

SRI SHTI

2020-21

NATURE AND ENVIRONMENT SOCIETY OF ZHDC



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2020-21

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From the Principal's Desk



The academic year of 2020-2021 has been challenging in many ways for our university. It has especially been difficult for our students and faculty members who have interacted and worked remotely with each other, rising to the occasion. For this, I would like to congratulate the students and faculty members of SRISHTI for the commendable effort that they have made towards putting together their annual publication, more so keeping in mind the current scenario and the need for us to reflect upon it.

The biggest question for this century would be about life on our planet and habitability. We must reprioritize something that we have taken for granted for too long - our existence as a species on earth. We are consuming resources at a very rapid pace, without being able to replenish them. Our water table is reducing, fossil reserves are depleting, and it is time to invest in natural resources and preservation of our biodiversity. At this moment in time, when communities, cultures and individuals are striving hard to work towards a sustainable future for all, we must also make endeavours in that direction.

The year of the Coronavirus pandemic has taught all of us a lot about our environment, about maintaining health and hygiene, and the importance of taking care of our planet. It has brought people from all walks of life together in fighting a common enemy - the mutating virus. I am very pleased to note that the current issue of the Nature and Environment Society's annual magazine focuses on these topical concerns in detail. Along with that, I am immensely proud of the maturity and understanding displayed by our student editors and contributors in tackling these matters.

As we face unprecedented loss and struggles today, I wish that our students and the members of Zakir Husain Delhi College community find strength and resilience to deal with these hardships. With optimism, I hope for all of us that we can implement the lessons of today in keeping our future safe. My best wishes are with all of you!

Prof. Masroor Ahmad Beg

Officiating Principal

Editor's Note

The pandemic has shown all of us the uncertainty and unpredictability of life. No matter how big our plans were or how perfectly well had we organised our tasks; everything came to a halt! As the world adapted to the 'new normal', so has SRISHTI.

What a rollercoaster session it was! From virtual meet-ups to online competitions, the team of SRISHTI, Nature and Environment Society of Zakir Husain Delhi College, had done it all. Our primary concern has always been about spreading awareness regarding the urgency of saving the environment and though today we are at our homes yet we strongly believe that issues related to nature and environment still persist with new challenges. The pandemic has shed light on the need of proper waste disposal systems around the world. Biomedical waste, E-waste, industrial waste and the good old household waste require an efficient and environment-friendly disposal system. World economy is majorly affected by the pandemic and while reviving it **we must not ignore nature.**

This pause in our lives has given us and the policy-makers time to think about new ideas and solutions. We must reflect on our equation with fellow human beings, our nonhuman others and the world we live in!

Environmentalist Wangari Maathai has rightly said, "the environment and the economy are really both two sides of the same coin. If we cannot sustain the environment, we cannot sustain ourselves." Nature is a gift. Every entity from animals to mountains is a miracle and it should be celebrated and protected.

Through this edition of SRISHTI, we have tried our very best to discuss various issues under the umbrella theme of **Saving Our Earth**. We hope that we are able to motivate our readers **to think and act for nature.**

Following Dalai Lama's advice, "It is our collective and individual responsibility to preserve and tend to the world in which we all live", let us step up our efforts towards our planet.

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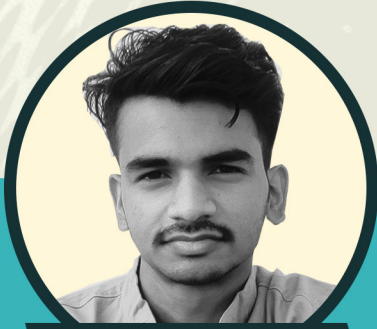
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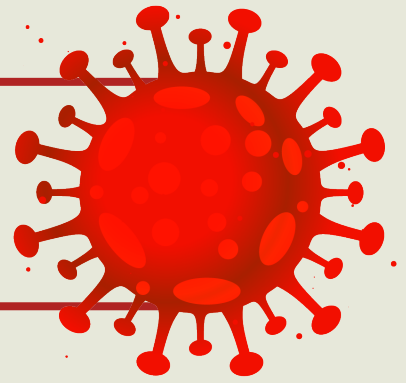
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COVID-19 PANDEMIC

A CHANCE FOR THE HEALING OF NATURE?



A narrative about “nature healing itself” and the lockdown being a “blessing in disguise” or the “planet going on maintenance” is on trend amidst the worldwide pandemic. Reports of air pollution levels plummeting down, rivers becoming cleaner and animals flourishing are widely spread on the Internet. Although it appears to be a very positive phenomenon bearing a bright new hope for our future - the reality is harshly staggering. Though some true rare incidents occurred most of this feel-good news is falsely exaggerating doing nothing good for the ‘action for climate change’ agenda. This beautiful phenomenon due to curtailed anthropogenic activities is losing out due to the implicated negatives.

We all have observed flowers blooming and birds chirping more than usual from our balconies during this lockdown. There had been an absence of the din from planes, cars, public transport and people - vibrations caused by humans have dropped by one-third since the lockdown measures indicating the reason for urban animals venturing out. It is a fact that animals, even tigers and leopards, are a part of urban human-dominated landscapes. The stories of rare animal sightings show the movement of animals far from where they are usually spotted and at times when their activities are limited. The stories about giant panda mating in Hongkong, flamingos descending in Mumbai and

ing a very convenient image that will make us ignore the sufferings of animals. The starving monkeys of India, Thailand, and deer in Japan; or out-of-work elephants and lonely garden eels show the depth of anthropogenic involvement with fauna. This occurrence, if anything, is making us reconsider our dysfunctional relationship with nonhuman animals. Pandemic has presented us with a very convenient retrospective picture of the extent of human colonisation on the planet. These media coverages are promoting our tendency to ignore the problem and we fear that we are going to slide back once the lockdown lifts. Our attention is being diverted from the rapid pace at which species are becoming extinct. The poorer countries in the southern hemisphere, Masai Mara or Serengeti are under threat for fewer funds to pay the personnel overlooking the endangered species and habitats. There is less tourist revenue and even less to pay the rangers, thus opening windows for illegal poaching, mining, and logging at a time when the local people don't have a way of feeding their families. It is very risky to think that this economic downturn is beneficial to nature. We need to take it as a reminder that nature will heal in a short time and this is just an alternate world without fossil fuels adding to its degradation. With the lifting of lockdown and revival of the paralysed world economy, the positive effects are disappearing and we don't have the option to leave nature on its own devices for healing.



Newly-hatched babies of leatherback sea turtles, Phanga Nga district, Thailand.

(REUTERS/Mongkhonsawat Leungvorapan - Insider)

spreading to wetlands in record numbers to the spotting of capybaras in Argentina; and coyotes and bears venturing in the USA are paint-



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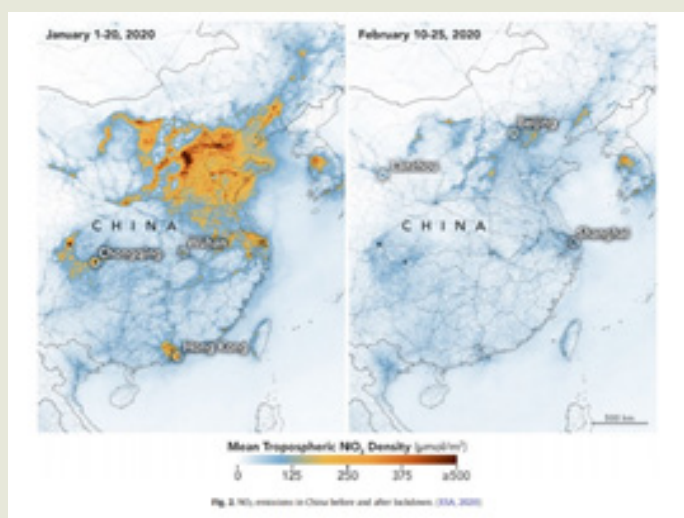


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According to research by Columbia University, both carbon monoxide and carbon-dioxide emissions have fallen in the USA. China had experienced 25% reverse emissions across the country during February due to reduced fossil fuel usage. The amount of nitrogen dioxide had also dipped by 36%, but the global figures are not very clear. There has been a drop of 17% in daily greenhouse gas emissions which is wonderful, but what about the remaining 83% - we are still very far from our goals for sustainability. There is no denying that air quality has become better and it is celebratory in terms of the improving air quality index. The smog has cleared up and visible air quality changes

have been recorded. Delhi with severe 200 AQI in 2017 has also seen intense levels of 900 but now the skies have cleared up and AQI levels have gone well below 20 and even going to an impressive figure of 7 after unprecedented rainfall in the capital. We are forgetting that Delhi's major cause for air pollution is due to stubble burning. Travel is also restricted. Thus, it is worth noting that 20% of total global emissions are caused by travel and much like the stories of animals returning - hiding the reality of mass extinction, the creative storytelling of cleaner air is making us overlook the grave situation we are in and how actively we need to work for combatting the climate emergency.

NO₂ emissions in China before and after lockdown



These pictures may be very hopeful when the reports emerged but have any one of us seen such mighty changes being reported or circulated in social media again? No! The partial lockdown has deteriorated the air quality again and we have not learned our lessons yet. We can't overcome the problem by merely acknowledging the fact. According to Prof. S. K. Satheesh, the transition to electric vehicles is the best option to reduce air quality degradation and we need charging stations. Decarbonisation can significantly reduce emissions, therefore, we need to support biodiversity conservation making pollution control consequential.

According to the real-time water monitoring data of the CPCB, out of 36 points, the Ganga water quality around 27 points was suitable for bathing and propagation of wildlife and fisheries. The environmentalists suggest that lockdown measures have improved the conditions of all the major rivers. There is a significant improvement in the Hindon tributary of Ganga with almost no industrial effluent discharges. The pictures of bluer Yamuna have also circulated 'virally' on social media but sadly the conditions are not as extravagant as the pictures suggest. There has been improvement, but a lot is still left to be done. Climate change is taking a backseat due to the impacts of COVID-19 - the government is busy dealing with the issue of the pandemic. This period from 2020-22 was our last chance to keep the global tempera-

ture below 1.5 degrees Celsius and bring down the emissions by 2030. We need to think about the storms, cyclones, bushfires, and alarming rise in sea-level, and the severe contrasting droughts with floods. We are already behind on our 2030 target according to the United Nations Environment Programme's 2019 Emission Gap report. With the postponement of the Cop26 UN climate summit, the chances of us forgetting the pictures lockdown measures showed us are high. The quick wins amidst the pandemic are competing to hide our fallacies.

According to Rishika Das Roy on Swaddle, we need to exacerbate existing carbon lock-ins and avoid forgetting environmental concerns at any cost. Climate impacts and natural stressors have not stopped because of COVID 19 as seen by cyclone Amphan destroying the Sunderbans. We need inclusive development that will not come at the cost of the preservation of nature, resources, and biodiversity. As Nayanika Mathur says that now more than ever the pandemic has awakened us to the fact that, "there can be no development without conservation as the destruction of the planet is precisely what has brought the world to its knees through this pandemic".

If we continue to harm the environment at this pace there will be no humans left to construct and speculate on 'economic' matters. We need to answer the ecological call and take sustainable actions today. If slowing down the economy is what we need (that was considered inconceivable due to globalisation), then it should be maintained and we must not succumb to the path of endless resource consumption in hopes of a brighter, better future.



A better future with less to no fossil fuels.

Credits : Hyperlapse Media/ Shutterstock: (loveEXPLORING)

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BIOMEDICAL WASTE MANAGEMENT

An Emerging Concern and the General Obliviousness of Public



In these troubled and chaotic times, do human beings have the privilege to choose their concerns? One cannot be concerned about infrastructural development without contemplating what is left behind in that process. One cannot be focused on national prosperity when citizens of the nation don't have the privilege of clean and fresh air to breathe. We cannot be concerned with 'World Peace' when we shut our eyes to Environmental concerns. In the end or let's hope, for our sake, in the beginning, all comes down to few basic fundamental issues. There is a dire need for our efforts towards a clean and healthy environment for future foundations to be laid upon.

Some of the major concerns we as a planet are facing include global warming, loss of green cover, overpopulation, extensive and brutal use of natural resources, increased carbon emission, the poor state of our planet's biosphere, and of course the ongoing SARS COVID 19 pandemic. One such concern that got highlighted during the COVID-19 pandemic response was the issue of biomedical waste and its proper management. Healthcare waste (i.e. Biomedical waste) may seem like a concern of the medical community but it has direct-indirect effects on general public health, the environment, and animal life as well. 'The what', 'the why' and 'the how' related to biomedical waste may not be fully comprehensive to the general public and this ignorance potentially breeds within itself another Global Bio-Disaster.

What is Biomedical-Waste and how is it becoming a grave threat to public health?

Bio-medical waste is defined as any waste, which is generated during the diagnosis, treatment, or immunisation of human beings or animals, or in research activities pertaining thereto, or in the production or testing of biological^[1]

In other words, all waste that comes out of general hospitals, veterinary hospitals, diagnostic labs, biological labs, local dispensaries, and many more all constitute a biomedical waste. Biomedical waste includes animal tissues/organs, blood, and other bodily fluids, gauge, used band-aids, syringes, pathological waste components, etc. These wastes have a potential biohazard tendency. World Health Organisation states that 85% of hospital wastes are non-hazardous, whereas 10% are infectious and 5% are non-infectious but are considered hazardous wastes. About 15-35% of Hospital waste is regulated as infectious waste. This range is dependent on the total amount of waste generated. [Glenn and Garwal, 1999]

The diseases that could transmit via this type of infectious waste include respiratory infections, gastrointestinal infections, genital infections, skin infections, and also some of the deadliest diseases known to mankind such as Acquired Immuno Deficiency Syndrome (AIDS), viral hepatitis, anthrax, hemorrhagic fever, etc. The sheer amount of disease and syndromes which have a possible communication passage through this waste is enough for us to realise the unquestionable requisite for its management.

