vehicular pollution. The western wing of the peripheral expressway, which connects Kundli with Manesar and Palwal, opened in November last year.

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Delhi govt. and US univ team up for real-time air study

Delhi government has signed a MOU with the Washington University in St Louis of Missouri, US, to undertake a real-time source apportionment study in the capital. Real time air quality monitoring and identification of pollution sources all the year round is the main target of the project. “The MOU is aimed at a joint study between Washington University and Delhi Pollution Control Committee for the real-time source apportionment with special reference to PM2.5 levels. Analysis of elemental, organic carbon and 72 inorganic elements will also be undertaken,” a government release stated. The duration of the project would be 18 months and the work undertaken by the personnel of the Aerosol and Air Quality Research Laboratory. The laboratory has expertise to identify air quality problems and suggest solutions to curtail the emission, it said. “Real-time monitoring and sampling of PM1, 2.5 and 10 will be done while two monitors will be used for obtaining composition of PM2.5. Identification of the sources of the respective particulate matter based on a real time algorithm will also be developed. The project will include data analyses and algorithm development for identifying major source categories and approaches to minimise and improve the air quality,” a DPCC official said. According to the official, the data would help understand the source profile that needs to be regulated for effective improvement of air quality in the city. “Wireless sensors will be
Remote sensing to detect vehicular pollution

By next winter, a new sensor-based technology could be used to find out the amount of pollution each vehicle causes as it enters Delhi. The remote-sensing technology is in the testing phase at present with the International Centre for Automotive Technology (ICAT) conducting a study. The Supreme Court-appointed Environment Pollution Control Authority (EPCA) has asked the body to finish the study by early February, before the results are submitted to the Supreme Court. EPCA, in a meeting held on Monday, was informed that ICAT had tested close to 70,000 vehicles in NCR, while a total of 1, 75,000 will be required to be tested. On May 10 last year, the apex court had issued directions to carry out trials for remote sensing equipment to be used for monitoring pollution for on-road vehicles. EPCA has also issued directions to ICAT to set an average threshold point for both heavy commercial vehicles and passenger vehicles, setting a limit based on which the pollution limits can be checked. It has also asked whether they feel the technology is feasible. Sensor-based technology can detect pollution levels of vehicles passing by and indicates which vehicle is polluting more than normal — allowing enforcement agencies to take action immediately. Sunita Narain, member of EPCA and director general at CSE, had announced last year that while they had planned to utilise mobile vans to take action against polluting vehicles, a lack of manpower has forced them to look at more viable alternatives like remote sensing. “The device can be deployed at Delhi borders so we can track polluting vehicles that are coming in. Once people are fined, there will be a sense of fear among the drivers to be more compliant,” Narain had said at CSE’s two-day international conclave on clean and low carbon mobility. The machine can also be moved regularly to cover more area, ensuring that a higher number of violators are...
caught. A similar sensor-based system has already been in place in China for nearly a decade. However, experts say it can be difficult to detect a single high-polluting vehicle in a large group of vehicles entering together. “In a day, only about 500 people or so are fined. Detecting high pollution vehicles from a particular vehicle also becomes challenging if they come in a group or if the exhaust pipes face in different directions,” Li Kunsheng, director, Mobile Source Emission Management Division in Beijing, had commented on the technology at the conclave. EPCA feels RFID technology can also help enforcement agencies as it can control the flow of vehicles.

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**CSE study to identify sources of pollution**

Delhi-based think tank Centre for Science and Environment (CSE) is set to start a real-time source apportionment study to identify the factors responsible for the city’s foul air. Anumita Roychowdhury, head of air pollution and clean transportation programme at CSE, said the idea is to find out the exact composition of the pollutants. “It will be a real-time study on the sources of pollution in Delhi. We will be looking at continuous emissions and real-time source apportionment. We will measure the pollutants and ascertain what could be the possible source,” Roychowdhury told TOI. According to the CSE expert, the exercise will be done in the city as well as in the NCR. “We are in the process of identifying multiple places in NCR where we will collect the samples and the results will be available immediately. We will then analyse it and it will benefit in local area mapping. The current thrust is also on local area action as the authorities are also taking measures, especially in hotspots,” she said. Earlier this month, the Delhi government signed a Memorandum of Understanding (MOU) with the Washington University (St Louis) to undertake a real-time source apportionment study in the capital to evaluate the air quality issues. The MOP is aimed at a joint study to be undertaken by the Washington University and the Delhi Pollution Control Committee for the real-time source apportionment with special reference to PM2.5. Analysis of elemental, organic carbon and 72 inorganic elements will also be undertaken. The project duration is 18 months and the work will be undertaken by the personnel of the Aerosol and Air Quality Research Laboratory (AAQRL). The laboratory has expertise to identify air quality problems and suggest solutions to
curtail the emissions to reduce the air pollutant release. Experts at IIT Kanpur are also in talks with the Central Pollution Control Board for funding a similar study under which multiple innovations and initiatives are being conducted aimed at fighting Delhi's toxic air. The IIT experts plan to take realtime measurements using a device called an aerosol mass spectrometer. This device can actually give you a chemical analysis of every organic matter, except dust particles.

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मौसम ही नहीं प्रदूषण का हाल भी हपते भर पहले पता चल जाएगा

मौसम की तरह प्रदूषण का हाल भी हपते भर पहले पता चल सकेगा। केंद्रीय प्रदूषण नियंत्रण बोर्ड और आईआईटी दिल्ली मिलकर ऐसी परियोजना पर काम कर रहे हैं जिसके जरिए प्रदूषण की सटीक भविष्यवाणी करना संभव हो जाएगा। इससे प्रदूषण पर नियंत्रण के लिए सामान्य कार्यरत्न तैयार करना आसान होगा। राजधानी व आसपास के क्षेत्र में आमतौर पर नवंबर से लेकर फरवरी तक का समय प्रदूषण के विलाज से सबसे खराब सावधानता करा रहा है। इस दौरान हवा की गुणवत्ता इस कारण खराब हो जाती है जब दस्यू हवा में सांस लेना मुश्किल हो जाता है। दिल्ली-एनसीआर क्षेत्र में होने वाले प्रदूषण का सटीक अंदाजा लगाने लायकता तक संभव नहीं हो सकता है। प्रदूषण के लिए कोई सार्वजनिक दावा है और किन कारकों से कितनी मात्रा में प्रदूषण हो रहा है, इसका पता नहीं लगाया जा सका है। इसके चलते प्रदूषण से निपटने के लिए समेकत कार्यरत्न तैयार करने में भी मुश्किल आ रही हैं। इसे देखते हुए सीपीसीबी और आईआईटी दिल्ली द्वारा मिलकर एक ऐसे मॉडल पर काम किया जा रहा है जिसके जरिए प्रदूषण के कारकों का अंदाजा लगाना आसान हो जाएगा। इस मॉडल के जरिए दिल्ली के होने वाले प्रदूषण और उनके कारकों पर जाँच करती जाएगी। सीपीसीबी के एक विद्वान ने बताया कि इस तरह के पहले अनुमान जनवरी महीने के अंत तक मिलने शुरू हो जाएंगे। इसके बाद इसी अनुसार इनकी रोकथाम की कार्यरत्न भी सजाई जाएगी। इसके जरिए प्रदूषण से निपटने की सामान्य या यंदा दिनों की योजना तैयार करना संभव हो सकेगा।

किराए पर ई-स्कूटर चलाने की योजना- प्रदूषण पर लागू लगाने के लिए नई दिल्ली नगर पालिका परिषद (एनडीएमसी) अपने क्षेत्र में किराए पर ई-स्कूटर उपलब्ध कराने की योजना पर काम कर रहा है। हाल ही में परिषद की ओर से साइकिल शेयरिंग योजना की शुरुआत की गई है। इसे खासी सफलता मिल रही है। परिषद की योजना मार्च तक एनडीएमसी क्षेत्र के अलग-अलग हिस्सों में एक हजार से ज्यादा ई- स्कूटर उपलब्ध कराने की है जहां पर लोग किराए पर स्कूटर प्राप्त कर सकें।

हवा को खराब करने वाले कारकों का पता चलेगा- अभी भी तक दिल्ली के अलग-अलग हिस्सों का प्रदूषण की रीति ठीक निराकरणी की जाती है। लेकिन, पहार पर हवा को कोई से कारक किस मात्रा में खराब कर रहे हैं, इसका पता नहीं चलता। जबकि, किसी स्थान विशेष में अलग कुछ दिनों तक क्या स्थिति रहने वाली है, इसका अनुमान भी नहीं लग पाता। ऐसी स्थिति में ग्रीष्म यानी ग्रेडेड रिस्प्लेंस एक्सल्यूजन ज्यादा को सामान्य तरीके से लागू किया जाता है। जबकि, स्थान विशेष के बारे में अलग-अलग अनुमान मिलने से वहां के लिए विशेष कार्यरत्न तैयार की जा सकेगी और प्रदूषण के लिए जिन भी कारकों की जिम्मेदार ज्यादा है, उन्हें की रोकथाम के लिए कदम उठाए जा सकेंगे।

