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Trending

- Japan is closer to harvesting solar energy from space. Successfully transmitted 10 KW of energy By Wireless Power transmission technology from 500 m distance..
- President Trump to start demolishing a wide array of Obama-era policies on global warming — including emissions rules for power plants, limits on methane leaks, a moratorium on federal coal leasing, and the use of the social cost of carbon to guide government actions
- A pair of camouflaged Wind turbine are installed inside Eiffel Tower which produces 10,000 KwH of energy

Through the lenses of waste pickers



Duniya mein kitna gam hai mera gam kitna kam hai, this famous song sung by Md. Aziz came in our mind when we peeked into the lives of waste-picker. “We don’t have any problem and we are living a good life” said Ruksana when asked about her poor situation. But her eyes seemed to say a different story. The place she lived, the food she ate and the clothes she wore were the indicators of her pain and torture which she bears daily. Later on revealing her pain for her mother who was in hospital she said “ Her treatment costs 1.5 lakhs and I have borrowed the amount at high interest rate from local Raddi Shop owner.” Her teary eyes didn’t go unnoticed. Not just Ruksana but many others residing at Jhalana Basti in Jaipur had a similar story to say. The real picture came up later when we talked with localites. It seemed to be quite bitter and indigestible when they said that Waste-pickers were themselves responsible for their condition. Government have allotted them flats under the scheme of **JDA(Jaipur Development Authority)** but they have either sold them or have rented

them. When asked more about them , they revealed that every day female members and children of the house go to pick the waste and the earnings are snatched in the evening by their own husband, brother or any other male for drinking , smoking and gambling. This is the case in most of the families. The scared women are not able to stop them and their illiteracy makes the situation worse. Raddi shop owners told that the waste-pickers earn around Rs 300 per day which appears to contradict their situation. The evils responsible for the situation are **illiteracy, lack of awareness about their rights ,improper implementation of government schemes, corruption, unhealthy surroundings.** In other countries waste-pickers have their own cooperatives , they are aware of their rights and thus they are able to use the government schemes and other facilities properly. Our government and society should focus on the root cause of their sufferings as **“Only watering the leaves will not benefit the tree”**.

.....Next page
- Rujuta Vaze, Vivek kumar, Deepanshu Kr Shanu



Goodbye BS-III Vehicles

Public health is more important than automobile industry's interest. Under this consideration, a SC bench by Justice M. B. Lokur and B. Gupta, freeze the sale and registration of BSIII vehicle from 1st April, 2017. The next step is to schedule commencement of environment friendly BS-IV fuel emission standards in country.

Bharat stage (BS), is an emission standards setup by Central Government to measure output from IC engines, including motor vehicle was introduced in 2000. Since Oct, 2010 BS III norms was enforced in country. But now, BS-III vehicle are under ban from sale and registration as per order of Supreme Court.

In recent report, around 1.2 million people get affected by air pollution every year. It needed some drastic measures which apex court has taken. The main reason for switching BS-3 to 4 is difference in emission of carbon particulate. As per ARAI, for petrol powered engine, the exhaust emis-



sion for BS-III will have Carbon monoxide, Hydrocarbon, Nitrous oxide restricted to 1 g/Km which reduced to 0.75 g/Km in case of BS-IV. For commercial vehicle, new trucks could see 80% drop and cars by 50%. Switching to BS-IV could lead to a substantial drop in particulate matter emission.

It was pre-decided that BS-IV will be kick in from April, 2017, despite of this manufacturer decided to sit back and not taken any action. SIAM has submitted data on manufacturing and sales of BS-III vehicles, as per this automakers have stock of 8.2 lakhs unit, which included 96,724 commercial vehicle, 6,71,308 two-wheeler,

40,048 three-wheeler and 16,198 cars. The estimated worth of these is around Rs 12,000 crores. They have no option but to export or upgrade BS -3 engine to BS-4 that not seems feasible.

Rest of 1st page:-

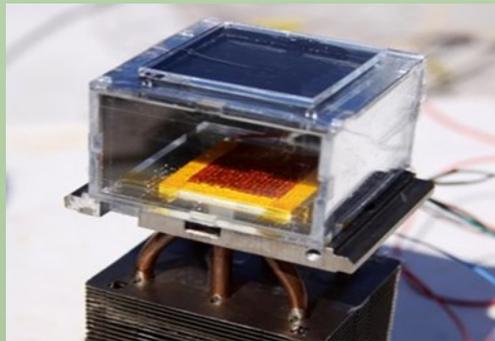
“The story of my life remains as ‘empty’ as those things in my bag.”

This line is enough to describe the life of rag-pickers. Peer influence, easy money, government's inefficiency and no societal control are leading them to drug addiction and adding misery to their lives. Millions of people across the country are involved in such a wretched task that it should be a prime concern for our society and nation at large. While interviewing the rag-pickers and their neighbours we realized that Jaipur, better to say India at large faces extraordinary challenges to ensure every person's life is important and accounted. It calls for huge time investment .

Device pulls water from dry air, powered by sun

Machines that harvest water from drier air require energy, While it's easy to condense water from the humid air. Researchers have created the first water harvester that uses only ambient sunlight. The key component is an extremely porous material called a metal-organic framework that absorbs 20% of its weight in water from the low-humidity air as in desert type conditions.

The solar powered harvester was constructed from a metal organic framework (MOF) and as a prototype operating at 20-30% humidity with around 2.2 pounds of MOF can draw 2.8 litres of water from the air over a 12 hour period. Rooftop tests at MIT confirmed that the device works in real-world conditions.



In 2014, after 20 year of research on MOFs scientist Omkar Yaghi and the UC Berkley team successfully synthesised a MOF i.e; Metal-organic Framework that was capable of binding water vapour through the combination of Zirconium metal and Adipic acid. Evelyn Wang, a mechanical engineer at MIT allowed them to come together and create a successful water collecting system from the MOF.