The aforementioned side effects of unattended biomedical waste have made this certain that there is a dire need for a proper disposal mechanism and general awareness about the bio-medical waste.

Bio-medical waste has been properly categorised for easy identification and then proper disposal. The categories of biomedical waste involve Human Anatomical waste (i.e. tissues, organs), Animal waste (from Veterinary Facilities), Biotech waste (from labs and other production facilities), sharp waste like needles and scalpels, discarded or expired medicines, used or blood-contaminated dressings, solid or liquid waste produced in patient-care, chemical waste, etc. ^[1,2]

The waste mentioned above has some infectious, chemical, cytotoxic, pathogenic components which make this waste hazardous and thus there

management has to be properly done in each healthcare facility.

Different methods that are used for disposal of biomedical waste are: ^[3]

Incineration technology; using a high-temperature thermal process to eliminate waste under controlled conditions.

- Non-incineration Technology; includes thermal, chemical, irradiative, and biological processes.
- Autoclaving; operates on the principle of a pressure cooker.
- Microwave Irradiation; based on the principle of generating high frequency waves and heating material causing pathogen to die.
- Chemical methods; using a standard solution like 1% hypochlorite for disinfection.
- Plasma Pyrolysis; state of the art, environmental-friendly waste disposal technology using plasma arc. It converts organic waste into commercially useful products.

Bio-medical waste Management: Why is it necessary?

Why is managing Bio-Medical waste important? The Answer lies in the abundantly clear reason of potential infectious Disease-Outbreak. Many harmful and fatal conditions can arise from unmanaged bio-medical waste. None of the waste produced is ever good for life on this planet but this particular waste could become disastrous in a very short time.

Illegal dumping of this waste can harm the land and in turn the wildlife since this waste includes harmful chemical and cytotoxic substances. Not only this, the people handling the waste also needs a proper knowledge and precautions to protect themselves and their local communities. Waste-pickers endanger themselves and the locality if they unknowingly deal in this biomedical waste. Proper Recycle and Reuse of the non-infectious material has to be done scientifically before they could be used again.

Safe and proper management of the bio-medical waste has not only become a legal necessity but a social responsibility. India is likely to produce about 775.5 tons of medical waste per day by 2022 from the current level of 550.9 tons per day growing at a compound annual growth rate (CAGR) of about 7% (reveals ASSOCHAM-Velocity joint study) .Thus the management and awareness becomes crucial if we are to live sane and healthy lives.

Bio-medical waste Management Rules, 2016 [Notified by Ministry of Environment, Forest and Climate Change, 2016] stipulates that every Healthcare Facility shall take all necessary steps to ensure that Biomedical Waste is handled without any adverse effect to human and environment.

Many such rules and regulations were put forth by the Govt of India from time to time to cope with exponentially increasing amount of biomedical waste and they have been implemented but still there remain windows of improvement. The reasons could be lack of work force, or the lack of proper management in hospitals and also the public ignorance in the matter.

The challenge therefore before the Govt and Medical community is to find more scientific and eco-friendly ways to dispose the medical waste and also to implement some bare minimum rules and regulations on every level of the administration (state, municipal, hospital) to effectively reduce the outcome and also to generate a cleaner and healthier surrounding for the public to live in.

As mentioned earlier all these concerns we face today go hand in hand. We have to be observant enough to stipulate necessary actions on our part. Though the issue of biomedical waste disposal is largely to be taken care of by government and hospitals however as a community we can spread awareness among the public and throw light on the urgency of efforts needed. The real treasure of a Nation is not how big its infrastructures are but its people, its healthy and productive people. Moreover, when it comes to environmental concerns; this no longer remains a national concern but a concern for Humankind. This is our planet, we have to find a harmony with our home not be a part of its destruction.

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LET'S CHECK OUR MONSTER WARDROBES



WHAT DO WE ACTUALLY NEED ?

"As consumers we have so much power to change the world by just being careful in what we buy" - Emma Watson

The world is here, on the screens of our laptops and mobile phones; and internet is 'the god'. We might be just one click away from every possible knowledge existing in this world and yet we are in the biggest battle of all time – Nature Vs. Man, due to sheer ignorance and greed. We all are well-versed with the climatic emergency and might also know numerous 'fancy' reasons behind it. Here is one more – consumerism.

If you google the meaning of the word it will say - "protection or promotion of the interests of the consumers". Our lifestyles have undergone massive evolution over the years and what it translates to is large-scale production of goods to be consumed by consumers.

Consumerism refers to the culture of industrial society where goods are being bought and sold. It may have established an economic order but has completely side-lined environmental interests. We can easily learn about the inputs used in manufacturing of any goods. These inputs, in addition to the concerned raw material, include energy (fossil fuels) in possibly the largest quantities. Moreover, the pollution and waste generated during and after the processing of a creating a product is another concern.

Remember that typical picture of a factory chimney blowing out huge clouds of smoke?

Well now let's throw light upon the most 'trending' consumer

commodity of our generation and obviously our 'modern' lifestyle - CLOTHES.

One for Monday, one for Tuesday... one for that party...one for that reunion...and obviously many more to just hangout...

Nonetheless, the number of branded clothes owned by a person has become a statement. The ever increasing materialistic satisfaction is fuelled by the concept of fast fashion. It refers to low cost clothing collections that mimic the current fashion trends. It satiates the desire in consumers to be at par with the latest fashion while maintaining their budget. Sounds great, right?

Except for the fact that this messiah of fashion lovers is questionable on grounds of sustainability. Fast fashion encourages disposability without addressing the issue of threat posed to the environment. Lower cost availability is also an indicative of overall low cost production which means lack of quality control measures. Fashion industry thrives on the concept of fast fashion. With trends updating on a weekly basis, the ones who can afford to, can buy clothes from designer stores. Otherwise popular fashion streets like Sarojini Nagar, New Delhi are busy catering to the masses at reduced costs. This profits everyone involved and the ethical issue remains unaddressed. Additionally the shelf-life of these products is short, which again compels consumers to buy more! Fast fashion production has rapidly increased the volume and amount of pro-

duction of raw materials and resulted in heavy energy consumption. Low cost labour in countries like China has additionally accelerated logistic processes.

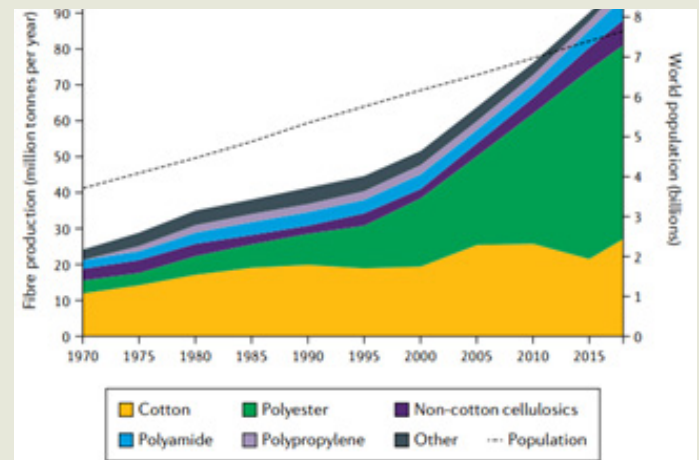


Fig. 1 | Growth in global population and textile production by fibre type. Fibre types include cotton, polyester, non-cotton cellulosics, polyamide and polypropylene, with silk and wool represented together as 'other'. Growth in world population is also depicted. By the 2010s, textile-production growth overtook world-population growth, largely driven by the rise of cheap manufacturing and fast fashion.

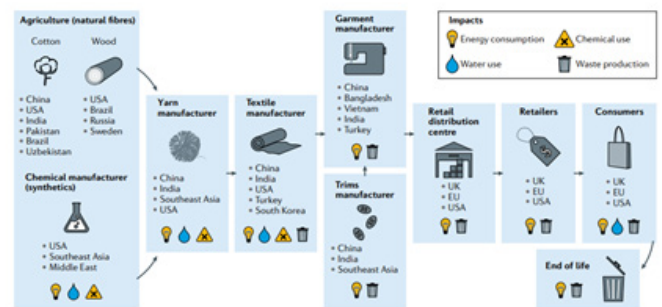


Fig. 2 | Garment-manufacturing supply chain. The key stages of the fashion supply chain with the geographic location and broad-scale environmental impacts (energy use, water use, waste production and chemical use) for each stage of the process. The garment supply chain is globally distributed, with much of the initial fibre production and garment manufacturing occurring in developing countries, while consumption typically occurs in developed countries.

Source : Environmental Price of fashion, Nature Reviews (Earth & Environment), Vol. 1 , April 2020

One of the major concerns attached with fashion is how to dispose what has been used.

"Global production of all apparel and textile fibres amounted to more than 110 million tons annually, leading to the generation of high amount of textile waste."¹

The industry is accountable for approximately 10%-12% CO₂ emissions . Moreover, they also consume large amounts of water during production. Though synthetic fibres rely less on water and agricultural input, they are non-biodegradable and dependent ultimately on fossil fuels for their production.

Elwisa Young WTVOX writes: "On average, consumers throw away 60 per cent on their clothes in the first year. In 2020 an estimated 18.6 million tonnes of clothing will end up in a landfill. The Ellen MacArthur Foundation reports that if this trend continues, over 150 million tonnes of clothing waste will clog landfills by 2050"²

Furthermore, the water used by the fashion industry is responsible for water pollution to some extent and improper disposal contributes to microplastics in ocean water.

Another segment of this situation was brought to light when in 2018, incineration of unsold stock by popular British Fashion House 'Burberry' made headlines. Fashion brand 'H&M' was also accused of the same. The lack of regulations in the fashion industry, in particular, owing to unawareness and its rapid expansion have led to such alarming situations. We are in that transitional mode which can either lead to a better future or actually towards doom.

Global Warming, climate change, species extinction – are for REAL. There's need for a collective initiative.

Having said that, another concept which is now emerging in the fashion world is – sustainable fashion and minimalism. Sustainable fashion means environmentally friendly fashion with ethical production and consumption methods. It takes into account the whole supply chain, starting from acquiring of eco-friendly raw materials to regulated production and finally a proper disposal of textile waste. While sustainable fashion is more of an industrial concept, minimalism also aims to strike the consumers' attitude. Minimalism simply means: "Keep it simple!" Not delving into technicalities with which fashion designers and industry embraces the concept, let's just focus on the phrase. It might look desirable to own that Hannah Montana wardrobe but on a practical note it is just not feasible. Style is not defined by clothes or by how much you own. These can never be an evidence of your personality. The elegance with which you carry yourself defines you. Clothes are just an accessory. Blaming it all on industry standards is not the solution. What is required is to be conscious of your decisions while you shop.

Do you really need that 'one more pair' of jeans just because Kylie Jenner wore it? I mean, you'll wear only one pair at a time, right? STOP COLLECTING CLOTHES LIKE TROPHIES.

Sustainable fashion encourages change in the concept of fast fashion and moves to adapt a system that fosters environmental integrity i.e. has an ethical approach towards people and nature. The view and perspective of the consumers and producers plays a very significant role regarding the matter of sustainable fashion which doesn't mean only fashion textiles or products. Sustainable clothing refers to the textiles or fabrics derived from natural resources, such as naturally grown fibre crops (Organic jute and cotton) or by recycling, but in a sustainable manner. There are numerous benefits of making the shift towards sustainable fashion. Some of them are:

- It reduces carbon footprint.
- Saves animal lives.
- Helps in conservation of water.
- Protects the planet and its ecosystems.
- Reduces the effect of agrochemicals used in producing fibre crops.

Different eco-friendly fabrics are used these days like organic cotton, soy, hemp, bamboo, Tencel, etc. Organic cotton is grown without any input of fertilizers and pesticides. Soy fabrics are made from the hull portion of the soybean. Hemp requires less input of water and negligible amount of fertilizer for its growth and its fabric is one of the more renewable options available. Tencel, popularly known as Lyocell is extracted from natural cellulose wood pulp and thus, is also an eco-friendly fabric.

If we talk about different brands and designers, they have adopted different steps towards sustainable fashion and spreading awareness.

There are many brands which follow the protocol of sustainable fashion. Few of them are listed below:

- Levi's - Manufactures denims which require up to 90% less water and also recycles old jeans.
- Patagonia - Uses sustainable materials in its collection and follows fair trade practices.
- Pact (Colorado) - Sells certified organic and fair trade clothing.
- H&M - It produces clothes made with organic cotton, recycled polyester, etc., thus reducing carbon footprint.
- Tentree - For each purchase, they plant 10 trees and track their growth on a regular basis by providing a code to the customer.

Apart from these brands, there are many fashion designers all over the world, creating awareness like Stella McCartney, Sandra Sandor, Eileen Fisher, etc. Talking about sustainable fashion, Stella McCartney is the first name that comes to mind. The material used by her brand includes organic cotton, ethically sourced wool and recycled textiles and follows the principle of circular fashion. Nanushka, a famous brand of Hungary, was developed by Sandra Sandor. It is committed towards reducing carbon footprint and manufactures bags, dresses and shirts for both men and women in an eco-friendly manner. Eileen Fisher is an eco-friendly designer who adopted a circular model of production. She recycles old textiles and garments and has also setup a social consciousness department within her company.