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जाम में रोजगार पांच लाख का ईधन बढ़ाई जाएगा

मपूर विहार फेज-1 क्रांतिपर बन रहे फ्लाईओवर के चलते लगने वाले जाम से रोजगार करीब पांच लाख रुपये का ईधन बढ़ाई हो रहा है। पूरे दिन यहाँ से गुजरने वाले वाहनों की औसतन 15 मिनट के ठहराव के साथ गुजरना पड़ता है। ऐसे में धन,ईधन व समय की बढ़ती आपसी स्थान और समय की धीमी गति के कारण भारी मात्रा में प्रदूषण भी बढ़ रहा है। नोएडा से अक्षरोदित मुंबई का और जाने वाली सड़क पर वर्ष 2015 से प्लाईओवर बन रहा है। स्कूल और औरिक्लेक्टर एंड जानिंग में परिवहन विभाग के प्रो. डॉ. संवाराम के मुताबिक, इस रुप के अंतर्गत रोजगार एक तरफ से 70 हजार वाहन गुजरते हैं। वहीं, सुबह-शाम के समय वाहनों की संख्या बैकी दिन के मुकाबले काफी अधिक होती है। ऐसे में पीक आवर्त से जल्दी तक जाम की निकटा से औसतन 350 लोग ईधन प्राप्त कर रहे हैं। इस दिशा से पूरे दिन में करीब पांच लाख रुपये का ईधन यहाँ बढ़ाई हो जाता है। उन्होंने बताया कि बीते तीन वर्षों में दिल्ली में वाहनों की संख्या में 40% की इजाफा हो गया है। इसके चलते ऐसे बॉटल नेक्स प्रदूषण बढ़ने के साथ ईधन की कीमत औसतन 83% ईधन आयात किया जाता है। ऐसे में बढ़ते होने वाले ईधन की कीमत विदेशी मुद्रा में आंके तो सिर्फ दिल्ली में ही करोड़ों का डीजल रोजगार बढ़ाई होता है। उन्होंने बताया कि सड़कों पर मौजूद बॉटल नेक्स को बढ़ाने के लिए आयोजित किया जा रहा है। निम्न में से सेहतमत इंजीनियर इन चीफ टीम व्यक्तिगत वाहनों के तत्कालीन, अमृत तर इस प्रकार की योजनाओं में हेप करने पर लागत लगभग 10 से 15% प्रतिशत तक बढ़ा होता है। निम्न में से सेहतमत अंतर्गत जेटिस फोर रैडियस फाउंडेशन की दिल्ली में धन दूध प्रदूषण को लेकर आधिक जानकारी पर दिया। अद्वितीय आपको बताता है कि याचिका में व्यतिक्रम कहा गया है। ‘प्रेशर होर्न’ कहा गया है और वे कैसे बढ़ी समय कर रहे हैं।

- अपनी बैलॉन का एक व्यक्ति हाल ही में उस वक्त चर्चा में आ गया था, जब उसने अपनी जीप पर रेल को हर्न का लाख लगाया था। अपने ने यह हॉर्न एक लाख रुपये में कनाडा से मिलाया था।
- 80 डेटा स्पिरल तक धनी की इजाजत है दोपहियों और चारपार्क के लिए उन्हें भला हो।
- 100 डेटा स्पिरल भी ज्यादा धनी निकलते हैं प्रेशर होर्न से।
- प्रेशर होर्न का चालन कितना बढ़ा गया है, इसका अंदाजा इस बात से लगाया जा सकता है कि बढ़ी ऑनलाइन शीर्ष पुस्तक वेबसाइट पर करीब 25 तरह के प्रेशर होर्न इस वक्त मूल्य है। इसकी कीमत 500 से लेकर पांच हजार तक है। इसके अनुसार कोई बाजार जैसे बड़े बाजारों में भी इस तरह के हॉर्न मिलते हैं।
- इसकी आजाद सामाजिक हॉर्न से अलग और तेजी होती है। इसे खास मॉडल पर बाइक में लगाया जाता है।
• दो हजार तक चलान : मॉडिफाइड साइलेसर लगाने पर दो हजार तक का चालान काटा जा सकता है।
• एनजीटी सड़क : एनजीटी का आदेश है कि प्रेशर हॉर्न का इस्तेमाल करने वालों से 5 हजार चुराना बंद करा लिया जाए।
• प्रेशर हॉर्न लगे वाहनों के चालान किए गए 2018 में दिल्ली में।
• बेंगलुरू : फ्लिस प्रेशर हॉर्न लगे वाहनों को जब्त कर लेते हैं। इन वाहनों के साइलेसर उत्तराखंड उप-पुलिस चलाया जाता है।
• केरल : जिस भी दोपहिया वाहन पर प्रेशर हॉर्न लगा होता है, उसका रजिस्ट्रेशन रद्द कर दिया जाता है।
• याविकारकताओं का कहना है कि दिल्ली विश्वविद्यालय के मूल और साउथ क्षेत्र से जुड़े इलाकों में प्रेशर हॉर्न लगे वाहन सबसे ज्यादा देखे जाते हैं। खासी पर चारसंध्य चुनाव के बाद ऐसे वाहनों की संख्या बढ़ जाती है।
• बेंगलुरू : फ्लिस प्रेशर हॉर्न लगे वाहनों को जब्त कर लेते हैं। इन वाहनों के साइलेसर उत्तराखंड उप-पुलिस चलाया जाता है।

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हवा फिर गंभीर श्रेणी में पहुंची

हवा की दिशा बदलने और हवा के साथ आई नमी के चलते वायु विरुद्ध की स्थिति फिर से खराब हो गई है। केन्द्रीय प्रदूषण नियंत्रण बोर्ड के मुताबिक रवाना के दिन औसत वायु गुणवत्ता सूचकांक 404 के अंक पर रहा, जो गंभीर श्रेणी में रखा जाता है। शामिल ही काबू वायु गुणवत्ता सूचकांक 378 अंक था। हवा में चुमे-मिले दोनों प्रमुख प्रदूषक कण यानी पीएम 10 और पीएम 2.5 की मात्रा का स्तर भी आपात स्थिति में पहुंच चुका है। शाम के सात बजे हवा में पीएम 10 की मात्रा 470.9 और पीएम 2.5 की मात्रा 302.1 के स्तर पर रही। हालांकि, सोमवार को इसमें तेजी से गिरावट आने की संभावना है, उम्मीद है कि बारिश और हवा के जोर पकड़ने के साथ ही प्रदूषण में खासी गिरावट आएगी और हवा सफ हो सकती है।

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3 महीने में पता चलेगी PM 2.5 बनने की असली वजह

तीन महीने में पता चल जाएगा कि दिल्ली-एनसीआर का पीएम 2.5 कितना नुकसानदेह है। इसके लिए सीएसई ने दीपीसी के साथ मिलकर एक स्टडी शुरू की है, जिसमें पीएम 2.5 का आकर्षण किया जाएगा। इस स्टडी से सुनाई गई कि यह किन प्रदूषक तत्वों से मिलकर मृत्यु चली है। इस स्टडी में इस्तेमाल करने वाले प्रदूषक के सेल्फी वाहनों में से तकनीकी भी एक सहयोगी है। यह पाया गया है कि इस टीम तीन महीने में 28 अप्रैल तक पूरी हो जाएगी। दिल्ली-एनसीआर में 28 जनवरी से शुरू हो रहे इस स्टडी का मकसद हॉट स्पॉट पर प्रदूषण के सोसे का पता लगाना है। इस दौरान दिल्ली-एनसीआर की 10 से 12 सिलेक्टेड जगहों की मॉनिटरिंग आई। इस स्टडी में रीपॉल टाइम पीएम और एलिमेंट एनालाइजर पीएम-375 का इस्तेमाल किया जाएगा। इन दोनों उपकरणों की वजह से पीएम 2.5 के कान और उसमें शामिल एलिमेंट का लगातार आकर्षण होता रहेगा। पीएम 2.5 की मॉनिटरिंग के लिए बीटा-रे टेकनोलॉजी का इस्तेमाल होगा, उसमें शामिल एलिमेंट के लिए एक्स-रे
गंगाजल में जीवाणुओं से निपटने की बेहतर क्षमता
सीएसआईआर नीरी के वैज्ञानिकों ने दावा किया कि गंगाजल में ऐसी जैविक संपदाएं हैं, जो उसे स्वतः स्वदेश बनाए रखती हैं। लेकिन, पहाड़ों से निकलकर जैसे-जैसे गंगा मैदानी क्षेत्रों में बढ़ती है, उसका यह गुण खत्म होने लगता है। इस वजह से गंगा में बड़े पैमाने पर मिलने वाले प्रदूषण हैं। पद पानी साफ हो जाता है तो उसके पानी की यह खुदी गंगासागर तक कायम रह सकती है। करीब दो साल पूर्व 'नमामि गंगे परियोजना' के तहत गंगाजल की गुणवत्ता परखने का भी निर्णय लिया गया था। यह जानने की कोशिश की गई कि गंगाजल की शुद्धता क्या सिफ्ट लोगों की स्वास्थ्य का विषय है या वातावरण में उसमें ऐसे गुण मौजूद हैं। इस कार्य का जिस्मा सीएसआईआर की नागपुर स्थित प्रयोगशाला नैरागिक ऐक्सेर्ट्रेटल इंजीनियरिंग रिसर्च इंस्टिट्यूट (नीरी) को दिया गया। हाल में नीरी ने अपने अध्ययन के आरंभिक नतीजों नमामि गंगे मुख्यालय को सिंपी है। हालांकि, उसका विस्तृत अध्ययन जारी है ताकि उसके नतीजों को दुनिया में कहीं चुनौती न दी जा सके।