The water harvester consists of more

than two pounds of metal-organic framework (MOF) crystals compressed between a solar absorber and a condenser plate, placed inside a chamber open to the air. As ambient air diffuses through the porous MOF, water molecules preferentially attach to the interior surfaces. X-ray diffraction studies have shown that the water vapour molecules often gather in groups of eight to form cubes.

The metal organic framework heats up via the sun and drives the bound water toward the condenser, which is at the temperature of the outside air. The vapour condenses as liquid water and drips into a collector.

Source:- www.azocleantech.com

Technology for wastewater treatment using plants

In recent years, several Indian villages have embarked upon a journey of sustainable transformation that causes positive impact on the environment. One such village is Chinna Kalapet in Puducherry, a sleepy little fishing hamlet that is setting an example by treating its wastewater in eco-friendly way.

Based on an innovative technology designed by Professor S.A. Abbasi from Pondicherry University, Chinna Kalapet, a low-cost wastewater treatment plant (called SHEFROL bioreactor) uses aquatic plants to absorb chemicals, pathogens and microorganisms from wastewater, making it fit for irrigation purposes.

In this innovative system, the wastewater flows as a thin sheet through the roots of selected aquatic plants in specially designed trenches made from plastic sheets. As the plants grow, thriving on the waste, they continuously detoxify the water. As a result of the intensive 'water-



root-microorganism' contact made in these units, over 80 % of wastewater treatment is completed quickly (in about 2 hours) as compared to 2 days or more needed in other systems.

The treated, turbidity-free water can then be used for irrigation in farms and gardens. No foul smell emanates from the water treatment plant, which doesn't use any kind of chemical. A simple system, it can be set up or dismantled easily as well as scaled up or scaled down as per need.

What also makes it a great option for villages, colonies or even large sub-

urbs is the fact that it makes use of gravity and the topography, thus doing away with the requirement of pumping water. A small difference in fluid head between the inlet and outlet guarantees the constant flow of water in and out of the system.

With the cost of the pilot plant Prof. Abbasi set up on campus coming to only ₹ 600, SHEFROL also proved to be an inexpensive technology. Encouraged by its easy and efficient way of functioning, Pondicherry University soon set up SHEFROL plants in several places, in and around the campus.

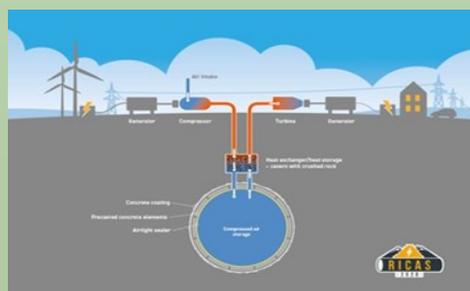
SHEFROL is an eco-friendly technology that may hold the answer to rural India's wastewater management concerns. Sarvam, a Tamil Nadu-based NGO, is already working to install SHEFROL plants in several villages in the state while several European and Middle-Eastern nations have expressed their interest in implementing this system in their countries.

Air as the worlds next battery

Europe is developing towards sun and wind energy as key energy resources. This indicates an increasing need of for energy storage facilities because if the generated energy cannot be used instantly then it must be stored until it is required.

The most economic method is to use hydropower reservoirs as 'batteries': i.e. generate electricity using the stored water, when power is in short supply, and subsequently pump the water back uphill when surplus renewable energy is available.

What if air, instead of water, is used to store energy in less fortunate regions and countries? Surplus energy generated by wind turbines and solar cells is used to compress air, which is stored in caverns in solid bedrock. When air is compressed, it heats up, so a separate underground heat store stockpiles the heat generated by the compression process. When the ener-



gy is needed, the air is released through a gas turbine, which generates electricity. The hot air that is released through the heat store on its way out, the more electricity will be generated; in other words: the more effective is the energy storage.

The physics governing storing energy in the form of compressed air is a result of a law of nature familiar to every user of a bicycle pump: Bicycle pumps compress air in order to increase the pressure of the tyres, and in doing so, makes the pump hot. The more of the heat of compression that the air has retained when it is released

from the store, the more work it can perform as it passes through the gas turbine

In a research project RICAS 2020, a recipe for reducing these losses in future underground storage caverns was presented. At the core of the recipe was an extra station that they had incorporated in their solution. On its way down to the underground cavern, the hot compressed air passes through a separate cavern filled with crushed rock. The hot air heats up the rock, which retains a large proportion of the heat. The cold air is stored in the main cavern. When the air subsequently returns through the crushed rock on its way to being used to generate electricity, the flow of air is reheated by the stones. Hot air is then expanded through the turbine generating electricity.

Source:- www.sintef.no

Greenovation 2017



Winning teams with faculty advisor of Energy Club

The energy Club has organized 3rd edition of Greenovation which was a great success with overwhelming participation of students from different college in Jaipur. The problems statements for Greenovation'17 were:-

- Green transportation in campus
- Solar panel in multi storeyed building
- Save birds from summer heat
- Open category

COMIC SENSE



FAREWEL TALES

We wish you calm seas and a serene path. May your all future wishes come true..

- Nitin Kumar
- Sachin Kumar
- Sadu Pradeep
- Shailesh Kumar
- Teja
- Sunny Kumar
- Rahul Dubey

QUIZ

1. Name the Indian navy's first naval ship to go green?
2. Where the IGBC is going to organize Green Building Congress 2017 ?
3. National energy conservation day is observed on ?

Send your entries to energyclub@mnit.ac.in

Winning entries to get exciting prizes.

Previous Quiz Winner:-

Ritesh Kumar

Aashirwad Varshney

Shivam Sachan

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