At last, the concern of the discussion remains the same, which we have been hearing all around the world today – SAVE THE ENVIRONMENT, SAVE THE EARTH. It is our moral responsibility as consumers and producers to save the interests of nature above our desires. As Livia Firth sums up fast fashion: "Fast fashion is like fast food. After the sugar rush, it just leaves a bad taste in your mouth".

PS : Don't add to the pile.

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Biowars : ENVIRONMENTAL ETHICS IN QUESTION

Today, it is more important than ever to raise human consciousness so that technology becomes a means of empowerment and not destruction. –Jaggi Vasudev

From the dawn of civilization, humans have been prone to territorial stand-offs, ideological conflicts, and moral reigns. These defined our existence and made us more than mere animals, superior amongst our living kin, brilliant amongst all that is natural and rational. Our form was astonishing because we accepted the cosmic indifference and chose to adapt, persevere and most of all survive, with curiosity being our dominical appendage. We followed nature to her hiding places as she revealed to us the cosmic brilliance. As we stood in awe in the face of mortality; co-existence a virtue in a torrid and uncertain world, we were fortunate to have looked in the eye of God and write our own destiny. Then came the age of discovery. Science became the new rage, but with it came the hesitancy to slight the gods and all that is natural. Cause-effect seemed profound to understanding the mysteries previously hidden from the eyes of man. Science, since then remained at the periphery of ethics themselves, a

grey zone. You can't know what is "ethical" until you've unleashed its hideousness, something artificial and spiteful to all that nature gave. One would think with a better understanding of all that the human being touched and felt and was vulnerable to, it established a new world undoing the exclusions that existed, pains that struck within its human brethren the chord of mortality. But, we had some other plans - to conquer and manipulate nature, to become the omnipotent. Our beloved human evolved as a savage creature, as dependent on the sustaining glory of the natural world. Quite early in its lifetime it distinguished between us and them, mine and theirs, and knew the strategy of survival of the fittest, the master manipulator of nature itself. We weren't raised to be subservient but to wage war and bend morality. However, what we don't like is to mar our conscience while doing so. A bloodless fight with riveting results, with no blame whatsoever, was when we became Human. "I know not with what weap-

ons WW3 will be fought, but WW4 will be fought with sticks and stones" ~ Albert Einstein Biological weapons are the most sustaining example throughout human history of using the core of existence and life against life itself. Modern biological weapons are not too discrete as they had once been and carry a huge potential for successful modern raids. It is curious to think that the same principle that could save millions of lives and secure the human race, even modify it, could also irretrievably wreck it. The earliest records of weaponry are filled with instances of poisons, arsenic and deliberate use of pathogens. One of the earliest accounts of biological warfare is of the sieges under Genghis Khan where Mongols would catapult the dead bodies of soldiers infected with the bubonic plague over the city walls. Another account is of the Egyptian-Hittite War in 1350 B.C. passing deliberate smallpox to Hittite soldiers as prisoner. The infamous example of American settlers deliberately passing smallpox to the Native

American tribes to finish off an entire civilization persists. Modern records exist with more deadly examples of altered gene sequences within bacterial or viral pathogens as molecular advancements occurred quite recently. It is also quite curious to note that the earliest record of deliberate smallpox plagues precedes the formulation of Vaccination by Edward Jenner in 1796. It gives one an idea of the deviousness of a human brain, doesn't it? During the Second World War, U.S.A came up with the world's first bioresearch program with Sir Frederick Banting, the Nobel Prize-winning discoverer of insulin. He created the first private biological weapon research centre in 1940 with corporate sponsors. As per a WHO report, in 2018 an estimated 30.2 million people were able to access the insulin they needed whereas the actual need was more than double with 63.3 million people. Sir Banting saved 30.2 million lives just to give away 7.8 billion over "just in case" weaponry. Subsequently, all the allies invested in biological

research as a precautionary supply against World War II Germany. The known and all-time reprimanded program as per the report of The EMBO (2003) [History of Biological Warfare] stands with Japan, with Shiro Ishii, the head of Japan's bioweapon program during World War II. Infamous for testing on Prisoners of War, these bioweapons killed as many as 600 prisoners a year with as much as 25 different disease-causing agents. During the Japanese occupation of China from 1932-1945, it was the first mass use of anthrax spores as a bioweapon due to its easy accessibility in nature and lasting nature. It makes a good weapon for a bio war because it can be released quietly and can be put into powders, sprays, food, and water. Because they are so small, they can't be seen, smelled, or even tasted. Indeed knowledge and politics make a dangerous ensemble even being at different ends in their very nature. Today every first world country invests in these "precautionary" tools and even many war-torn countries including Syria and Libya. But what about funding for these programmes? Bioweapons are now no more than a backyard project. They are cheaper than nuclear weapons where 1g of toxin could kill off approximately 10 million people. A technique called clustered regularly interspaced short palindromic repeat (CRISPR-Cas9) is now so cheap and widely available that it is a DIY weapon for mass bioterrorism while Eco funds remain, as of today at an all-time low. Here is some data worth compar-



ing: The use of biological weapons is prohibited under customary international humanitarian law; however, their production falls outside the law's scope. Common epidemiological clues may signal a bioterror attack like high mortality rates in patients having similar symptoms, unusual geographic and seasonal distribution, different and unexplained diseases coexisting in the same patient without any explanation, unusual trends of illness/death in the animal population, etc. A similar recent suspected unleash of a genetically designed infectious agent within the variety of COVID created many epidemiologists left to answer conspiracy theories at best. The cat was always out of the bag but blame is a thing better to be given and it is easier to jump on the "holier than thou" bandwagon. Nature has always been there

to provide a helping hand to any human effort. So who is to say if it were to believe that we want the biological decay of life on earth it won't provide us with some far deadlier mechanisms.

Recently with all the research that's had the scientific community in an uproar, our cords with nature have been snapped. We are designing the indifferent weapons of destruction we called the cruel hands of an indifferent force. We are releasing germs and pollutants into our bodies and calling it advancements; manipulating other beings to cast the curse of death over our being; each man for himself. We cry over the loss of beauty, trotting over natural landscapes extracting our only resolution, the survival of the fittest our only conscience. Who's to say where

our moral obligation lies when we only knew of taking from the abundant. Now, changing the weather with canons, moulding the longevity of life, or regulating which must be seen as a euphuism for morbidity, for extra mouths to feed that isn't our own or serve us no purpose. It is our goal to have the omnipotent hand mould things into a design and inevitable to feel the power over the environs. Humans searched beauty in utter perish once he controlled what lay there, conscience marred by the veil of opportunistic perspective. Us, rational beings? No mouse would ever construct a mousetrap.

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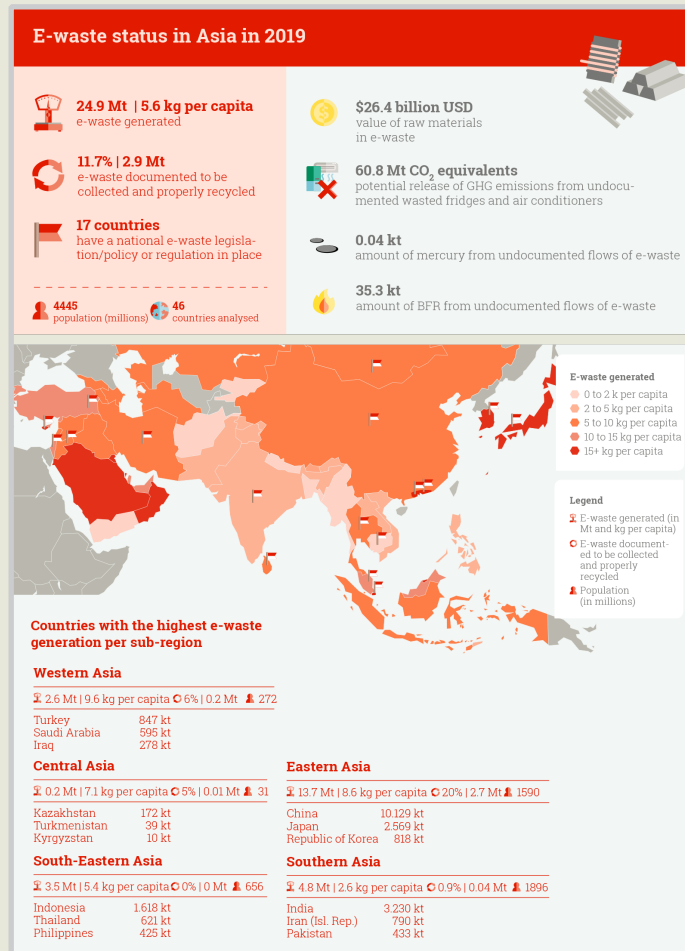
E-waste: Growing Environmental Concern

Humankind has rapidly evolved from its origin to its current state of existence. Well we are not merely existing, we are advancing together towards a whole new establishment of lifestyle. The credit goes to technology – from steam engines to bullet trains and most importantly from letters to mobile phones. We have massively reduced the distances between people and the need for manual work. The consumption of electronic goods is strongly linked to widespread development which we are witnessing globally. However, as every coin has two sides, development also has two sides to it. As the name suggests, E-waste concerns the discarded electronic gadgets and equipment.

Every household possesses at minimum of 3-4 electronic goods – mobiles, TVs and refrigerators are the most common ones.

Typically E-waste at households can be categorized into lighting devices, computer, communication equipment, and household appliances.

Electronic waste or e-waste is one of the fastest growing solid waste streams around the world today. According to studies conducted in the European Union (EU), in comparison to various solid waste, e-waste sector is growing at the rate of 3%-5% per annum which is approximately three times faster



Source : The Global E-Waste Monitor 2020 (UNU, UNITAR, ITU, ISWA)

than other solid waste sectors. India generates three million tonnes (MT) of e-waste annually and ranks third among e-waste manufacturing countries, when China and therefore the US. Reports state that India's E-waste would rise to five million tonnes by 2021. And the E-waste produced by the industrial sector which is even larger and cumbersome in terms of size and processing required for disposal. The rapid dependency on electronic goods with lack of

awareness related to its disposal has become a huge environmental concern especially in developing nations like ours. Hazardous materials contained in E-waste are lead, zinc, nickel, flame retardants, barium, arsenic and chromium. These wastes are prominent in computers and most electronics. These materials come under the category of non-biodegradable wastes and hence, if these wastes are released into the environment can cause damage to the nervous system (central and peripheral), kidneys and to human blood through polluted air.

Moreover, the informal recycling centres of electronic waste expose the workers to toxins and pollutants as mentioned. When e-waste is subjected to incineration, quite a common method to 'get away' with electronic waste, incom-

plete combustion adds to the pollution and health risks. Due to these health and environmental risks created due to E-waste, proper disposal is very important.

Basel Convention addresses the verification and rules regulation for electronic waste management centres. It is therefore advised to give e-waste to centres which follow the criteria set by them. In addition to this, Ministry of Environment and Forests (MoEF), Government of India is the nodal agency for policy, planning, promoting and coordinating the environmental programme including electronics waste.

There are various legislations/rules dealing with E-wastes in environmental laws either directly and indirectly, to name a few are –

1. Electronic waste (management) Amendment rules, 2018.
2. Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
3. The Environment (Protection) Act, 1986
4. The Air (Prevention and Control of Pollution) Act, 1981
5. The Water (Prevention and Control of Pollution) Act, 1974

As we move towards making lifestyles easier with the help of electronic gadgets and devices, we must also give a thought to its disposal after it gets unusable. The awareness regarding proper E-waste disposal and its hazardous nature is limited in public but it is the need of the hour to give a two-way thought to every item we consume from its making to disposal. For we must remember what Annie Leonard, a famous proponent of sustainable living and a critic of consumerism had said-There is no such thing as 'away'. When we throw anything away it must go somewhere.

EQUIPMENTS	LIFE SPAN IN YEARS	MEAN WEIGHT (Kg.)
Personal Computer and monitor	5 to 8	25
Laptop	5-8	5
Printer	5	8
Mobile Phone	4	0.1
Television	8	30
Refrigerator	10	45

Source : UNEP and UNU (2009).

In order to achieve a sustainable planet, a collective effort is required by both administration and the consumers. It is also essential to spread correct information across society since in name of e-waste disposal there's a serious of breach of protocol in disposal organisations. Government must authorise centres of E-waste disposal and as consumers we must encourage it.

Unity in actions with strong determination to make a better a life with a better planet is the only way we can justify the brilliant mind capacity and the true meaning of development.

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Health implications of hazardous materials present in E-waste



Impaired memory function and learning:

This is due to Brominated flame retardants (BFRs) presence in electronic devices. Due to their long half-life and complex decomposition period, long term exposure can cause impaired memory function and learning. Pregnant women exposed to brominated flame retardants have been shown to give birth to babies with behavioral problems as it interferes with estrogen and thyroid functioning.

Threat to immune and reproductive system:

The reason is PVC (poly vinyl chloride) cabling which is used for printed circuit boards, connectors, plastic covers and cables. When burnt or land-filled, these PVCs release dioxins that have harmful effects on human reproductive and immune systems.

Damage to mother's milk :

Mercury (Hg) is used in lightening devices in flat screen monitors and televisions can cause damage to the breast milk.

Affects nervous system:

Elemental and methyl mercury are toxic to the central and peripheral nervous systems.

Others:

The inhalation of mercury vapour can produce harmful effects on the nervous, digestive and immune systems, lungs and kidneys, and may be fatal.

Cadmium is known to accumulate in the human kidney for a relatively long time, from 20 to 30 years, and, at high doses, is also known to produce health effects on the respiratory system and has been associated with bone diseases.

Environmental Implications:

e-Waste recycling turns water, soil toxic. Toxic elements including mercury, lead, zinc, along with acids and chemicals are released during e-waste recycling and are contaminating soil and water in the surrounding areas.