अन्य नदियों के जल का परीक्षण : मिश्रा के अनुसार वैज्ञानिकों ने दूसरी नदियों में भी इसकी जांच की है। यमुना एवं नर्मदा नदियों में भी इसकी मौजूदगी मिली है, लेकिन गंगा की तुलना में यह संख्या बहुत कम है। यह आरंभिक रिपोर्ट सिद्ध करती है कि गंगा जल में जीवाणुओं से निपटने की क्षमता है।

• वैज्ञानिकों ने गंगा में संग्रहित गंगाजल के संपूर्ण जल के सैंपल जांचे। हरिद्वार तक बैक्टीरियोफाज की संख्या गंगाजल में काफी पाई गई है। इसके बाद संख्या घटने लगती है।
• बैक्टीरियोफाज ऐसा विषाणु है, जो पानी को नुकसान करने वाले जीवाणुओं को नष्ट करता है। इससे पानी की शुद्धता बनी रहती है।
• जब गंगा उत्तराखंड के पहाड़ों से निकलती है, तो उसमें कई जैविक तत्व मिल जाते हैं। बैक्टीरियोफाज की बड़ी संख्या उनमें मौजूद रहती है।
• नमामि गंगे के महानदे राजीव रवि जी मिश्रा ने हिंदुस्तान को बताया कि नीरी की रिपोर्ट गंगा जल में स्वतः शुद्ध होने की क्षमता की वैज्ञानिक पुष्टि करती है। यह सिफ्ट आस्था का प्रश्न नहीं रह गया है।

स्मार्टफोन की बाहरी कीमत चुकाता है पर्यावरण
बीते दशक में माइन टेलिग्राफ का कचरा फैलने की 40 घटनाएं हो चुकी हैं। जैसे-जैसे नई टेक्नॉलॉजी की भूख बढ़ती करने वाले बांधों की संख्या और आकार भी बढ़ते गये।

स्मार्टफोन के बाहर आज किसी का गुजारा नहीं है। लोग नांद फीचर वाले हैंडसेट खरीदने के लिए नियंत्रित रूप से अपने मोबाइल सेट बदलते रहते हैं। लेकिन क्या कभी अपने सोच ने कि एक स्मार्टफोन का निर्माण हमारे पर्यावरण को किसी तरह प्रभावित करता है?

बातें जा रहा है कि अपने साल पहली 2020 तक दुनिया में करीब 200 अरब लोग स्मार्टफोन
का प्रयोग कर रहे होंगे। हैंडसेट के निर्माण में अनेक दुर्लभ और बहुमूल्य धातुओं का प्रयोग होता है। इनके बगैर स्मार्टफोन के महत्वपूर्ण तकनीकी फीचरों की कल्पना नहीं की जा सकती। हम इसमें प्रयुक्त सोने के बारे में जानते हैं, लेकिन टंबियम जैसे धातुओं के मामले में कम ही लोग जानते हैं। स्मार्टफोन में वजन के हिसाब से लोग (20 प्रतिशत), एल्युमीनियम (14 प्रतिशत) और एंगिल्दर्ड (7 प्रतिशत) का सबसे ज्यादा प्रयोग होता है। लोगों का इस्तेमाल स्पीकरों, माइक्रोफोनों और टेंडिस्ट टीतल के प्रभावों में होता है। इलेक्ट्रॉनिक्स का प्रयोग स्टेनलस स्टील के विकल्प के अलावा स्मार्टफोन के स्क्रीन में प्रयुक्त मजबूत ग्लास के निर्माण के लिए होता है जबकि तंबै इलेक्ट्रोट्रैक वायरलिंग में कम होता है। इन धातुओं की पृथ्वी से निकालने पर बड़े मात्राओं पर ठोस और तरल अपशिष्क निकालता है जिसे ‘मैइन टेलिस्म’ भी कहा जाता है। ब्राजील का बेंटो रोड्रिग्स गाव नवंबर 2015 में इन्हें विशेष करेरे में दब गया था। मिनास गेसिस स्थित एक लौह खंडन पर एक बांध धारा जो की वजह से करीब 3.3 करोड़ घन मीटर लौह अपशिष्क बह कर दोस नदी में पहुँच गया। इस अपशिष्क ने आपसी प्रकार के गांवों को जलमग्न कर दिया जिससे 19 लोग मारे गए। यह कहर 650 किलोमीटर तक बढ़ और 17 दिन बाद आहरिकार एल्ट्रॉटिक महासागर में भूखे। बीते दशक में मैइन टेलिस्म का क्रोध फैलने की 40 घटनाएं हो चुकी हैं। विशेषज्ञों का कहना है कि जेसे-जेसे नई टेक्नॉलॉजी की भूख बढ़ी आंकर रोकने वाले बांधों की संख्या और आकार में वृद्धि होगी तथा बांधों के ढहने का खतरा भी बढ़ेगा। स्मार्टफोन में कनेक्टर बनने के लिए सोने की जरूरत पड़ती है, लेकिन दक्षिण अमेरिका में सोने के खनन से एमजॉन के जंगल साफ हो रहे हैं। सोने के खनन से विशेष चरण निकलता है जिसमें सापाइड्ड को और पार की मात्रा बहुत ज्यादा होती है। ये विशाल पदार्थ पीने के पानी और मछलियों को प्रदूषित करके मानव स्वास्थ्य के लिए बड़ा खतरा बन सकते हैं। इलेक्ट्रॉटिक्स में सोलरीजिङ के लिए टिन धातु का इस्तेमाल होता है। स्मार्टफोन की स्क्रीन पर इंडियम-टिन ऑक्साइड की लघुत्तम पारदर्शी परत बनाई जाती है जो टेक्स्कीन फ्रेम के लिए आवश्यक है। हालांकि उत्तर के इलेक्ट्रोट्रैक्स के लिए टिन धातु का खनन किया जाता है। स्मार्टफोन की स्क्रीन के लिए इंडियम-टिन ऑक्साइड की पतली पारदर्शी परत बनाई जाती है जो टेक्स्कीन फ्रेम के लिए आवश्यक है। इंडोनेशिया के बांका और बेलिंग्ड क्षेत्रों के क्षेत्र में इन धातुओं का खनन चौं, रूस और अंटिल्फोन के लिए इन्हें किया जाता है। इन्हें ‘टेक्नॉलॉजी मेटल’ भी कहा जाता है। स्मार्टफोन के विज्ञान और विकास में इनका महत्वपूर्ण योगदान होता है। स्मार्टफोन के स्पीकरों, माइक्रोफोनों और वायब्रेषन के लिए आवश्यक शक्तिशाली मोटरों और चुंबकों का निर्माण नियोडिक्सियम, हिस्प्रोसियम और प्रेसियोडिक्सियम नामक रेपर अर्थ धातुओं से किया जाता है। चीन में बांधों स्टित ‘क्रोध झील’ रूपये अर्थ धातुओं की प्रोसेसिंग से पयारवर र में पहुँचे ताल्राव का एक बहुत बड़ा उदाहरण है। ताजा अनुभवों के अनुसार अगले 20 से 50 सालों में टेंबियम और हिस्ट्रोसियम जैसी दुर्लभ धातुओं का संकट खड़ा हो जाएगा। दुर्लभ धातुओं का कम मान बहुत रूप से गर्दनों की उपबोध्यता पर भी असर पड़ेगा। स्मार्टफोन के पटारवरणीय प्रभावों को कम करने के लिए फोन निर्मितों को प्रॉडक्ट का जीवन काल बढ़ाने के अलावा रिसाइक्लिंग के तरीके भी खोजने होंगे। साथ ही एक उपभोक्ता के नाल हमें भी स्मार्टफोन का बार-बार बदलने की आदत छोड़नी पड़ेगी।

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Health is wealth, literally. How cycling can give GDP a boost

Cycling for short distances may not only help reduce carbon emissions and save fuel, but it could provide annual benefits of up to Rs 1.8 lakh crore to the Indian economy, roughly equivalent to 1.6% of the GDP, said a report released by The Energy and Resources Institute (Teri). The study titled ‘Benefits of Cycling in India: An Economic, Environmental and Social Assessment’ found that cycling approximately 3.5km regularly for 120 days could help avoid as many as 4,756 premature deaths, while also reducing 1 million tonnes of CO2 emissions and 0.35 million tonnes of energy (oil equivalent) each year. However, for cities to realise these benefits, proper cycling infrastructure and bike-sharing schemes need to be adopted. “Awareness campaigns need to be conducted to highlight the benefits of cycling and by dispelling the notion that bicycles are the poor person’s mode of transport,” the study said. The analysis also revealed that substitution of just half the short distance work trips by cycles, which are typically undertaken by two-wheelers and cars, could result in massive fuel
savings to the tune of Rs 2,700 crore. The study estimates that cycles can help unskilled marginal workers save up to 2.3 crore labour hours — equivalent to Rs 11,200 crore in terms of travel time savings. To make cycles affordable, the report highlights the need to reduce GST on cycles costing less than Rs 5,000 from the existing 12% to 5%. “It is important to make bicycles more affordable for low-income households,” the study stated. Launched in association with All India Cycle Manufacturers’ Association, the event was attended by Union minister for commerce and industry Suresh Prabhu and MoS (water resources) Arjun Meghwal. Meghwal said he cycled to the event and has made cycling a part of his daily routine. “I prefer travelling on a cycle. You could call it my first love. This physical activity has helped keep me fit and I rarely fall ill now,” he added. Dr Ajay Mathur, Teri director general, said that safety remains a concern restricting the use of cycles as a mode of transport. “We need to change our mentality and make cycling a viable option to stay fit, and, at the same time, not affect the planet adversely,” he said.