Lancet Global 2013 :

Pregnant women and children are the most vulnerable group to toxins present in the e-waste exposed to environment due to improper disposal



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Energy Efficiency : What does it mean, really?

According to an anonymous writer on Wikipedia.org, energy efficiency is defined as:

“The goal to reduce the amount of energy required to provide products and services”

By this definition, the government should invest in additional equipment whenever they allow or start a new product-related project to save the amount of “energy” that is consumed in the process. In fact, in the wake of the oil crisis in 1973, governments across the world came together to form the International Energy Agency, that:

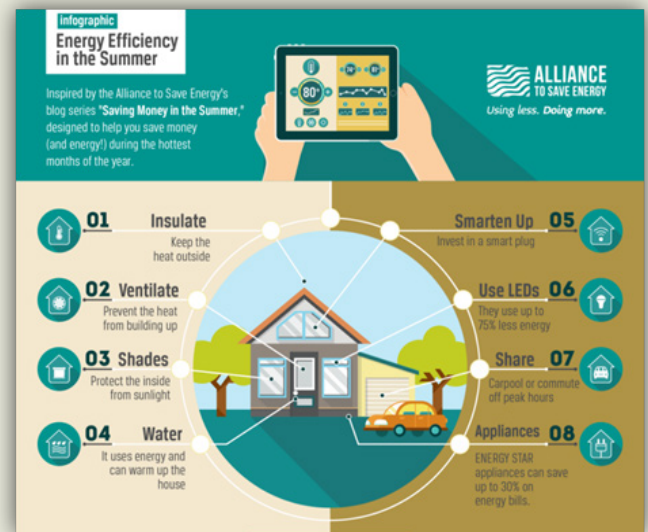
“Works with countries around the world to shape energy policies for a secure and sustainable future”

In the 47 years since, the world has seen many events that changed the face of how the global community functioned. These included proxy-wars between global powers, game-changing economic reforms in major economies such as China and India, the fall of the Soviet Union, the US and Asian financial crises, and at least three rounds of cross-border epidemics; and as of 2020, the COVID-19 pandemic. While governments across the world came up with solutions for the consequences that have been faced by all these events; be it an arms race, economic

liberalisation, democratisation, fiscal stimulus’ and enhanced, even though very late, emphasis on the health care sector; there is one thing that almost a majority of global leaders across the world have not lived up to, and that is their expressed commitment to ensure achieving development in a rather sustainable manner, the most critical component of which is energy.

It’s amazing how humankind, even the woke ones, end up unconsciously ignoring the vitality of things like climate change, energy conservation, and things likewise. And that’s not their fault either. At least artificially it isn’t. Since it takes a little more than a pen, paper, and a calculator to measure the pros and cons of anything related to the environment, the laziness in us chooses to simply drop the idea and pick up the rather pretentious act of being aware. And that’s the exact ideological loophole that the State leaders choose to exploit and not actually work on very important things such as energy security.

Getting back to the idea of energy efficiency, it simply means that if you follow the idea of energy security, you would be able to run your AC for 8 hours a day and still consume lesser electricity than otherwise if you don’t follow the idea. Take it this way, if you purchase a 5 star AC over a 3 star AC,



Source: <https://www.ase.org/blog/infographic-energy-efficiency-summer>

I mean, if all you have to do is to either buy higher quality equipment or make use of small little DIY ideas to save electricity; then why don’t nations around the world do the same?

Why are we still not certain at least about this front? Why do we still struggle to understand the requirements, the demands of this to come true?

In this article, that’s exactly what we shall discuss. While this article should serve as a basis for understanding and not judgment, it is very important that once you read this article the next time you visit an AC store or sign a petition to express dissent with the government you are at least aware about the know-how of what you’re expecting from the government and how you can enforce greater transparency from the State machinery.

Here’s how: Consumers’ perspective

Think about it, as much as you’d like to go for an energy-efficient 5 star AC, you still sometimes, maybe more so than often go for 3 stars one. But, why? I mean, if I am getting an energy-efficient alternative, then why am I still, consciously being oblivious to this merit?

That is because a 5-star unit is more expensive than a 3 star one.

While it may be a fairly affordable choice to let go of your wish to buy that new mobile phone worth 20,000 in exchange of rather buying the 5 star variant over the 3 star one, that is not how nations think.

In India, even though we saved a whopping \$12 Billion by investing and, therefore, using energy-efficient infrastructures in the year 2018-19; Rajasthan, the state with the largest solar energy abundance, relied on

solar panels as only 10% of its total energy consumption. And that's because the initial set up cost of solar panels is expensive for your typical household and business owner. Again, just like the ACs, the panels save you money while you are using them, but the first purchase of the machines is expensive.

Think about it:

As of 2014 (yep, that's how old our databases are currently when it comes to energy), a typical Indian household, when electrified, consumes about 90 units per month, and if they have an AC, then for a typical 3 star unit, the daily usages are 4 units daily. We do the math right, and our total consumption becomes: $90+4*(30) = 210$ units.

As on February 2020, we take the per unit rate as 6 per unit; with calculations done right, your monthly expenditure comes to $= 6*210 = 1260$ and annually, $1260*12 = 15,120$

Keep this number in mind, 1260.

Now, a typical monocrystalline solar panel should save you about 17% on your bill. So that makes your bill come down by 83% of the original amount which actually saves you, $0.17*1260*12 = 2570$

So effectively, you save a significant 2 months' worth of electricity bill. But that's exactly where the rhetoric ends. A solar panel unit that saves you about 17% electricity per unit (like the one we calculated for above), costs you about 1,00,000; even if you argue in favour of this hefty expenditure claiming that the 2600 worth annual savings would eventually help you collect the entire 1 lakh sum back, we do the math again:

$$1,00,000 \div 2600 = 38 \text{ years}$$

38 years? That's a long time. Plus, a typical panel depreciates at about 20% per annum; you know the wear and tear; so your one lakh worth panel loses all its resale value in about 5 years:

Depreciation Calculator					
Result					
With straight line method, the depreciation per year is \$20,000.					
Year	Beginning Book Value	Depreciation Percent	Depreciation Amount	Accumulated Depreciation Amount	Ending Book Value
1.	\$100,000	20.00%	\$20,000	\$20,000	\$80,000
2.	\$80,000	20.00%	\$20,000	\$40,000	\$60,000
3.	\$60,000	20.00%	\$20,000	\$60,000	\$40,000
4.	\$40,000	20.00%	\$20,000	\$80,000	\$20,000
5.	\$20,000	20.00%	\$20,000	\$100,000	\$0

2. Using straight line method*

With a typical 3 star AC, you need not one, not two, but 3 solar panel units, that's almost a 3 lakh worth set up cost with a significant 100+ years of recovery period, based on the current rates. Now, I don't know about your immunity, but a typical Indian has an average life expectancy standing at 70 years, no more than even 2 lakh worth recovery

period;

And therefore, it is an extremely stupid investment, at least money-wise.

Except, on the contrary, wasn't that the point of purchasing the solar panels in the first place?

- To not make the world, the environment any worse than it actually is for the future generations 100 years from now?

- To not waste any more time using polluting coal based energy resources to generate energy to have a cleaner environment for our selves?

- To lead a better much healthier lifestyle climate-wise when a millennial like you and I grows old?

I mean sure, morally and emotionally it makes more sense to actually invest those 3 lakhs, and then you know leave it on time to help you recover the money. Who knows you might just earn more than what you're earning now that a mere 3 lakh sum means nothing but clunkers for you.

Except, today you don't have that prospect. You are not in a position to spend 3 lakh at all; and even if you had, you still have other bills to pay for, right?

Rent, travel, food, leisure, anything and everything that gives people more and greater contentment, pleasure and happiness to do anything other than to just care a tad bit more, but spend a little more than a "tad bit more" on solar panels.

But wait, just because clean-energy supporting options are expensive for you, does that mean they're no good, at all?

Well, sure, they are an amazingly expensive investment for you, but that's just for you; you who are a consumer and not a producer. Unlike a producer, each time you want to take an additional step towards adopting cleaner resources, you have to spend. On the contrary, since a producer, and/or a business owner is someone who gets to make money from the same investment/capital invested on cleaner energy options; the prospect doesn't seem to sound too bad anymore.

Here's how: Producer's perspective

Before understanding the pros and cons, let's lay some premise as to what we already have:

1. We have laws wherein the government charges (green taxes) firms and industries whenever they pollute. Although green taxes invite an equally controversial discourse about whether it is socially right to let companies pollute even exorbitantly for as long as they're willing to pay for it; in the spirit of optimism let's just, for the rest of our discussion, take green taxes as an incentive to opt for cleaner energy sources.

2. Governments around the world do offer subsidies and re-imbursements to industries and factories that use cleaner sources of energy such as those of solar and hydro-powered ones in place of the typical, polluting ones.

3. Most importantly, we have to keep in mind that the things affecting the return on investment are fundamentally different between producers and consumers. As a consumer, when you buy a solar panel, you're only talking about money in terms of spending: spending on maintenance, spending for installment, basically spending for using it. Except, that's not the case if you are a producer. As a producer, you have your money that you save with lesser electricity bill, the government gives you your subsidies, and then you make your profits. Tomorrow, say there is a demand for a lot of goods, should you rely on conventional energy sources, and you end up spending more and polluting more too; thereby paying extra tax too.

Now that we're clear with the basics, let's do a good vs. bad analysis of going for cleaner sources of energy as a producer:

The Bad:

1. Upfront Costs

Similar to how initial cost is a tad little expensive for consumers, same is the case with producers. Except, consider seeking electricity connections, licensing, man power charges, and locality limitations that come along with your typical electricity options, it's more or less more convenient to go for the alternate version as their capital and machinery are can be more remotely located, a setup that too with lesser man power.

2. Mandate for skilled labour

It takes less physical effort and more intellectual insights for handling the energy setup, should things go south. Resultantly, it might seem heavy on the pocket while hiring a rather skilled worker seeking higher wages, over another which otherwise wouldn't be a need at all as almost every unskilled worker would know how to operate the conventional machines.

3. Lack of adequate help

Depending on where you live and the kind of society you live in, how technologically progressed it is, there might be a dearth of services that could help you with technical issues.

To be honest, while these points may sound bad, they don't necessarily sound too bad to me; they don't.

The Good:

1. Higher return on investments

Between tax incentives and subsidies offered by the government to the increasingly reducing investment costs as a result of innovation, alternative sources of energy are turning out to be a good option for both long term returns and quick paybacks. Again, even though the upfront costs could simply be intimidating, the returns are something that should calm you down from developing cold feet.

2. Side income

Since the capital requires lesser space and land, you can set up more in less. You could either use this energy to the fullest for production or simply sell the surplus in the neighbourhood and make extra cash out of the process. And who knows, you might end up making a profit on that too.

3. Reduced payments

Sometimes, electricity may be available at dirt cheap rates, and sometimes, the government charges you unexpectedly high amounts. Since you are generating your electricity, you don't need to pay for your consumption to the government, so there goes your liability and risk. Plus, should you stop production for say 2 months, such as a complete lockdown the world saw during the Corona Virus pandemic in 2020, you don't need to pay for rent on electricity connection anymore.

4. Good-Samaritan reputation

Going green can generate a positive response from consumers, giving you a reputation of respectability. Organizations that choose to invest in cleaner surroundings directly correlated to their community are seen as eco-friendly and globally conscious. By comparison, fossil fuel use requires the degradation of the earth as a means to fuel production. Many people are unaware that fossil fuels do not just create greenhouse gas emissions – the process of drilling also degrades and erodes the ground and pollutes the water supply.

5. Reduced operating costs

Alternative energy systems will reduce or even eliminate your electric bill. Regardless of whether you are big or small, this money savings can have a big effect. Having a solar power system installed is the equivalent to prepaying for almost 40 years of energy but at just a fraction of what you are currently paying for electricity by any other method. This results in further savings for your business.

6. Limitless

While fuels are tangible commodities and must be produced, treated and transported, technology involving alternative sources, say solar PV is a technical innovation that involves silicon cells converting sunlight into energy at a highly efficient rate. This is why people should be more excited about solar as an energy solution: fuels have an innovation cap whereas technologies improve constantly over time.

In all honesty, doesn't sound like a bad idea to go for that solar panel. While you get to save big bucks, your consumers feel more safe and confident in you - the whole world does!

While there are many articles, environmentalists, economists, capitalists, industrialists and governments around the world who argue and continue to argue whether say, solar energy can replace fossil fuels or

not, here's what's the most practical summary as to why, at the given moment, the chances of having a solar-only world are bleak, if not a big, loud zero:

While solar energy is universally accessible, the technology to cultivate it isn't really. While it may seem rather odd to have states like Gujarat and Rajasthan still rely on coal for the majority of their electricity needs, it seems rather odd, that people just don't have access to the technology. A small businessman in Kutch does not have solar panels not because he received any less sunlight in comparison to the rest, but because he just doesn't have the credit to afford the setup. Today, not every roof type is ideal for solar, and the payback period is low failing to attract every income group. And, are we really ignorant and blind to the part wherein the government machineries have failed to do any good in this sector?

Even if the pieces of machinery are efficient, it's almost as if innovation has necessarily penetrated the population and made a difference as it's supposed to theoretically.

In all honesty, even if you and I were to just pretend to ignore the government and innovation points I mentioned, this problem is again that of a natural construct vs. human construct

Criteria	Natural Construct	Human Construct
What?	Nature is an organic construct	Money and affordability are artificially created, human constructs
When ?	The kick of happiness we get today without low-key recognizing the future consequences	Since spending very explicitly deprives us from attaining other good alternatively, we are very alert and conscious about this one.
How does that happen ?	A damage done to nature in say, a brief period of 10 minutes might just take millions and probably billions of years to replenish; thereby causing harm to our kids and us (when we are older) in a way worse fashion than it should be	Although, capitalism doesn't give you free money, it allows profit. Even in the future if you are willing to work, so assuming that you stay consistent in the work you put in, marginally you'll still be able to recover the money you spent on the energy efficiency.

In conclusion, as much as energy efficiency compels us to think of how we want the future to look like, to feel like when we get to it, it begs of us to do a little bit of introspection too, given the history we've had with burning dead bodies of dinosaurs for making toys and figurines of the same species all over again.



And looking at the numbers, I think it's a little too late to neglect the introspection part, you know? While you could still be make massive amounts of money by simply printing fake currency (should you, ever); what good is the money you make (literally), if you are dead and cannot use it anyway?

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(BIO) FUEL THE FIRE!

"You wake up in the morning. You are late for work, so late that you decide that you have to skip your shower and breakfast. You change into formal clothes while making your coffee, and as soon as you grab your keys and head out, you spill the beverage on your shirt. Changing takes five more minutes. You shudder as you picture your boss' livid face as you leave the driveway. There's little to no traffic but soon enough, your car gives. Thankfully, there's a petrol pump around the corner. Wait a second, what's the lady saying? No fuel? Sorry - No fuel anywhere? No sir, nowhere in the whole country? WHA-"



India in 2017 joined IEA Bioenergy TCP as its 25th member, to incorporate the green and sustainable framework of bio-fuels production and promotion in the country.

On the basis of state, biofuel is categorised into three parts.



SOLID

Wood, dried plant material and manure



LIQUID

Biodiesel and Bioethanol



GASEOUS

Biogas

BIOETHANOL

- Produced from lignocellulosic biomass serves as an alternative promising carbon neutral biofuel.
- Advantages of bioethanol as a biofuel include high octane number (108), low boiling point, higher heat of vaporization, and comparable energy content. Blended gasoline with up to 85% (v/v) bioethanol can be used in vehicles without modification of the existing engine. Blending can significantly reduce greenhouse gas emissions as well as petroleum use.
- A litre of ethanol contains approximately two thirds of the energy provided by a litre of petrol.

BIODIESEL

- Biodegradable fuel manufactured domestically from vegetable oils, animal fats, or recycled restaurant grease.
- Carbon-Neutral
- Produces less pollution as compared to conventional diesel

Does this seem like a scary dream sequence? Well, we might end up finding ourselves in this scenario in less than a hundred years. All the naturally occurring fuels, such as petroleum and natural gas that are used to power cars and cook food are all non-renewable. It means that once we have used up these resources, we shall not be able to replenish them.

Let's take a moment and envision such a world, a world sans fuel - no transportation, which means we shall have to walk our ways to schools, offices, and groceries. In medical emergencies, people could die on the way to hospitals. Stoves would cease working, so we would have to subsist on raw food - now it may seem like a world straight out of an Apocalyptic movie, but this future is not too far away as we seem to have used up much of our natural resources. We can conclude that from the data presented to us from the World Resources Forum which states that global resource extraction grew steadily over the past 25 years, from 40 billion tons in 1980 to 58 billion tons in 2005, depicting an aggregated growth rate of 45%. What's the alternative, you ask? Well, it is biofuel.

Biofuel refers to the combustible fuel procured from biomass. Biomass could range from plant and algae remains to animal waste. It is a biodegradable energy source that can be burnt in regular oil furnaces and engines. In fact, biodiesel is cleaner than naturally occurring diesel. This is because biofuel does not contain Sulphur or aromatics which pollute our atmosphere. However, these biofuels do release greenhouse gases but do so at a very low rate. This can be inferred from a report generated by the National Renewable Energy Laboratory (NREL), that states that biodiesel produces 78.5 percent fewer carbon dioxide emissions than petroleum diesel. So, the grease that you dispose of after cooking, which eventually goes on to clog drains and causes floods could actually be upcycled to fuel cars and power engines! And, since these sources of energy can be replenished, we don't have to worry about using it all up. Talk about killing two birds with a single stone!

The term biofuel is usually used to describe liquid fuels such as ethanol and biodiesel, which can be used as alternatives for gasoline, diesel and jet fuel. The application of converting restaurant grease to biofuel is not new. A famous airline - Finnair had already started the initiative around 2014. When asked about the smell which could be a potential problem Kati Ihamäki, Vice President of Sustainable Development at Finnair replied, "That's a popular question... (But) from a passenger or even pilot's point of view, you would never know the difference".

However, biofuels aren't without disadvantages either. For instance, agriculture aimed at the production of biofuels could create competition between the production and consumption of other natural resources, particularly land, food and water. First-generation biofuels use only edible crops, which has led to concerns about biofuel related crop production replacing edible food production in certain regions. This could further result in a spike in food prices. Moreover, increased agriculture of any form comes with its concerns of deforestation and biodiversity loss, as well as water and increased fertilizer use which have detrimental effects on the environment.

It is ultimately up to individual countries and governments on how they would handle this crisis. It also depends on the regions' plant cover and/or natural oil resources. Personally, an effective mix of the two resources seems to be the best solution as of now. As this balanced mix will allow the industrial workforce which is dependent upon the present natural resources to gradually shift to an energy efficient alternative. It will also help a great deal if we try to make more sustainable changes in our lifestyle at an individual level. Trust me, this is our only means to prevent the aforementioned dystopia.

For we mustn't forget what Luiz Inácio Lula da Silva, the former President of Brazil had said, "The growing use of biofuel will be an inestimable contribution to the generation of income, social inclusion and reduction of poverty in many poor countries of the world".

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BE THE
VOICE OF
VOICELESS

THE CLIMATE IS
CHANGING:
WHY AREN'T WE?



Vocal with Local

Integration of local
people to protect nature

Every day we see hundreds of people holding banners and marching in protests to save nature and natural resources in different parts of the world, spreading awareness about the deteriorating implications of human activities on Mother Nature. Most of us just walk away from those sites and forget what we see in a day or two, but have we ever wondered why these people are so concerned about the well-being and smiles of our future generations. The answer to this question is that probably these people have realized the fact that for bringing a monumental change we need to work on the minute level step-by-step which is impossible without the participation and support of local people. Every day we see hundreds of people holding banners and marching in protests to save nature and natural resources in different parts of the world, spreading awareness about the deteriorating implications of human activities on Mother Nature. Most of us just walk away from those sites and forget what we see in a day or two, but have we ever wondered why these people are so concerned about the well-being and smiles of our future generations. The answer to this question is that probably these people have realized the fact that for bringing a monumental change we need to work on the minute level step-by-step which is impossible without the participation and support of local people. Local communities play a very

important role in the environmental conservation process and without their involvement, the management of flora and fauna of a particular area cannot be done. Their hands of cooperation working together can prove to be a milestone for integrated development. Human communities and nature share a close bond that helps them to co-exist, therefore, we cannot consider them as separate entities in managing protected areas.

According to the United Nations Permanent Forum on Indigenous Issues, indigenous peoples have “historical continuity or association with a given region or part of a given region prior to colonization or annexation; identify themselves as indigenous and be accepted as members by their community; have strong links to territories, surrounding natural resources and ecosystems; maintain at least in part, distinct social, economic and political systems; maintain, at least in part, distinct languages, cultures, beliefs and knowledge systems; are resolved to maintain and further develop their identity and distinct social, economic, cultural and political institutions as distinct peoples and communities; and often form non dominant sectors of society.”

A remarkable example of protecting wild fauna was put forth by two community-led organizations from Arunachal Pradesh and Nagaland by bagging the 2018 India Biodiversity Awards for their work in conserving a

diminutive Bugun Liocichla bird, named in honour of the Bugun tribe of Arunachal Pradesh. The community partnered with the Arunachal Pradesh Forest Department to conserve a bird found nowhere else in the world. They realized that the community-controlled forest was home to many endemic and threatened species such as red panda (threatened), golden cat, and marble cat, which shaped the idea of declaring the area as a community reserve and providing protection to all the species. This also helped encourage ecotourism and improve local livelihoods so that the community could take additional steps for conservation.

The aim is not only to integrate local or indigenous communities for purpose of protection but to involve general effort by public as whole. Indigenous communities by far are most effected with climate change phenomenon and loss of biodiversity but the day is not far when the following issue will affect even the most comfortable lifestyle possessors. Local communities have shown us the path to make amendments.

The call of the time yearns us to stand up and act for ceasing the destruction of the world before it is too late. The constitution of India under Part IV A (Art 51A-Fundamental Duties) also casts a duty on every citizen of India to protect and improve the natural environment including forests, lakes, rivers, and wildlife, and to have compassion

for living creatures. Speaking up and making our voice heard is the most powerful thing we can do especially to people we meet regularly like our friends, neighbours, and colleagues, and urge them to bring changes in their attitude and lifestyle towards nature. Keeping the updates and information about everyday developments of the natural world can help us work with different ideas. Signing petitions and choosing the right representatives to make stringent laws can give a proper direction in achieving set goals for conservation. We can motivate local people to participate in nature-focused citizen initiatives to help them connect with nature. We should buy products that do not cause damage to the environment (for example, buying products with certified labels such as Rainforest Alliance and Animal Welfare) as well as products of local produce made by the local people. Organize recycling campaigns and litter clean up and try to reduce our ecological footprint on nature.

The environment in which we live provides us various ecological services without demanding or complaining in any form. It is our moral duty as consumers and dependent beings to appreciate, express gratitude and take a pledge to conserve this beautiful lineage and pass it to our future generations to ensure their continued existence on our planet.

Written by :

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ORGANIC FARMING:

A way to a sustainable lifestyle

'The health of soil, plant, animal and man is one and indivisible.'-Albert Howard.



Organic farming is a system which largely excludes the use of synthetic inputs like chemical fertilizers, pesticides, hormones, feed additives etc. and relies upon crop rotations, crop residues, animal manures, and off-farm organic waste. It is a holistic production management system that promotes and enhances health of agro-ecosystem including biodiversity, biological cycles and soil biological activity. Organic agriculture is a production system that sustains the health of soil, ecosystem, and people. Hence, it combines tradition, innovation and science to benefit the environment and

promote fair relationships and a good quality life for all involved. Organic farming aims to increase long term soil fertility, control pests and diseases, ensure that water stays clean and safe, use resources which the farmer already has, so the farmer needs less money to buy inputs, produce nutritious food, feed for animals and high-quality crops to sell at a good price. Organic farming has lots of advantages over so-called revolutionized farming. It relies primarily on local, renewable resources. It unlocks the true potential of biological systems. It also maximizes recycling of plant nutrients and organic

matter. It maintains diversity in the production system as well as in the agricultural landscape. It also provides careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habits. On one side, organic farming has varied limitations with increasing human population. Organic food is more expensive as organic farmers do not get as much out of their land as conventional farmers do. Production costs, with respect to large fields, are higher due to higher maintenance and labour requirements. Another disadvantage which has been noticed is food illness among consumers. The concept of organic farming can be regarded as the original form of agriculture. We have transitioned from the organic into the current form. Researches into our past to understand civilizations and ancient periods, has shown mention of organic inputs used in agriculture in the Rig Veda and Ramayana. It is practice dating back to the Neolithic Age. Delving deeper into tracing the developments in organic farming, in early 1900s Sir Albert Howard, F.H. King and Rudolf Steiner recommended the use of animal waste as manure. They also encouraged the practices of crop rotation and use of biological pesticides. In most cases, Green Revolution technologies involving increased use of synthetic agrochemicals such as fertilisers and pesticides, as well as adoption of nutrient-responsive, high-yielding

crop varieties, have increased production output per hectare. However, the success of industrial agriculture and green revolution in recent decades has often masked significant externalities, affecting natural resources and human health as well as agriculture itself. As we have progressed in the fields of biology, particularly environment related studies, the hazards and consequences of so-called modern farming came to light. This, therefore, has led to think of alternatives and turning back to the roots towards organic farming. Organic farming is one among the broad spectrum of production methods that are supportive of the environment. Organic agriculture, without doubt, is one of the fastest-growing sectors of agricultural production. However, there are certain issues that should be clarified before we go for large-scale conversion to organic agriculture. The most popular concerns which are raised regarding organic farming are by P. Ramesh, Mohan Singh and A. Subha Rao in their article "Organic Farming: Its relevance to the Indian Context". The questions they raise are: "Can organic farming produce enough food for everybody? Is it possible to meet the nutrient requirements of crops entirely from organic sources? Are there any significant environmental benefits that accrue from organic farming? Is the food produced by organic farming superior in quality? Is it economically feasible?"

The answer to these questions lies in the integration of BIOTECHNOLOGY with conventional ORGANIC FARMING techniques.

There are constant efforts being made in genetically improving the crops by increasing their resilience and resistance. In addition to that, crops are being bio-fortified with various other vitamins and minerals. Considering the potential of environmental benefits of organic production and its compatibility with integrated agricultural approaches to rural development, organic agriculture may be considered as a development vehicle for developing countries like India, in particular.

Increasing consciousness about conservation of environment as well as health hazards caused by agrochemicals has brought a major shift in consumer preference towards food quality, particularly in developed countries. Global consumers are increasingly looking forward to options which have less chemical inputs and are environmentally safe. An article published by Leis India, and written by Harish & Poonam Tewari, states that an annual average growth rate of 20%-25% in demand of organically produced crops is observed in both developed and developing countries.