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प्रदूषण से 16% दिल्लीवालों को डिप्रेशन, 9% ने बाहर जाना छोड़ा

दिल्ली में रहने वाले 43 परसेंट लोग मानते हैं कि 2018 में प्रदूषण की स्थिति में मामूली सुधार हुआ है। वहीं 58 परसेंट लोगों के अनुसार प्रदूषण का उनके स्वास्थ्य पर बुरा असर पड़ रहा है। यह बात सामने आई है ऊजाज (युनाइटेड रेजिडेंट्स जॉइंट एक्शन ऑफ दिल्ली) और एआरके फाउंडेिन के एक जॉइंट सर्वेक्षण में। यह सर्वेक्षण दिल्ली की 10 सबसे प्रदूषित जगहों आनंद विहार, अशोक विहार, दुर्गका, आईटीओ, टोली रोड, पटपपरंगज, श्रीनगर, आरके पुर, सीरीफ टज और बवाना में किया गया। इस सर्वेक्षण में 71 परसेंट लोगों का कहना है कि वे हवा की अब भी सारी लेने लायक नहीं मानते। 16 परसेंट लोग प्रदूषण की वजह से डिप्रेशन में हैं और 9 परसेंट लोगों ने कहा कि उन्होंने बाहर जाना कम कर दिया है। 50 परसेंट लोगों ने कहा कि प्रदूषण की वजह से उनके बच्चे को फेफड़ों से जुड़ी बीमारियां हो रही हैं। प्रदूषण की वजहों में 40 परसेंट लोग पावर प्लांट को मानते हैं, जबकि 32 परसेंट लोग कंस्ट्रक्शन, 29 परसेंट एसी और गाड़ियों को इसकी वजह मानते हैं। इतना ही नहीं, 93 परसेंट लोगों को एक्सपूरिएंस की जानकारी ही नहीं है। जबकि प्रदूषण बढ़ने पर 37 परसेंट लोग मास्क पहन रहे हैं, 10 परसेंट घरों में पूरीफाइयर का इस्तेमाल करते हैं।

यह भी कहा लोगों ने:

• 58 परसेंट लोगों के अनुसार, सेहत पर बुरा असर
71 पसेंट ने कहा, अब भी सांस लेने लाभक नहीं हवा।
20 पसेंट लोगों को अपनी स्किन का अधिक ख्याल रखना पड़ रहा है।
16 पसेंट लोग दुरुस्ती की वजह से डिजिस्यन में पुरुषत्व कर दिया है।
9 पसेंट लोगों ने बाहर जाना कम कर दिया है।

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पेट्रोल 69 रुपये से नीचे आया, डीजल भी सस्ता

अंतरराष्ट्रीय बाजार में कच्चे तेल की कीमतों में गिरावट के बीच पेट्रोल और डीजल के दाम में सोमवार को लगातार पांचवें दिन गिरावट जारी रही। दिल्ली में पेट्रोल 68.84 रुपये प्रति लीटर पर आ गया। तेल कंपनियाँ ने दिल्ली और मुंबई में पेट्रोल के दाम में 20 पैसे, जबकि कोलकाता में 19 और चेन्नई में 21 पैसे प्रति लीटर की कटौती की है। वहाँ, डीजल के दाम दिल्ली और कोलकाता में 23 पैसे जबकि मुंबई और चेन्नई में 25 पैसे प्रति लीटर कम हुए हैं। इंडियन ऑयल के अनुसार, सोमवार को दिल्ली, कोलकाता, मुंबई और चेन्नई में पेट्रोल के दाम क्रमशः: 68.84 रुपये, 70.96 रुपये, 74.47 रुपये और 71.41 रुपये दर्ज किए गए। डीजल क्रमशः: 62.86 रुपये, 64.61 रुपये, 65.76 रुपये और 66.35 रुपये रहे। गौरतलब है कि यह पेट्रोल का साल का सबसे निचला सर है। अंतरराष्ट्रीय बाजार में कच्चे तेल की कीमतों में गिरावट के बीच इसके दाम गिर रहे हैं।

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कच्चे तेल में और उछाल आएगा

अमेरिका ने स्पष्ट कर दिया है कि ईरान से कच्छे तेल की खरीद पर अब किसी देश को कोई छूट नहीं मिलेगी। इससे कच्छे तेल की कीमतों में तेज उछाल आने की आशंका बढ़ गई है। अफगान कोर्स की कटौती लागू होने से तेल की कीमतों में बढ़ोतरी का दौर पहले ही लौट चुका है। बुमावर्ग की रिपोर्ट के मुताबिक, अमेरिकी विदेश विभाग में ईरान मामलों के विषय प्रतिनिधि ब्रायन हुक ने कहा कि उनका देश ईरान से तेल निर्यात को पूरी तरह खुल करने की योजना पर काम कर रहा है। हुक के मुताबिक, हम अब ईरान को कोई और रियायत नहीं देने जा रहे हैं, बल्कि उस पर आर्थिक पाबंदियाँ मजबूत की जाएंगी। उसका 80 फीसदी राजस्व तेल से ही आता है और हम इसे पूरी तरह रोक देंगे, ताकि वह मध्यपूर्व को असल न कर सके। हुक ने दिसंबर में हुई ओपेक देशों की बैठक के दौरान सऊदी अरब के ऊर्जा मंत्री खालिद अल फालिसे मुलाकात भी की थी। मालूम हो कि मध्य अमेरिका निकाले ओपेक के प्रतिनिधि ब्रायन हुक ने दिसंबर में हुई ओपेक देशों की बैठक के दौरान सऊदी अरब के ऊर्जा मंत्री की आमंत्रण में अमेरिका के बैसल रोजाना के उपाध्यक्ष की फैसला किया और दाम डोबारा 60 डॉलर पर पहुँच गए हैं। गौरतलब है कि अमेरिका ने ईरान से परमाणु करार को मई 2018 में तोड़ दिया था। अमेरिकी राष्ट्रपति डोनाल्ड ट्रम्प का कहना है कि ईरान अभी भी आतंकवाद में लिप्त है और अपने परमाणु कार्यक्रम को अगे बढ़ा रहे हैं, जिससे मध्य पूर्व में अस्थिरता का खतरा है। जबकि ईरान लगातार कहता रहा है कि उसका परमाणु ऊर्जा के लिए है।
ईरानी आपूर्ति 60% कम- चार नवंबर से अमेरिकी प्रतिबंध लागू होने के बाद ईरान का तेल निर्यात 27 लाख बैरल प्रतिदिन था, जो अब दस लाख बैरल प्रतिदिन रह गया है। अमेरिका ने जिन आठ देशों को ईरान से खरीद की छूट दी थी, उनमें से पांच देश ही उससे आयात कर रहे हैं।

लगातार छठे दिन बढ़े पेट्रोल और डीजल के दाम- पेट्रोल और डीजल के दाम में मंगलवार को लगातार छठे दिन बढ़ते रहीं। तेल विपणन कंपनियों ने नए साल में पेट्रोल और डीजल की कीमत में घड़ी बढ़ लगातार छठे दिनों तक वृद्धि की है, जिससे उपभोक्ताओं को महंगाई का बड़ा झटका लगा है। दिल्ली, कोलकाता और मुंबई में पेट्रोल के दाम में 28 पैसे और चेन्नई में 29 पैसे प्रति लीटर का इजाफा हुआ। डीजल में दिल्ली और कोलकाता में 29 पैसे, जबकि मुंबई और चेन्नई में 31 पैसे प्रति लीटर की वृद्धि हुई।

30 प्रतिशत बढ़ी चीन में तेल की मांग दिसंबर में, आर्थिक स्थिति के बावजूद अमेरिकी शेल ऑयल के उत्पादन में भी कमी दर्ज की गई।