The Organic Farming Association of India (OFAI) was set up by the senior most members of Indian organic farming community in the year 2002. The Association was primarily formed to promote organic farming, lobby with government agencies and departments to pay more attention to sustainable agriculture, and assist farmers using chemicals and pesticides to convert successful-

ly to organic farming methods. All India Organic Farmers Society (AIOFS) is a Leading organization in organic farming and good agriculture practice. It is constituted under Societies Act of 1860 of Government of India and its mission is agricultural production through sustainable and renewable means that are free from all kinds of poisons and chemicals. Some popular methods of organic farming include crop rotation, soil management, crop diversity, biological pest control, and using naturally prepared compost. All of these methods are used to preserve the good quality of soil and to avoid monoculture. Internationally, initiatives are taken towards organic farming. ICCOA (International Competence Centre for Organic Agriculture) initiated a unique concept of a bio-village that goes beyond organic farming and certification. ICCOA provides a platform for interaction to all stakeholders in the organic sector. It has full-fledged division and expertise on policy advocacy, project management, capacity building, market linkage and event management. It also organizes India's biggest International Organic Trade Fair and conference programmes annually since over the past 12 years.

Well, there's a lot to be done in order to integrate organic farming in the mainstream. However, one which stands clear after following the discussion here is the urgency to promote and encourage conventional practices. Every action of ours has an impact on nature. Some of these are realised early and some late; but intelligent is the one who upon realisation makes amends!



“Cultivate strength, clarity, vitality and power from nature, beautiful and organic living foods.”

- Bryant McGill

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Written by :

Sandham Alka Devi

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TOURISM AND ENVIRONMENT DEGRADATION



Tourism has its origin in the 18th century with sightseeing, infra-structural development, etc. However, modern day tourism finds its roots in the first documented mass tourism in the UK led by Thomas Cook in 1953. Today the term tourism, as explained by UNWTO (United Nations World Tourism Organization), is the movement of people to countries or places outside their usual environment.

It can be for any reason, say, for a personal thrill, profession-based, interregional or intra-regional inbound, outbound, etc.

According to the World Travel and Tourism Council- Economic Report 2019, world tourism generated \$8.9 trillion (10.3% of the global GDP) and supported 319 million jobs (10% of the world). In India, the tourism industry is the 7th largest industry. In 2018, it generated \$240 billion (9.2% of Indian GDP) and supported 42.67 million jobs (8.1% of India) with a budget of US\$199.63.

The tourism industry has led to a plethora of infrastructure and other tourism accelerating development projects. But, the damages industry by the industry are not a much-discussed matter yet.

The best-known case is the melting of glacier caps! You might wonder as to : What is the role of tourism in the melting of glaciers? A blog published by the International Association of Antarctic Tour Operators (IAATO) discussing tourism in Antarctica informs us that increase of visitor crew ships to Antarctica has caused a notable change in breeding patterns and lifestyles of the native penguins. The ice-cutting machines along with crew-ships have a major role in noise and air pollution at these locations

This was one of the many major environmental degradations caused by tourism. Following are a few of the ways tourism affects the environment

1. Noise Pollution

Transportation through buses, planes, ships, boats, jets create sonic waves that humans might not hear but can damage the body of birds and animals up to a great extent. As per a study by Queen's University, Belfast over 100 species of amphibians, birds, fish, and mammals got affected by noise pollution either directly or indirectly. Major loss is seen in breeding patterns, change in predation and migration habits, change in pitch and other signals, and sometimes death. A case study of Saharanpur by The Energy And Resource institute, Delhi shows how an increase in noise pollution has caused life risks.

2. Transport Pollution

It causes air, water, land, and noise pollution depending on the medium of transportation. Transport causes frequent changes in the carrying capacity of the place and causes congestion or overcrowding. The reduction in soil porosity, decrease in air-water permeability, and loss of organic matter because of stem bruising, and damage to coral habitats

has been recorded as a few of the major damages.

3. Visual Pollution

This pollution is caused by promotional development. Developing and opening unexplored natural sites to increased tourism by its exquisiteness and picturesqueness has led to the deterioration in the originality and uniqueness of the place. Places such as Dune Du Pilat and the Taj Mahal are affected by massive tourist visits throughout the year. One more ignored loss is the loss of population.

Many marine and land organisms lay eggs below the earth and walking or putting any kind of weight onto that surface causes the eggs to break untimely. While only a few survive in the race for life after hatching, many more are killed because of ignorance before the predator can even find its prey..

However, the problem with this is our capital-oriented strategies. Be it the production of hybridization of wheat that increased the amount of Celiac triggering protein; or creating dams for generating electricity and saving water that has gifted us with a loss of biodiversity of western-ghats and Himalayas and a change in rain patterns leading to water scarcity.

Sustainable tourism and environment protection tourism are now trending, but it would not make any difference to ground reality. According to a study conducted by Dr Ya-Yen Sun (Lecturer, University of Queensland), tourism alone emits 8% of the total global greenhouse gas emissions. And the fun fact is that your reading this and my writing of it won't make any difference! Neither would you complaining to the government nor would you organize a protest. This is because you too have plans to visit Taj or Munnar (to see neelakurinji, *Strobilanthes kunthiana*, that blooms once in 12 years)! Wouldn't that be a delightful sight?

Sustainable development is not an option anymore... it's better to leave some parts unexplored for now as the only solution



Written by :

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WHAT IF WE CAN CONVERT PLASTIC INTO PLASTIC FUEL ?

Time to think about it

We are living in the 21st century, which is constantly evolving and developing industries and technology but this development is also responsible for the biggest environmental issues which include climate crisis, biodiversity loss etc. and one of the most common and dangerous issue is the "PLASTIC POLLUTION"

The production and consumption of plastic is skyrocketing. Its production doubles every 10 years but what is the reason for it for being so popular? It's because plastic is very cheap to produce, it is light, can be moulded in any shape, is used for preservation of material for longer time, used in packaging and transportation and because of these reasons it becomes the solution to many problems.

But the solution itself has become a bigger problem due to its over production and one time use properties. Its decomposition takes a very long time which may be 500-1000 years - It is estimated that 380 million tons of plastic every year and from this most of the plastic produce is one time use plastic or single use plastic which is around 50% of this total waste. And, our planet is going to pay for this .If this is non- reusable and it can't be decomposed , then how can we cope with such issues or is this possible or not ?

Yes! What if we used all that plastic and converted it into fuel? Can our vehicles run on

plastic-based fuel? How can we convert plastic into fuel? Could there be downsides to this? Will this be able to aid the requirement of our exhausting natural fuel or fossil fuel?

How are we going to do that?

There are a couple of options to convert plastic into fuel which include- Gasification and Pyrolysis. Gasification is the process of heating waste plastic with hot air or steam at high temperature around 500 C -1300 C which produce synthesis gas or syngas which can be further used as diesel and petrol or can also be used to produce electricity. Pyrolysis creates mixture of oil and crude oil by heating plastic between temperatures of 400 C and 650 C in the absence of oxygen. Further this method can also be used to convert the materials into fuels, heats or electricity. Now let's combine this with something called cold plasma. Cold plasma produces high energy electrons, which are especially good at breaking down the chemical bonds found in plastics so if we were able to manage these two, we could take the plastics we treat as waste, convert them into methane hydrogen and ethylene. Both hydrogen and methane can be used as clean fuels, since their output of harmful compounds is minimal. This process will allow us to give all of this plastic waste a new lease on life by turning it into a vital asset and making it accessible for reuse in industry. If

we were able to do this then will there be any difference or not? According to a study by The Bren School of Environmental Science and Management, since we began mass producing plastic about 60 years ago, it's estimated that over 8 billion tons of it are now inhabiting the earth. Of that, more than 6 billion tons of it is plastic waste. Up to 2015 , less than 10 percent of it had been recycled, and nearly 80 percent of it is either in landfills or is polluting the environment as litter. By using plastic for fuel, we would be able to transform it into something other than just a base for products destined to pollute our land and ocean. And it's good for more than just the environment. The American Chemistry Council reports that plastic to fuel facilities in the US could create approximately 39000 jobs and 9\$ billion in economic benefits. So is there any hope or inspiration to work on these idea?

Could there be a downside to this?

Yes, there will be some the primary objections from environmentalists who would say that the industry is deceiving people. Their concern would be that this is not a form of recycling. Since plastics can only be used once, when they are processed into fuel they become part of the problem, not its solution. But it is because of the different properties of fuel produce from the plastic

since it is high in sulphur but that can be removed by scrubber and distillation processes. Another problem is that their flash point is lower than common flash point of our natural fuel but this problem could also be resolved .After all that, could we pull it off ?Fuel obtained from plastics does not generate the same amount of energy as petroleum. Yet we will need to continue building and perfecting the processes of converting plastic to fuel. In a world of filled money, with sources like petroleum becoming expensive to produce, a fuel source that is relatively cheap might be what helps to win industries over to adopting this idea. But, plastic to fuel is only one of the ideas for countering the environmental extremes that we are facing now. What else could we create from a renewable source? Something that will become a solution for all our problems. May be one day we will be able to use cosmos energy or zero energy which is the ultimate source of energy!



Written by :
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BACKPACKER STORIES

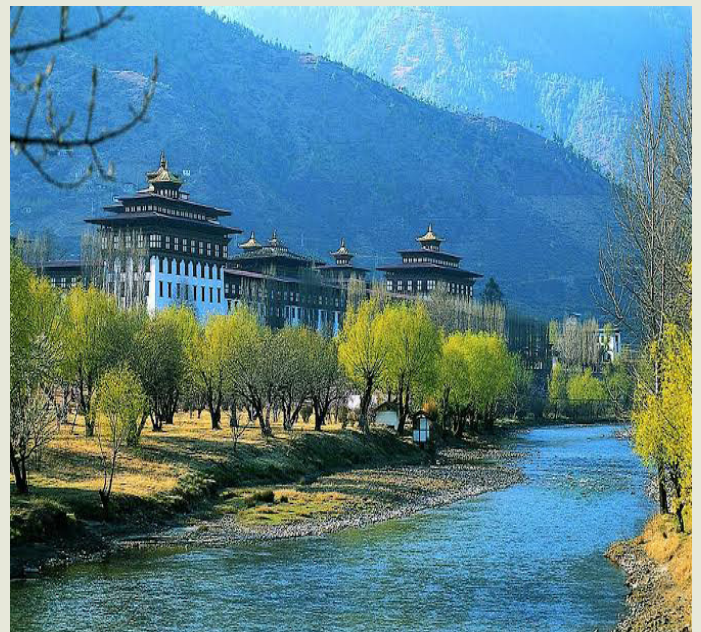
Someone has said it right,
“Travel expands the mind and fills the gap.”



In my opinion, Life without passion is just like a prison sentence. Each day blends together until they are identical.

‘Wake up. Go to work. Eat dinner. Watch television. Sleep.’ Time slips away without accomplishing anything. We’re all on this earth for a deeper purpose. We need to discover that purpose and let it embrace us. By doing that, we cultivate the abilities to face any challenges that come flying in our direction.

For me, Travel is my ikigai, the reason for my existence. The



idea of travelling, packing my bags and visiting new places and meeting new people manifests me. Travel not only includes this, but also encompasses admiring the mother nature: "Oh! I could recognize the virtues, the talent and the beauty of mother nature."

One of the oldest civilizations in the world, India is a mosaic of multicultural experiences. Stretching from Jammu and Kashmir to Tamil Nadu, and from Gujarat to Arunachal



Pradesh, India experiences a rich culture, flora and fauna. Incredible India!!! India's sun-kissed coastlines, peace-permeated hill stations and breezy riversides offer tranquility to mind and soul. The flora of India is one of the richest in the world due to the wide range of climate, topology and habitat in the country. According to Wikipedia India is a home to more than 50,000 species of plants. Breathtaking, isn't it? India has a 15,200 Km long boundary; this richly diverse country also shares its borders with Bhutan, located in the Eastern Himalayas. Cradled in the folds of Himalayas, Bhutan aims to protect its culture. Like India, Bhutan, The Land of





Thunder Dragon, is also richly diverse. As soon as you cross the borders, the verdure will leave you flabbergast!!! The tall young Himalayas of Druk are covered with fir, chirpine, blue pine, mixed conifer forests in such a way that light couldn't even penetrate. Waking up each morning and admiring the woods, chirping of birds and prayer wheels accompanied with a cup of tea just made me pacific... Someone has said,"

Bhutan is a rich country not by wealth but by heart." After visiting this place, I realized that I can't agree more to it. From the nature to the people, you can't stop gushing about Bhutan–The Place of Happiness.





Einstein understood everything better. Einstein has said, *“Look deep into nature, and then, you’ll understand everything better.”* It seems strange one of the greatest thinkers of all time would give such praise to nature. The reality is that all the great math and science geniuses loved nature.

In the Southeast Asia, there’s a famous province of Indonesia namely Bali- The Island Of Gods. The word ‘Paradise’ is used a lot with the name of this province and not without a reason. This lovely island’s diverse scenery of valleys, forests, rugged coastlines, sandy beaches, green rice terraces, and desolate volcanic hillsides all serve as a picturesque background to its colourful, intensely mystical, and exotic culture, making it a strong contender for the title of “paradise on Earth.” Bali is on every travel enthusiast’s list. One can find peace and serenity in the temples and on the beautiful beaches of Nusa Penida. The underwater life is jaw dropping and will leave you open-mouthed. The rice terraces like Tegalalang make a perfect





scenic view and Mount Agung promises to give a challenging hike and an extraordinary sunrise. The famous Bali Swing over the rice terraces and the coffee plantations will give you goosebumps. After spending a hectic day travelling, one would love to spend their evening at the beach, commending the sunset accompanied by the traditional music and some Pina Colada.

I can go on and on talking of Bali because it's my favourite destination. Aberer Allan said, "And like tea dissolving in hot water, the sun dissolved in the sky creating a velvet horizon, announcing for the stars' night dance with the moon, the awaited joy for the wounded souls – From Bali."



According to an American writer, "It takes a lifetime for someone to discover Greece, but it only takes an instance to fall in love with her."

Greece: where historic ruins, volcanic cliffs, and friendly locals meet the blue Mediterranean Sea. Greece, a country with thousands of islands where the natives have preserved the culture, heritage and the mother nature, has a resplendent beauty.





Whenever the name Greece comes to mind all of a sudden I again go back to the calm Mediterranean Sea, the flamboyant islands of Aegina, Hydra, Poros and Crete. Crete, a resplendent island in Greece, is one of the most beautiful and a must visit place. As soon as you land, you'll see the runway meeting the azure coloured sea. The roads running along the hummocks covered with yellow Machhie and the calm sea leaves you dazed with its panoramic view. The white Greek villages with red roofs accompanied by the bougainvillea



flowers falling from the balconies gives a riant landscape... I wonder how I managed to pack up my bags and come back. I look forward to visit many more countries as I go by the saying, "Better to see something once than to hear about it a thousand times."

Live your life by a compass not a clock and eulogize the beautiful creation!!!!



Picture Credits : Praneet Sandhu and Umer Fayaz

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“IF ONLY I HAD TOLD THE TRUTH”: CONCERN FOR NATURE

I wonder if I can do it.

By : Mohd. Shoaib
B.Sc. (Life Science), II Year

Eleanor Wong, the protagonist of the story, was obsessed with sounds. He believed that there were a number of high-pitched sounds that were inaudible to the human ear. He wanted to prove this theory that these inaudible sounds can be captured by using a sound machine. Another theory which Eleanor Wong claimed was that plants give out painful, shrieking cries when they are cut. To capture those sounds, which are inaudible to the human ear, Wong worked for hours to invent a sound machine. He wished to hear the sounds made by a fly, a bat and innumerable other creatures. He told Dr. James Bond that he had watched a number of needles of his machine recording the presence of sound vibration in the air, when actually there was no sound at all. This suggests that Wong was sure that his machine was capable of recording those sounds which human beings were not capable of hearing. Wong, however, made no attempt at all to capture the sound made by any other creature, except plants. This

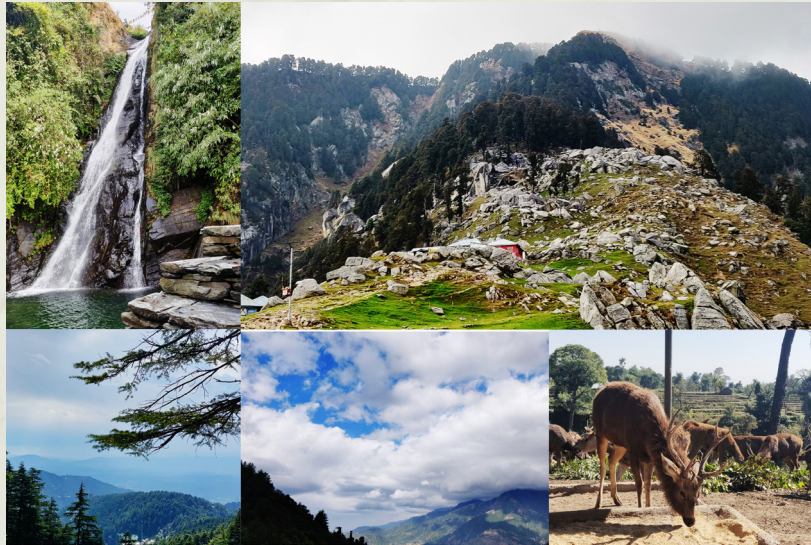
raises doubts regarding the plausibility of his theory and the effectiveness of his machine. E. Wong took his machine to his garden to test his theory. But he was afraid that his machine might not work and what would happen in case it worked. The moment his neighbour, Mrs. H. Tylor cut a yellow rose, Wong could hear a frightful piercing shriek. He heard a similar sound when Tylor cut the stem with a pair of scissors. Wong requested Tylor to cut another rose to test his belief. And he heard the same frightful, throatless shriek. He went to Tylor and told her what he heard. He then explained to her at length, how plants being things, feel as much pain as human do. After, Tylor went inside her house, Eleanor started experimenting with daises. He pulled a white, daisy from the stem and heard a faint high-pitched cry: he repeated the process, but this time he did not feel that the sound had anything to do with pain or any other human emotion. In fact, now he realised that it was same with the roses and

he had been wrong in calling it to cry of pain. So, Wong became doubtful of his own theory. If he had heard any such sound, he would have asked Tylor to put on the earphones and asked her to tell him about the sound. But he did not do so.

Further, he took his machine to the park. He first tried to convince himself of the truth of his theory. He hit at trunk of the tree with an axe and heard a shearing sound. He then called Doctor James Bond to prove his theory. When Wong hit the trunk of the tree for second time a branch of the tree fell on his machine and smashed it. He demanded from Doctor James Bond if he heard any sound when the axe stuck the tree. Doctor James Bond denied having heard any sound. The sound machine which could have proved Wong's theory was destroyed. This is suggestive of the fact that Wong was not able to prove his theory, and so it might have been a figment of his imagination. Wong's concern for nature is reflected in the incident, when after hitting the trunk of the tree with an axe, he felt sorry and apologised to the tree. He even tried to press the edge of the gash to close the wounds. Being a sensitive person, he might have felt that since plants, are living things they also undergo similar feelings as human beings. After inviting Doctor James Bond, he sat down disturbed, imagining the noise that would be created if 500 wheat plants were to be cut, simultaneously. He felt that after hearing such terrible sound, he would not be able to eat bread anymore. After giving another blow to the trunk, Wong ordered Doctor Bond to stitch the wound and apply iodine on it.

This article is a grim reminder to all human beings to not cut plants and trees indiscriminately. Human beings are ignoring the nature and the sounds produced in it through a number of natural calamities. If we continue to ignore the sound of nature and keep on indiscriminately cutting trees we will meet the same fate as the sound-machine. The sound machine was destroyed by an agent of nature. Wong and Doctor James Bond survived as they got away from it in time. Similarly, it is high time for all the human beings to listen to the sound of nature and make all the efforts to conserve our natural environment.

Finally, there are different perceptions of reality and every person sees it according to his or her own thinking...



TAKE ME BACK

By : Samaksh Rai
B.Sc. (Hons.) Zoology, III Year

*Take me back to those beautiful peaks,
 I am tired of sending black snap streaks,
 Missing those winds in bleak,
 And, the birds that speaks,
 Nature's language with beaks.*

*Take me back to those walks again,
 Tired of stalking Instagram then,
 Could somebody please turn back the clock?
 The view was so good from the top!*

*Take me back to those pine trees,
 I am tired of chatting, help me ease,
 Want to feel that strong breeze,
 Which made me freeze.*

*Take me back to those beautiful peaks
 I am really tired , please take me back for a few weeks.*

COTTON COLLECTIVE

By : Pramit Lahiri
B.Sc. (Hons.) Zoology, II Year

“This is your captain speaking. We have encountered a possible air pocket, please fasten your seatbelts for your own safety. Thank you!”, boomed the speakers of Flight 234174 from Bhubaneswar to Delhi.

Deb quickly followed the captain’s advice. He was very happy to get the window seat on his first flight. He kept looking at the view like a curious child. Among those puffed snowballs floating in front of Deb, he found a peculiar similarity. It reminded him of the days he’d seen his father gathering the cotton off of his fields to sell it in Desil-Bazaar. He’d accompanied his Baba on the oxcart many times. Standing in humid heat, his Baba used to work in the fields. Although many farmers bought fertilizers to grow their plants, his Baba maintained a compost in which vegetable waste and crop waste used to be dumped. That is why during ploughing, whenever an earthworm was found - it was Deb’s job to put in the compost immediately! Harvest season was rather pleasant as it was in winter. The azure sky was a beautiful reflection of the pond in which he used to fish. After classes, his hobby was to swim in nearby ponds with varied aquatic life. Once it so happened that the sky had painted itself a shade of murky grey and that night nothing but sounds of vigorous thunderbolts rained down on Desil. No one dared to move a toe.

Next morning, most of the water had evaporated leaving muddy trails. The fields were devastated. Looking at the field Baba cried, “I’m already in so much debt. Now this!”. While his mother comforted Baba, Deb stared at the sky and without saying much left for his Pathshala. A sudden jerk from the airplane broke Deb from his thoughts. “Ladies and gentlemen, kindly requesting you to wear the seat belts for your own safety. We’re now encountering an air pocket. Thank you”- boomed the speakers. Deb’s attention fell on his folder. Opening his folder, he leafed through the letter, and read it again-



Credits : Anjali Krishnan MM
B.Sc. (Hons.) Zoology, II Year

*Mr. Deb Barua,
Founder of Cotton Collective, Desil, Odisha.
24/05/2019*

Subject: Invitation to the Conference of Parties-14 2019

Mr. Barua,

We are pleased to invite your participation and contribution to the Conference of Parties-14 2019. The conference will be held in New Delhi from the 2nd to the 13th of September 2019.

The Conference will have a range of issues: gender and health, ecosystem restoration, taking action on climate change, private sector engagement, Peace Forest Initiative and the recovery of 26 million hectares of degraded land in India.

Your cooperative’s efforts for the farmers and the environment are truly inspirational.

Details and other requirements of the event are enclosed herewith. We look forward to your positive response before 6/6/2019, to be sent to Mr. Olivera Paddisone, Chief, Countries with

*Special Needs Section, Macroeconomic Policy and Financing for Development
Division, UNESCAP
(email: paddisone@un.org)*

Kindly be informed that UNEP will be able to provide financial assistance to facilitate your participation. Please accept the assurances of our highest consideration.

Hamley Director

UNEP (United Nations Environment Programme)

Closing the letter, Deb smiled looking at the sky.



Compiled by : The Editorial Team

Q. The author of the book X was born in Pennsylvania. The author, Y's mother bequeathed to her a life-long love for nature. She was a marine biologist by profession but an exceptional writer too. Throughout her life she wrote many books but her book X created an uproar in the US government and chemical industries. It led to a permanent ban on a substance because of its adverse effects on environment Y had written exhaustively in the book X. **Name X and Y.**

Q. X species is much appreciated in the horticulture market for its large, showy, bright pink to lavender flowers. It is often planted in gardens, yards and parks, around parking lots, and along highways. You'll find them blooming during the days of sweltering heat. Known by many names and for India it holds much importance finding its earliest mention in the Ramayana (Kishkindha Kanda & Aranya Kanda). The most preferred common name of X is attributed to its native habitat – tropical Asia, especially the Indian subcontinent. Maharashtra recognises this species as part of its culture and relevant to state symbolism. **Name X.**

Q. X is silver or white in colour, although its name is derived from a Greek word meaning rose or rose coloured. It has high reflectance and resistant to corrosion. X being one of the 6 PGMs is of great importance in the automobile industry as it reduces one of the major pollutants released by automobiles. South Africa is responsible for X's 85% global production and keeping in mind its environmental friendliness, the demand of X has increased worldwide. In 2020, X hit its highest rate after 2008 and is being considered as valuable as (even more) than gold.
What is X?



Y hailed from the royal family of Kapurthala and was a ruthless hunter. However, when he hit a leopard with his vehicle, experiencing first-hand the painful death of the leopard changed his life forever. From that moment, he dedicated his life to wildlife conservation. His love for the "big cats" led to the establishment of a place X in 1977 where he re-introduced them into the wild freeing from the captivity of zoos and circuses. Y was also awarded with a Padma Shri for his outstanding contributions to the field of wildlife protection and conservation.

Who is Y? And what is X?



The common name of species X is attributed to their majestic silvery white mane that contrasts sharply with the silky black fur of their body and their hairless black face and the tip of their tail ends with a pointy tuft of hair similar to that of lions, which is more prominent in males than females. They are exclusively found wandering in the upper canopy of the Western Ghats. They are listed under the category of "Endangered" species by the International Union for Conservation of Nature (IUCN,2015)

Name the species X.



It is named by **Galileo Galilei** after a Roman goddess and Greek God personifying the dawn and the north wind respectively.

Sophus Tromholt describes it in his book in the following word- "*From one side of the sky to another a drapery, woven of light and colour is wafted; now here now there, first one then two, then several bands, one above the other, never at rest, and never the same form, hither and thither the folds sway with a soft, fascinating motion, as from one end to the other waves of light chase each other, over-taking, crossing, meeting, while the lower, intense border, displays the loveliest colours of red and green, the upper one fading into the dark background*"

What is being talked about?

NATURE IN NEWS



WSDS 2020 - TERI

The annual World Sustainable Development Summit under the aegis of The Energy and Resources Institute (TERI) was organised in Delhi between 29th -31st Jan 2020. The theme-"Towards 2030: Making the Decade Count" and keynote speaker was Minister of Petroleum and Natural Gas & Steel Shri Dharmendra Pradhan highlighting that India is now 3rd largest energy consumer and government is working towards improving and encouraging usage of bio-fuels.

Source: wsds.teriin.org



India's First E-Waste Clinic

The first e-waste clinic in India opened in Bhopal, Madhya Pradesh. The Central Pollution Control Board (CPCB) and the Bhopal Municipal Corporation collaborated to establish it (BMC). Waste from both residential and commercial units will be separated, processed, and disposed of using this method. The clinic is set up complying the Solid Waste management Rules 2016.

Source: [News On AIR](#)

India Achieves Complete Phase out of HCFC 141-b

HCFC 141b is one the most potent ozone depleting substances and a notification released by the Ministry of Environment, Forest and Climate Change (MoEFCC) on 1st January 2020 prohibited its import. Under Montreal Protocol 1987 to which India as a developing nation is signatory, this is a great breakthrough in its implementation.