अमेरिकी अर्थव्यवस्था में तेजी से भी तेल की मांग अच्छी रहने की उमीद।

12 लाख बैरल प्रतिदिन को अगर तेल के रहने के बाद भी युद्ध की आशंका अभाव में नहीं, तो तेल के दामों में वृद्धि कर देगी। अमेरिका में भारत के एसोसिएशन का इतिहास बहुत ही ज्यादा आधारित प्रति जीत की उमीद है।

भारत को भी महंगा तेल खरीदने पहले - अमेरिका ने भारत, चीन समेट आठ देशों को ईरान से तेल खरीदने के पहले तेल तेल 27 लाख बैरल देगा। अगर अमेरिका यह रियायत खलास करता है तो भारत को ईरान से सस्ता तेल नहीं मिल पाएगा। ईरान भुगतान के लिए भी ज्यादा वक्त देता है। वही सऊदी अरब तेल पर प्रतियम भी वसूलता है।

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भारत को ईरान से कच्चा तेल खरीदने की छूट जारी रहेगी

अमेरिका ने भारत, चीन समेट पांच देशों को ईरान से कच्चा तेल की खरीद की छूट जारी रखने का संकेत दिया है। हालाँकि बड़े अन्य देशों की छूट खोल कर दी जाएँगी। हालांकि पहले आशंका थी कि अमेरिका इस रियायत की पूरी तरह खत्म कर देगा। विश्वसनीय नहीं करता कि तेल के दामों में और उत्पादन आए, तलाश जिन आठ देशों का छूट दी गई थी, उनमें से भारत, चीन, जापान, दक्षिण कोरिया और तुर्की के लिए यह रियायत मई के बाद भी जारी रहेंगे। सिर्फ ताइवान, यूनान और इताली की रियायत खलम होगी। इससे ईरान का तेल निर्यात शून्य के लिए भी भी आएगा। अमेरिका ने चार नवंबर को तेल प्रतिबंध लागू होने के बाद भारत, चीन, जापान, तुर्की, दक्षिण कोरिया समेट आठ देशों को ईरान से आशीर्वाद रूप से तेल आयात की कमजोरी की थी। इसी छूट और व्यापार युद्ध जैसे कारणों से नवंबर-दिसंबर में तेल की कीमत में 40 फीसदी की कमी आई थी। हालांकि भारत की घरेलू उत्पादन की कमी का कारण भी यह है कि द्वारा चीनी बाजार पर पांढरी लगाकर जयपुर भूराजनीतिक व्यवस्था में बड़ा बदलाव नहीं आए। वह नहीं आए कि तेल के दामों में बड़ा उछाल आए। पांढरियों के बाद से ईरान का तेल निर्यात पांच साल के न्यूनतम स्तर पर पहुँच गया है। ईरान भारत की सस्ता तेल देता है और भुगतान के लिए ज्यादा वक्त देता है। वह रूपये में भी भुगतान स्वीकार करता है।

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ईधन महंगा होने से एलपीजी की बढ़ी मांग

पेट्रोल-डीजल के दाम में बढ़ोतरी और स्वच्छ ईधन को लेकर बढ़ती जागरूकता के बीच पिछले वित्त वर्ष में देश में वाहन एलपीजी क्षेत्र में 14 प्रतिशत तक की वृद्धि देखी गई। उद्योग से जुड़े एक संगठन ने यह दावा किया है। वाहन एलपीजी की प्रौद्योगिकी देने के लिए संबंधित क्षेत्रों की कंपनियों के मंच इंडियन ओयल एलपीजी कोईलिशन (आईएसी) के अनुसार, वित्त वर्ष 2017-18 में देश में करीब 4,00,000 टन ऋण एलपीजी कि किया गया। इससे पहले के वित्त वर्ष में यह आंक थी 3,46,000 टन की है। यह 14 प्रतिशत की वृद्धि को दिखाता है। उल्लेखनीय है कि 2016-17 में वाहन एलपीजी क्षेत्र में 4.9 प्रतिशत की वृद्धि थी। देश के 500 से अधिक शहरों में ऋण एलपीजी के 1100 स्टेशन हैं।

पेट्रोल, डीजल के भाव में तेजी जारी - पेट्रोल और डीजल के भाव फिर से नई ऊंचाईयों को छूने लगे हैं। पेट्रोल की कीमतों में शानिवार को लगातार तीसरे दिन वृद्धि दर्ज की गई, जबकि डीजल के दाम में लगातार 10 दिनों से बढ़ोतरी रही। तेल विपणन कंपनियों ने दिल्ली, कोलकाता और मुंबई में पेट्रोल के भाव में 17 पैसे जबकि चेन्नई में 18 पैसे प्रति लीटर की वृद्धि की। वहीं, डीजल के दाम दिल्ली और कोलकाता में 19 पैसे जबकि मुंबई में 22 पैसे और चेन्नई में 21 पैसे प्रति लीटर बढ़ा दिए गए हैं। दिल्ली, मुंबई, कोलकाता और चेन्नई में पेट्रोल के दाम बढ़कर क्रमशः 70.72 रुपये, 76.35 रुपये, 72.82 रुपये, और 73.41 रुपये हो गए हैं। चार महानगरों में डीजल के दाम क्रमशः 65.16 रुपये, 68.22 रुपये, 66.93 रुपये और 68.83 रुपये हो गए।

Govt. to Video Chat with 6cr Ujjwala Families

Setting its sights on the six crore beneficiaries of the Ujjwala LPG scheme, the poll-bound government has started a programme, Ujjwala Swabhiman Utsav, where petroleum minister Dharmendra Pradhan and other ministers will interact with the families through video conferencing. The first such programme took place on January 24, when Pradhan and women and child welfare minister Maneka Gandhi interacted with around 50,000 beneficiaries of the Ujjwala scheme in 30 districts of Odisha through video conferencing from Delhi. The beneficiary women had acknowledged how the scheme helped them and the changes it brought to their lives. The government is now planning to take it to other parts of the country. First, Odisha will be covered and then it is likely to reach Uttar Pradesh. The mission is expected to renew the government’s relationship with the beneficiaries ahead of Lok Sabha polls and boost the party’s image among the poor. Pradhan, however, denied any political motive behind this. “We never thought about Ujjwala as a political instrument,” he told ET. “It is the first step towards empowerment and integration of the poor to the mainstream. When we came to power, there were
13 crore active LPG users. In the last five years, we have been able to double the number and out of which six crore connections are under the scheme.”

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Aadhaar deseeding has hit LPG subsidy transfer: Pradhan

The deseeding of Aadhaar from the National Payments Corporation of India has led to a technical glitch in the direct benefit transfer of LPG subsidies. In response to a question in the Lok Sabha, the Minister for Petroleum and Natural Gas, Dharmendra Pradhan, said, “Some complaints have been received regarding non-transfer of subsidy which was mainly due to deseeding of Aadhaar from National Payments Corporation of India (NPCI) mapper. The matter was taken up with NPCI. Further, the customer has also been given the option of receiving subsidy through Bank Account Transfer Compliant Mode.” Pradhan said under the PAHAL scheme, the authorised subsidy to LPG consumers is transferred directly into the bank account of the consumers. “The subsidy is transferred either through Aadhaar Transfer Compliant (ATC) or Bank Transfer Compliant (BTC) mode on the basis of seeding of Aadhaar number in bank account. As on December 28, 2018, out of 25.17 crore LPG consumers, 23.24 crore consumers have joined the PAHAL Scheme and are getting subsidy in their registered bank accounts.”

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Price, not distance, will be the key for crude oil purchases from US

Crude oil imported from America is not cheap and a charter from the US takes 40-45 days to arrive in India as opposed to the 5-10 days from the Gulf. Yet, there is a push to buy US crude oil as it is expected to bring down the trade imbalance between Washington and New Delhi. Sanjiv Singh, Chairman,
Indian Oil Corporation Ltd, says: “US crude is compatible and comparable. US-origin crudes are purchased through spot tenders on competitive bidding.” Says Narendra Taneja, an energy expert: “Importing crude from the US is as viable as buying from Latin America or West Africa. It all depends on the price and other terms and conditions. We have been importing crude from Venezuela, which is about the same distance from India as the US.” Says Vandana Hari, Founder of Vanda Insights: “If you leave politics out of it, a refiner will always go by two main considerations when buying crude: Does it suit the refinery and is optimal for the desired products slate? And, is it economical, vis-a-vis competitive crudes?” US crude costs Indian refiners more relative to other similar light, sweet grades from West Africa, the North Sea or Asia, she says, adding: “Higher freight cost is a factor. So is the additional reverse-lightering charges, as you cannot fully load a VLCC directly at US ports other than the Louisiana Offshore Oil Port.” Explained IOC’s Singh: “There are infrastructure limitations at the US-end, including limitations in moving crude oil from onshore production sites to the coast as well as limitations at ports. With infrastructure debottlenecking at the US-end, US crude oil should become more attractive for Indian refiners. With controlled clearance from the Shipping Ministry on CIF (Cost, Insurance and Freight)/DAP (Delivered at Place) basis, the option of crude oil transportation has also widened.” As US crude production continues to surge, the pressure for the barrels to leave the country will correspondingly rise, said Hari, adding: “We have seen the trend through this year. It also creates a downward pressure on US crude prices, and leads to rising exports.”

**Purchase yardstick**- Indian Oil is mostly buying American crude oil against spot tenders. It has bought only once on contract. But the purchase is purely based on pricing. “Whatever pricing they do, we compare with our own benchmark. The purchase yardstick has to be the same. We convert the rates to our benchmark and then decide,” said an official involved with the trading. The Indian crude basket — the price at which domestic refiners buy their crude oil — is the weighted average of Dubai and Oman (sour) and the Brent crude (sweet) prices. “The US will emerge a big gas exporter within the next few years. Importing from the Middle East and East Africa would make more sense, but I would say we should diversify supplies from various continents in the interest of energy security,” Taneja added.
Petrotech 2019 shall be an effective platform to strengthen global oil and gas engagement, said Dharmendra Pradhan, Minister of Petroleum & Natural Gas and Skill Development & Entrepreneurship, while addressing diplomats from various countries recently. Pradhan was speaking during the Diplomatic Curtain Raiser of Petrotech 2019, the 13th edition of the international oil and gas conference and exhibition organized by ONGC in association with FIPI under the aegis of Ministry of Petroleum and Natural Gas, Government of India. He urged the diplomats to encourage their ministers and top CEOs in their countries to participate in Petrotech 2019, which is being organized in the National Capital Region from 10-12 February, 2019. Sunjay Sudhir, Joint Secretary, International Cooperation, MoPNG presented the detailed programme of the three day event, emphasizing on the theme 'Shaping the New Energy World through Innovation and Collaboration'.

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Oil Producers Told to Curb Natural Gas Flaring From Fields

India is aiming to halve the natural gas flaring from its oilfields in a year to curb waste of energy and damage to the environment. The Directorate General of Hydrocarbons (DGH), the upstream regulator, has directed oil producers to take quick steps to curb flaring following a recent review of their efforts at this. India burns about 850 million standard cubic metres of natural gas annually, about 2.6% of the total gas it produces. “We are wasting so much gas and contributing to pollution and climate change by flaring. We must absolutely reduce it,” an official with direct knowledge of the matter said. In many cases, producers don’t have pipeline facilities or
compressors or access to buyers. The DGH is believed to have conveyed to producers that they must work out a plan quickly to remove gas from the drilling site for productive use, so that flaring is reduced to the minimum. To be sure, some bit of it, referred to as technical flaring, is necessary and acts as a safety measure at oil production facilities, safely disposing gas during emergencies, power and equipment failures. Therefore, all oil production sites always have a non-stop open flame at the top of flare stacks. Oilfields often produce some natural gas in association with crude oil. Since the quantity of gas is relatively small, producers don’t find it economically viable to build a pipeline to the market. This leaves them with the option of using it themselves at the processing site and injecting the balance into the ground or releasing it into the atmosphere, flared or unignited. Flaring results in huge emissions of carbon dioxide, sulphur dioxide and nitrous oxide. Releasing unburned natural gas, or methane, into the atmosphere is considered worse for the environment as methane has several times more global warming potential than CO2. For more than a decade, global efforts have been underway to cut flaring and have resulted in significant cuts by key producing countries. Analysts said tough measures by India on flaring would help serve the green cause. “This will help utilise our resources better and cut emissions,” said Lydia Powell, distinguished fellow & head, Centre for Resources Management at Observer Research Foundation. “Due to its environmental benefits, the project to cut flaring would also be a potential candidate for funding by multilateral organisations and developed countries.” Producers will have to figure out ways to transport gas to places where it can be used. “The challenge is not insurmountable,” said Powell. If laying a pipeline requires huge investment and is economically unviable, producers should think of some new ways, such as using cascades to transport gas to neighbouring communities or industry, the official said. DGH ranks fields based on the amount of gas they flare. Companies, in a recently started practice, have begun submitting data on gas flare as well as many other parameters, which DGH uses to rank fields across the country every month.

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Oil slump helps retailers boost margins

State-run oil marketing companies (OMCs), Indian Oil Corp. Ltd, Bharat Petroleum Corp. Ltd and Hindustan Petroleum Corp. Ltd, have stopped absorbing the government-mandated cut of ₹1 per litre on sales of petrol and diesel following an over 36% fall in global crude prices in the last three months, said two senior OMC officials, requesting anonymity. On October 4, the centre had directed the OMCs to absorb a fuel price cut of ₹1 a litre, which according to estimates, would have led to a collective hit of ₹9,000 crore on margins over two quarters. “We are no longer absorbing the mandated price cut. There is no need when crude oil prices have cooled off,” said one of the officials cited above. Retail prices of petrol and diesel in India are linked to their prices in global markets and not that of crude. That results in the demand-supply situation of finished products in global markets having some effect on domestic retail prices of auto fuel. Despite that, crude oil, which accounts for about 90% of the cost of these refinery products, is the biggest determinant of the retail price of fuel. On October 4, 2018 crude prices were at $83.58 a barrel. It fell to $53.32 a barrel on January 2. The falling price of oil has also negated price intervention risks with auto fuel marketing margins now at unprecedented highs, leaving them 5% above normal on average for the third quarter of FY19, analysts of Jefferies India Pvt. Ltd explained in a note on December 17. “There is no direct co-relation between crude oil price and fuel retail price. Retail prices do not move in tandem with crude oil price. In October, crude oil dropped from $83 a barrel to $75.09 a barrel. OMCs have to contain volatility. So we only take a gradual price increase or decrease,” said the second official mentioned above.

To set prices of petrol and diesel, oil firms consider trade parity pricing, which is based on the prevailing prices of these products in the international market. The pricing formula involves 80% of import price and 20% export price of the fuel. Other elements, such as dealer commission, excise duty and VAT, are added to the trade parity price.

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India’s biggest oil refiner, Indian Oil Corporation, is “extremely confident” that it will be able to produce transportation fuels and highly valuable Omega-3 fatty acids from carbon dioxide, the company’s Director (R&D), Dr SSV Ramakumarthe, told Business Line. IOC currently runs a tiny, one kg pilot plant, the first of its kind in the world. Based on the encouraging results, the public sector refiner will build a commercial scale plant, he said. Ramakumar was here in connection with the ‘12th International Symposium on Advances in Electrochemical Science and Technology’, organised by the Central Electrochemical Research Institute (CECRI), one of the research institutes under the Council of Scientific and Industrial Research (CSIR). The process of refining crude oil results in the production of large quantities of CO2, an undesirable greenhouse gas. So, IOC’s problem was — if you can’t help but produce the gas, is there any way of utilising it?

Choosing the bio-route- CO2-to-fuel is a subject that scientists have been dabbling with for decades, and IOC chose the ‘bio-route’ for this purpose. It developed a strain of algae that can produce lipids and Omega-3 fatty acids, if fed well. ‘Algae’ refers to a whole kingdom of rootless, aquatic plant-life, which vary in size from microscopic to a metre-long. Like all plants, they need carbon to grow, but can’t take their supply of carbon from the CO2 in the air. “We were looking for a cheap source of carbon,” Ramakumar said, observing that the easily available feed, glucose, was far too expensive. Then, while poring through scientific literature, IOC scientists stumbled upon an American start-up called LanzaTech. LanzaTech developed a process to produce (chemicals called) acetates from CO2. Now, the acetates are something on which IOC’s algae can feed. In July 2017, IOC signed up with LanzaTech for a five per cent stake and a board seat. Beneath the corporate
deal was the “hyphenation” of two chemical processes: CO2 to the acetates of LanzaTech, and acetates to the lipids and Omega-3 fatty acids of IOC. Ramakumar observed that they were conflicting processes: the former needs complete absence of oxygen, or else, the microbes would die; and the latter requires abundance of oxygen. And that is how IOC will – eventually – use a million tonnes of the CO2 it produces from its refineries. A press release issued by LanzaTech in 2017 says that IOC will invest ₹350 crore in a demonstration facility at its Panipat refinery. It is the Omega-2 fatty acids that make the venture economically viable. A kilogram of CO2, which costs about ₹50, yields 400 gm of Omega-3 fatty acids, worth $800 (₹56,000). One could also get 300 gr of lipids, which can be processed into bio-ethanol.

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50,000 smart meters installed in NDMC area

Energy Efficiency Services Ltd (EESL), the energy services company under the Union Ministry of Power, has announced the completion of the project to replace 50,000 conventional electricity meters with smart meters in the New Delhi Municipal Council (NDMC) area. The aim of the project is to enhance consumer convenience and rationalise electricity consumption. The adoption of smart meters will lead to total annual savings of ₹12.47 crore to NDMC, said an official statement.

‘Affordable power’- “India is making rapid strides in providing universal access to affordable power. The Centre is accelerating the adoption of smart meters to ensure efficient management of electricity by checking data-entry errors, billing inefficiencies, and cutting the costs of manual meter reading through web-based monitoring system,” said RK Singh, Minister for Power, New and
Renewable Energy, on Wednesday. The event also witnessed the launch of smart meter feature on NDMC 311 mobile application enabling consumers to access various services at the tap of a finger. The smart meter tab has been added to NDMC app’s home screen. Through this, consumers can now get clarity on their energy habits and consumption through detailed and personalised insights. “We aim to play a vital role in India’s journey towards becoming a lower-carbon economy and an energy-secure nation. And, as the first municipal body to implement 100 per cent smart metering solution, we hope to encourage our counterparts in the rest of the country to follow suit,” said Naresh Kumar, Chairman, NDMC. EESL has funded and built the smart metering solution in the project area. It will also operate and manage the system enabling NDMC to benefit from smart meters with zero upfront financial investment. NDMC’s repayment to EESL will be through the monetisation of energy savings, resulting from enhanced billing accuracy, avoided meter reading costs and other efficiencies. This includes the immediate elimination of the cost of manual meter readings. These savings further enable NDMC to invest in value-added services for its consumers. Under its Smart Meters National Programme, EESL aims to replace 25-crore conventional meters with smart meters in India. EESL and NDMC also signed a MoU to install public e-charging stations. The initiative is to promote Electric Vehicles (including two-wheelers) in the NDMC area.

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8,000 MW of old thermal power generation capacity phased out, says official

Around 8,000 MW of old thermal power generation capacity has been phased out till now and will be replaced by cleaner options such as solar energy in a bid to clean up the power generation sector. “Nearly 8,000 MW of old thermal power generation capacity (25 years and older) has already been phased out but they will be replaced by new capacities. The Centre is focused on augmenting the available resources, including land at the project sites,” a top Power Ministry official told BusinessLine. “For instance, in Jharkhand, the capacity phased out by Damodar Valley Corporation (DVC) will be replaced solar power generation units,” he added. In September 2015, the Centre decided to explore the possibility of retiring or replacing the old and inefficient thermal power units by installing new supercritical (consuming less coal to produce more power) units. By December 2016, NTPC had already given an in-principle clearance to replace around 11,000 MW of its old and inefficient thermal power plants. A Power Ministry statement said, “The plants would be replaced in about five years, with an investment of around ₹50,000 crore.” According to data compiled by the Central Electricity Authority, 6075 MW of the identified old and inefficient thermal power units have been retired and deleted from National Installed Capacity from September 2015 to March 2018. Another 797.32 MW of private sector, gas based, diesel genset units have also been retired during the same period. The CEA has assessed that 4116.5 MW of capacity can be phased out during 2018-19. Thermal power projects phased out
this year include NTPC’s 285-MW Badarpur, Punjab State Power Corporation’s (PSPCL) 840-MW Ropar and Guru Nanak Dev (Bathinda) 220-MW thermal power stations. But phasing out older power projects is not a smooth exercise. “In Punjab, the Ropar and Bathinda thermal power stations were shut down, but there have been some issues with the unions opposing the move,” the official said.

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** Innovative Solar Water Heater **

Lebanon based Phoenix Energy s.a.l. has developed an innovative solar water heater - Solior FL150T. It utilizes mirrors to focus sunlight onto the collector wrapped with a 94% solar absorption layer. The typical collector area is 1.85 m² and storage tank capacity of 150 litres. The storage tank is made up of Stainless Steel 444, which is a low carbon and low nitrogen ferritic stainless steel with practical immunity to chloride stress corrosion cracking. The innovative solar thermal water heater, Solior FL150T, is easily installed and integrates the solar collector and storage tank in one system on the roof. Hence, it occupies less space and shading area on the roof than other solar water heaters available in the market. The Solior FL150T is specially designed to maintain 8 bar pressure which allows it to be easily connected to a pressure pump. The system looks smart on flat roofs and does not require an external tank or a large frame to lift. The company claims optical efficiency of 75%.

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** NDDB to promote use of solar irrigation pumps among farmers **

Just like it has helped create village-level dairy cooperatives across the country, the National Dairy Development Board (NDDB) has drawn up a plan to form solar farmers’ cooperatives in water-stressed states of
the country. “Using our experience in milk cooperatives, we would help farmers form these cooperatives which would work with state governments and power distribution firms. Constituting these farmers’ cooperatives require a lot of effort. We have people in most of the states who can engage with the farmers, train them and help them develop suitable policy framework,” Dilip Rath, NDDB Chairman, said on Wednesday. Rath was speaking at the sidelines of a NDDB workshop on how to use solar power to augment dairy farmers’ income in the country. “There is already a dairy network in the country which has about 1.7 lakh village level dairy cooperatives to which more than 15 million milk producers are affiliated,” Rath said. According to him, while it was easy to persuade farmers who use diesel pumps to switch to solar irrigation pumps, convincing farmers who used subsidised grid electricity to move to solar pumps was difficult. “There is some sort of reluctance on the part of discoms too. NDDB feels that discoms will be more comfortable in dealing with farmers’ collectives rather than individual farmers. This is because there will be single point of evacuation and single point of billing for each of the cooperatives,” Rath said. Under NDDB’s initiative, one such pilot project was done in Mujkuva village in Anand, Gujarat. The Mujkuva Solar Pump Irrigators’ Cooperative Enterprise, in which 11 farmers were part of, was inaugurated by Prime Minister Narendra Modi in September last year.

**Augmenting incomes** Drawing inspiration from this Mujkuva experiment, in which International Water Management Institute and Tata Trusts played a role, the Gujarat government has already announced an ambitious Suryashakti Kisan Yojana (SKY) which would not only enable farmers in the State to generate solar power for meet their irrigation requirements as well as to sell the surplus power to the grid to augment their incomes. As per the scheme, farmers having existing electricity connection will be given solar panels as per their load requirements. The State and Central governments will give 60 per cent subsidy on the cost of project. The farmer is required to put in 5 per cent of the total cost, while 35 per cent will be provided to him as an affordable loan with interest rates of 4.5-6 per cent. The scheme is for 25 years and during the first 7 years, farmers would be given Rs 7 per unit of electricity they fed in (Rs 3.5 by discom and Rs 3.5 by the State government). Subsequently, the feed-in-tariff will drop to Rs 3.5 per unit. The Maharashtra government too plans similar
The Union Ministry of New and Renewable Energy (MNRE) will issue a tender for the country's first mega off-shore wind farm with a capacity of 1 gigawatts (GW) in Gujarat within a month. “The location for first mega off-shore wind Energy Park has already been identified. We will come out with a tender for 1 Gw Park within a month’s time,” said Anand Kumar, Secretary, MNRE, Government of India, during a presentation at the Vibrant Gujarat Global Summit 2019 in Gandhinagar on Sunday. State-run Solar Energy Corporation of India has been given the responsibility for the auction plan. The plan was announced in December 2017, followed by an announcement of Expression of Interests (EOIs) in June-July 2018. The MNRE was to design and prepare the main tender document based on the discussions with participating companies of EOIs. Some of the global majors who had submitted their EOIs are Danish, Orsted, Copenhagen Infrastructure partners, UK's Innogy Renewable, US-based Deep Water Structures, and Equinor from Norway, Italian Saipem and Park Wind from Belgium among others. Among Indian players, Torrent, Inox Wind, Suzlon, Shell India, CLP, Sterlite, Greenko and others have submitted their EOIs. Kumar further stated that there is a potential to generate 302 GW of energy through off-shore wind.

Transition-At a seminar on ‘Renewable Energy: Opportunities in Gujarat and India’, Kumar stated that the Government of India is ambitious about
achieving faster growth for renewable energy sector. The share of renewable in overall energy generation in India, which was 2 per cent in 2010, has increased to 20 per cent in 2018. “We expect that by 2020, the share of renewables will increase to 22 per cent,” he said. “During the year 2017, we have seen 8.9 per cent growth rate for renewable sector. We are now moving from clean energy to green energy. Our target is to reduce carbon emissions by 30-35 per cent,” Kumar said. India, with a total renewable installed capacity of 75 GW currently, aims to reach the target of 175 GW by March 2022. Calling for reasonable rates for the sustainability of sector, Kumar stated, “We have prepared a detailed plan for growth of renewable energy in the country. We are also looking to enhance the ‘ease of doing business’ to facilitate investment in the sector. But what we expect from the industry is fair and reasonable rates, which is important for sustainability.”

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दादरी में पराली से बिजली का उत्पादन शुरू

एनटीपीसी के दादरी बिजलीपालियर में धान की पराली को ईंधन के रूप में इस्तेमाल करके विद्युत उत्पादन शुरू हो गया है। एनटीपीसी के महाप्रबंधक एक दादरी ने गुरुवार को पत्रकारों के लिए यह जानकारी दी। सार्वजनिक क्षेत्र के उपक्रम एनटीपीसी की कोशिश धान की पराली को जलाने से हो रहे प्रदूषण को रोकना है। एक दादरी ने बताया कि ‘धान गेहूं, जवार और अन्य कृषि अवशेषों को किसानों से खरीद लेने का उद्देश्य है। इन अवशेषों के गंदे (पेलेट्स) तैयार किए जा रहे हैं। गंदे की कोई भी सह आश्चर्य रूप से जलाकर विद्युत उत्पादन किया जा रहा है। पराली आधारित ईंधन से बिजली उत्पादन आरंभ कर दिया गया है। उन्होंने कहा कि इस तरह की ईंधन की नियमित आपूर्ति अभी आसान नहीं है। इसमें अभी कुछ समय लगेगा। पावर प्लांट में कौलियों के साथ कृषि अवशेषों के बने पेलेट्स के प्रयोग को तकनीकी भाषा में बायोमास को-फायरिंग कहते हैं। इस दिशा में केंद्र सरकार ने बायोमास को-फायरिंग प्रोसार्कन के लिए प्रतिबंधित किया है। महाप्रबंधक ने बताया कि कृषि अवशेषों को एकत्र करने, संग्रहण करने और उससे पेलेट्स/टोरी फाइंड पेलेट्स बनाने के लिए निवेश होगा। इस क्षेत्र में निवेश का बाजार मिलेगा और कृषि अवशेषों के लिए बाजार मिलेगा। साथ ही व्यापार व रोजगार के लिए अवसर मुश्तित होंगे। देशभर में 21 बिजलीपालियरों में पेलेट्स आपूर्ति के लिए लोगों से रूप में प्रस्ताव (ईओआई) आमंत्रित किये गये हैं। इस ईंधन को खपत 19,440 टन प्रतिदिन है। जिससे करीब पांच हजार करोड़ रुपये का सालाना बाजार बन सकता है। पराली और अन्य कृषि अवशेषों को खेतों में जलाये जाने की वजह से बायु प्रदूषण बढ़ रहा है। घटनाएं सुनिश्चित करके उन्हें किसान फसल कटाई के बाद खेतों में ही जलाये जाते हैं। जिससे भारी मात्रा में धुआं और सींग हवा में घुल जाती है और प्रदूषण का स्तर बढ़ जाता है। हरियाणा, यूपी और पश्चिम उत्तर प्रदेश में पराली जैसे कृषि अवशेष जलाने से दिल्ली-एनसीआर को प्रदूषण से जूझना पड़ता है।
पश्तिमी उत्तर प्रदेश के गन्ना किसानों को बढ़ा फायदा - नेशनल थर्मल पावर कारपोरेशन की योजना का पश्तिमी उत्तर प्रदेश के किसानो को भी बढ़ा लाभ मिलेगा। गन्ना किसान फसल कटाई के बाद पत्ती जलाता है। इससे भी फुसूडण बढ़ता है। अब गन्ना किसान पत्ती बेच सकते हैं जिससे उन्हें अतिरिक्त आमदनी होगी।

राजपथ के ऊपर जैव ईंधन से उड़ान भरेगा विमान

इस बार गणतंत्र दिवस की परेड के दौरान भारतीय वायुसेना का विमान परिवहन एएन-32 देश में बने जट्टोफा ईंधन से उड़ान भरेगा। सीएसआईआर के दौरान खंडित प्रयोगशाला ईंधन इंजिनियरिंग ऑफ पेट्रोलियम ने यह जेट बायोस्पूल तैयार किया है। सेंटर फॉर सिलिकॉट्रिन एंड ऐपरवर्डनिंस एंड सर्टिफिकेशन ने इस ईंधन की जांच के बाद वायुसेना को विमान में इस्तेमाल करने की मंजूरी प्रदान कर दी है। विमान में 10 फीसदी जट्टोफा बायो प्लस मिलाया जाएगा। वायुसेना के अनुसार, पहली बार परेड में जेट बायोस्पूल मिलाकर विमान उड़ान भरेगा।

पराली से बिजली का उत्पादन शुरू
Clean energy push

Climate change has made its space in international policy debates since the last few years. It presents a difficult situation for emerging economies like India, where industrialisation is necessary to create additional jobs for the increasing number of unemployed youth. In India, coal is a major contributor to power generation and the transport sector, both public and private, is largely dependent on fossil fuels. This dependence on fossils not only affects the country’s balance of payment but also exposes it to price volatility and supply constraints resulting from adverse global developments. Among the fast growing nations, India is struggling with high pollution levels and increasing carbon footprints. Global warming, climate change, increasing carbon footprint, and greater dependence on fossil fuels have compelled India to increasingly adopt and promote renewable energy. National Solar Mission, as a part of National Action Plan on Climate Change (NAPCC), was launched in 2010. In 2015, India revised its renewable energy targets significantly upwards to 175
GW by the year 2022. During the Paris convention, India announced Intended Nationally Determined Contribution (INDC) and pledged that renewable energy would contribute to 30 per cent of India’s energy mix by 2030. Renewable energy contribution to India’s energy mix has reached 10 per cent and is increasing. Solar and wind power, once considered costly, have now become affordable energy sources. Renewables are no doubt the future energy source for India, but they cannot replace fossils in the near term because of obvious reasons like sun’s energy is not available 24 hours a day, solar and wind generation are highly unpredictable and technological innovation is yet to develop an efficient solution to store power generated from renewable energy sources. Though technological advancements are under way for efficient storage solutions, which will certainly revolutionise the renewable energy sector globally, dependence on fossils can only be reduced by gradually. Currently, 85-90 per cent solar modules for deployment in India are sourced from China, Taiwan, Singapore and Malaysia due to cheaper imports and are thus vulnerable to global factors. It is largely felt that any adverse change in policy by these countries could derail the ambitious solar targets of India as it does not have its domestic manufacturing industry that can come to the rescue in case of large-scale interruptions. India’s domestic cell-manufacturing capacity is 3.1 GW, of which, 1.3 GW is operational. Similarly, module manufacturing capacity is 9.1 GW, of which, 6 GW is operational as against the target of adding at least 20 GW of capacity every year for the next four years. Domestic manufacturers are unable to compete with Chinese counterparts due to lack of complete value chain and ecosystem for manufacturing in India, which has led to higher costs and dependence on protection from the government for their very existence and survival. The domestic manufacturing sector is bleeding after India lost a case before the WTO pursuant to which it had to scrap tenders under DCR (domestic content requirement) category. The time has come for India to a stand on whether it prefers short-term benefits of cheaper imports or focus on a long term robust plan to develop end-to-end manufacturing support for its domestic sector.

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Gujarat has announced a land policy for renewable energy projects, which seeks to set up wind parks and wind-solar hybrid parks in the state, similar to solar parks. Such parks will be a first by any Indian state. The new policy is a welcome development for wind developers who want to set up their projects in Gujarat. Land had lately been a bone of contention between them and the authorities as the Gujarat government was reluctant to lease land for wind projects auctioned by central agencies like the Solar Corporation of India (SECI), while providing such land for similar projects sanctioned by the state agency, Gujarat Urja Vikas Nigam Ltd (GUVNL). Many developers, who had won SECI projects and intended to set them up in Gujarat – which has some of the best wind energy producing sites in the country – found themselves stuck as a result. Gujarat officials had stated that leasing of land would resume once the state’s land policy on the matter had been finalised. The government has clarified that henceforth all Central projects will have to be built inside these parks. “All future solar, wind and solar-wind hybrid projects will be subject to this,” an official said. A total area which can accommodate 30,000 MW of renewable energy will be sanctioned for these parks. Of this, 10,000 MW will be set aside for state PSU projects.
energy will be sanctioned for these parks, with each park large enough to install a minimum of 1,000 MW. (Of the 30,000 MW, 10,000 MW will be set aside for projects initiated by state PSUs.) “We will decide the exact location of the parks in consultation with developers,” the official said. “The idea is not to have projects dispersed all over the state, with wires running everywhere. Evacuation will also be easier.” A high powered committee (HPC) of 11 members, chaired by the chief minister, is also being set up to take the final decisions on where the new parks should be and how much land should be allotted to each. “For allocation of park to the developer, HPC will consider its financial strength, its turnover in the renewable sector, net worth, production capacity, technical capability, experience, manufacturing base in Gujarat, investment in Gujarat, experience in the energy sector other than the renewable sector,” the land policy says. Wind projects need around 0.75 acres per MW, while solar projects require 5-6 acres. But sites with wind speeds high enough to produce power are limited. Gujarat, which has a number of solar parks, is keen that the new parks come up mostly in Kutch area. About 7,000 MW of wind projects were auctioned by SECI last year of which half are expected to be set up in Gujarat.

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सक्षम का आयोजन

पेट्रोलियम व प्राकृतिक गैस मंत्रालय के अंतर्गत आने वाले पेट्रोलियम कंजर्वेशन रिसर्च एसोसिएशन (पीसीआरए) के प्रारंभ में अभियान सक्षम का पेट्रोलियम मंत्रालय में आतिक मृदा व विश्वसनीय सत्ताकर राजीव बंसल ने उद्घाटन किया। इस मौके पर बंसल ने ईधन बचत की आवश्यकता बतायी। इस मौके पर उन्होने एनसीईआरटी की मदद से पीसीआरए द्वारा तैयार एक कॉमिक्स का भी विमोचन किया।

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