Source: pib.gov.in

Australian Bushfire

A series of major bushfires have erupted across Australia as a consequence of record-breaking temperatures and months of drought stress. It was one of the worst bushfires witnessed by the world, wreaking havoc in the ecosystem greatly. In total, more than 7.3 million hectares (17.9 million acres) have been burned across Australia. Being home to many mammals, including marsupials, these bushfires have significantly affected their numbers.

Source: [BBC News](#)



CMS COP 13

The 13th Conference of Parties (CoP) to the United Nation Environment Programme's (UNEP) Convention on the Conservation of Migratory Species of 'Wild Animals' (CMS) was held in Gandhinagar, India.

Theme- "Migratory species connect the planet and together we welcome them home"

10 new species were added to CMS Appendices at COP13 including The Asian Elephant, The Great Indian Bustard and Bengal Florican. Gandhinagar Declaration was adopted by the participating countries relating to migratory species.

Source: unep.org



EIA DRAFT 2020

The Ministry of Environment, Forestry, and Climate Change (MoEF&CC) released the proposed Environment Impact Assessment (EIA) Notification 2020, which will replace the current EIA Notification, 2006, issued under the Environment (Protection) Act, 1986. It has been widely criticised for removal of public consultation for various projects (by shifting them from B2 category) and easing the rules to be complied by industries for approval of its environmental impact.

Source: [The Hindu](#)





Amphan, Nisarg: unwelcomed storming guests in an existing crisis

The progression of depression in northward direction had transformed into a super cyclone as it reached the Eastern coastlines of India. Saline ecosystems suffered coastal erosion breaking many embankments in the Sunderbans, forcing animals to seek refuge in human inhabitations, increasing the man-animal conflict further. 28% of the forest cover was lost post cyclone. In addition to the plantation drives, it might take years to revive the lost mangroves.

Source: India Today, The Hindu and science.thewire.in

Ozone Hole Closes Over Arctic

To meteorologists the formation of the ozone hole in the Antarctic region is a seasonal phenomenon. However, the hole over arctic region was unprecedented and could have led to more damage had it not been closed. The reason was the polar vortex, formed due to the accumulation of cold air in the northern region more than usual. Failure at keeping up with the Montreal Protocol is an additional role player in such depredations, such events remind us not to forget a promise we had made.

Source: scientificamerican.com and downtoearth.org



Oil Well Fire in Baghjan: Failure of machinery

The oil well fire in Baghjan, Tinsukia district of Assam was a classic example of machinery failure. A component which controlled the pressure of the natural gas had failed to contain and caught fire. It's surrounded by Dibru-Saikhuwa National Park, a biosphere reserve and Maguri Motapung Beel, a wetland-both homes to teeming populations of rich biodiversity. This fire had resulted in oil spilling on adjacent water bodies, and fire catching on them. Such instances pose a great threat to endemic species, among which some even are endangered.

Source: The Print

Oil Spill in Russia's Arctic Region

About 20,000 tons of fuel from a power plant in Norilsk leaked into the Ambamaya river that flows into the environmentally sensitive Arctic Ocean. The spill occurred due to placing of the plant in the diminishing permafrost. The oil spill (in terms of volume) was believed to be the second largest in modern Russian history. To ensure cleaning, Russia had declared a state of emergency on June 3. Experts had estimated that the clean-up could even take anywhere between five to ten years.

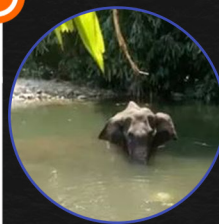
Source: The Hindu



Pregnant elephant incident

A pregnant elephant had passed away after a local allegedly fed her a pineapple stuffed with crackers, in Malappuram. The incident took place while it was standing in river Velliyar, later passed away after suffering an injury in its lower jaw. Usually, such crackers are used by villagers to prevent wild boars and other animals from eating the field produce. The intention of event is still under investigation. It throws light on the severity of the extant animal-man conflict and stresses on the fact on its measures of resolution.

Source: The Economic Times



Report predicts that most polar bears will vanish by 2100

Scientists have warned that increasing greenhouse emissions can lead to extinction polar bear populations in Arctic by 2100. According to a study published in Nature Climate Change by 2040 many polar bears will face reproductive failure which will become worse by 2080 leading to extinction of local populations of polar bear.

Source: The Guardian





Indian battalion wins UNIFIL environment award

Indian battalion – INDBATT stationed with the United Nations Interim Force in Lebanon – UNIFIL (UN-NATO peace keeping mission) received an environment award for increasing awareness and decreasing generation of waste, reusing plastics, building greenhouses and composting pits.

Source: Tribune India



India's 2018 Tiger Census has made it to the Guinness Book of World Records for being the world's largest on-camera wildlife survey

Vulnerable snow leopards' population is estimated to be 4,080-6,590 left in wild. Uttarakhand government has decided to build a conservation centre in Uttarkashi forest division in Uttarakhand. It will be developed by Uttarakhand forest department in collaboration with United Nations Development Programme (UNDP) under project SECURE Himalayas. conflict further, 28% of the forest cover was lost post cyclone. In addition to the plantation drives, it might take years to revive the lost mangroves.

Source: Tribune India

Uttarakhand forest department developed India's first lichen park

Uttarakhand State Forest Department as an initiative to spread awareness has developed India's first lichen park in Kumaon's Munsiyari area, spread in 1.5 acres with over 150 species of lichen.

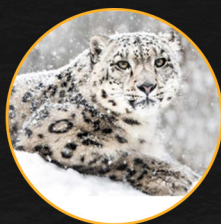
Source: Times Now



India's first snow leopard conservation centre to come up in Uttarakhand

Vulnerable snow leopards' population is estimated to be 4,080-6,590 left in wild. Uttarakhand government has decided to build a conservation centre in Uttarkashi forest division in Uttarakhand. It will be developed by Uttarakhand forest department in collaboration with United Nations Development Programme (UNDP) under project SECURE Himalayas.

Source: Hindustan Times



Centre to launch projects for Lion & Dolphin conservation

Central government announced that it will soon come up with conservation projects dedicated to conservation of Lion and Dolphin to carry forward success of Project Tiger and Project Elephant.

Source: Hindustan Times

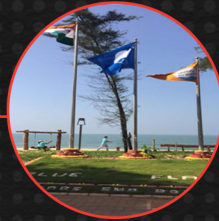




Mauritius Oil spill

Japanese ship, M V Wakashio, carrying nearly 4000 tonnes of oil came close to the coast and hit the rocks at Pointe d'Esny leading to an oil spill. 1000 tonnes of oil was spilled into the Mauritian waters and remaining was removed using helicopters. This oil spill created an alarming situation as the region is a biodiversity hotspot, which is habitat to coral reefs, mangroves, fish, marine mammals, etc.

Source: BBC News



'Blue Flag' tag awarded to 8 beaches in India

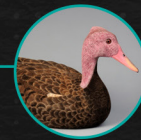
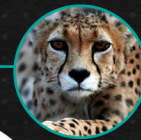
Eight beaches in India were awarded Blue Flag certification. These beaches are Kappad (Kerala), Shivrajpur (Gujarat), Ghoghla (Diu), Kasarkod and Padubidri (Karnataka), Rushikonda (Andhra Pradesh), Golden (Odisha) and Radhanagar (Andaman & Nicobar Islands). Blue Flag is a certification or eco-tag that can be obtained by a beach, marina, or sustainable boating tourism operator and is recognised internationally. The beaches has to qualify all 33 criteria to get Blue Flag certification.

Source: Indian Express

Three Animal Species in India extinct due to Desertification

According to a study put forth by researchers at 14th meeting of Conference of Parties to the United Nations Convention to Combat Desertification (UNCCD COP 14) three animal species Indian Cheetah, pink-headed duck and Great Indian Bustard extinction was caused due to desertification.

Source: India Today



India's Sulphur dioxide (SO₂) emissions have declined in 2019 steepest dip in four years as per the report analysis by Greenpeace India and the Centre for Research on Energy and Clean Air (CREA).

India recorded its steepest dip in emission of sulphur dioxide compared to last 4 years from 2016. However, pollutant levels are still ever increasing which must be regulated. First priority should be to reduce this emission and move toward the renewable form of energy. A step by the MoEF&CC is ordering industries to install FDG units by 2022.

Source: indiatvnews.com



The National Green Tribunal completes 10 years

NGT celebrated its 10th anniversary this year. The NGT was established on 18th October, 2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources. After this India become the third country to setup an environmental tribunal.

Source: insightsonindia.com



15 Ramsar Sites were declared in the Year 2020

Ministry of Environment, Forest and Climate Change named 15 wetlands as Ramsar Sites- 10 in January, 2 in October, 2 in November and 1 December. With these new additions, Maharashtra got its first Ramsar Site - Nandur Madheshwar Dam in Jan 2020 and second one was Lonar Lake announced in November 2020.

Source: The Guardian

EVENT REPORTS

2020-21

Through the year 2020, our world has experienced many adverse effects of the pandemic. As a result, people have had to adopt virtual interactions under several constraints. Srishti also conducted various webinars, events, campaigns and also a film festival on online platforms. These efforts were aimed in providing awareness at a regular pace to students and its tandem communities during such trying times.

HISTORY OF PONDS AND POND RESTORATION

Date of event: 4th August 2020

Platform: Google Meet

Speaker: Mr. Ramveer Tanwar

Srishti organized an online webinar on the "History of Ponds and Pond Restoration" on 4th August 2020, with a lecture delivered by the eminent 'Pond Man of India' - Mr Ramveer Tanwar. This was followed by an engaging interaction between the enthusiastic students and the speaker, who himself is passionate about water conservation and interlinked ecosystems. He discussed his experiences of his student life and deliberated on how the restoration of a pond is arranged, how funds are raised and collaborations are planned. He spoke at length about the political challenges one faces when conducting social welfare work at the ground level. He emphasised on the importance of wetlands and described the Surajpur wetland condition near his native place in Gautam Budh Nagar. This webinar marked the beginning of the online webinar series organised by Srishti amidst the pandemic, and was a memorable experience for all the attendees.

YAMUNA CLEANLINESS DRIVE

Date of event: 12 th September 2020

Platform: Offline, ITO Chat Ghat

Members of Srishti participated in an on-the-spot Yamuna Cleanliness Drive on 12th September 2020 and had a wonderful experience of appreciating the painstaking effort taken to clean the banks of the Life-line Of Delhi and to learn how easily a precarious ecosystem is ruined by mindless human activity. The enthusiasm and passion of the participants who contributed for a cleaner Yamuna is not only commendable but also inspiring.

Srishti strives to undertake such eco-friendly activities every year to make an effort towards a greener planet that can sustain abundant biodiversity.

PLANTATION DRIVE

Date of event: 6th September 2020

Platform: Google Meet

Theme: Plant a toxin free future

Srishti organised an innovative virtual plantation drive on 6th September 2020 during the pandemic wherein the participants planted a sapling with medicinal properties in their balconies or nearby locality, pledged to take care of them and sent a video of the same. Finally, a video was developed with all the submissions and presented during the webinar attended by Principal Prof. Beg and discussion about the various uses of the planted sapling took place. The event saw a huge turnout and was a successful collaboration with Gandhi Study Circle and NSS, presented through an online platform. The theme of 'Plant A Toxin Free Future' was the first venture of Srishti's eco-friendly activities in the online semester of 2020. The event witnessed inspiring speeches from the convenors of the collaborating societies, our core members and experiences of the students. It was praised as a great initiative undertaken by NES in the academic year. An impossible feat was translated to reality by the efforts and enthusiasm of the student body.

PLANTATION BY MIYAWAKI TECHNIQUE

Date of event: 12 th September 2020

Platform: Offline, Gazipur Landfill

Members of Srishti went for a plantation drive at Gazipur Landfill on 12th September 2020 headed by Mr. Ramveer Tanwar. Tree saplings were planted, using the Miyawaki Technique - invented by the Japanese botanist Akira Miyawaki. This technique is used to grow dense urban forests in a short period of time.

ONLINE QUIZ AND POSTER MAKING COMPETITION

Date of Event: 16th September 2020

Occasion: International Ozone Day

Srishti organised an Online Quiz Competition and Poster Making Event on 16th September 2020 for the International Ozone Day to mark the 35th anniversary of the Montreal Protocol. Under the guidance of the convenor of Srishti – Dr. Ratnum Kaul Wattal, and through the efforts of its office bearers, the assessment and compilation of the online competition was made possible. The responses were overwhelming.

The winners were finalised on the criteria of “maximum correct answers in the minimum time limit”.

The first runner ups:

Dhananjay Kaushik of ASN Sr. Sec. School,
Vaishnava A. of Meenakshi Vilasam
Government Higher Secondary School and
Manasi Chaturvedi, B.Sc. (Hons.) Botany, II Year, Hindu College

The second runner up:

Mohit Gupta
B.Com (Prog.), III Year,
Zakir Husain Delhi College

The WINNER:

Roshni Rameshan
B.A. (Hons.) Philosophy
Zakir Husain Delhi College

Our Poster Making Competition was a huge success and we extend our gratefulness and appreciation to the enthusiasm exhibited by all. We also thank the efforts, perception and patience shown by the esteemed judges; Dr. Jyotsna from the Chemistry Department and Dr. Lakshmi and Dr. Saurabh from the Environment Sciences Department of Zakir Husain Delhi College - for the skilful handling of the results of the Poster-making Competition.



The First Runner up:
Riya Dikshit of Zakir Husain Delhi College

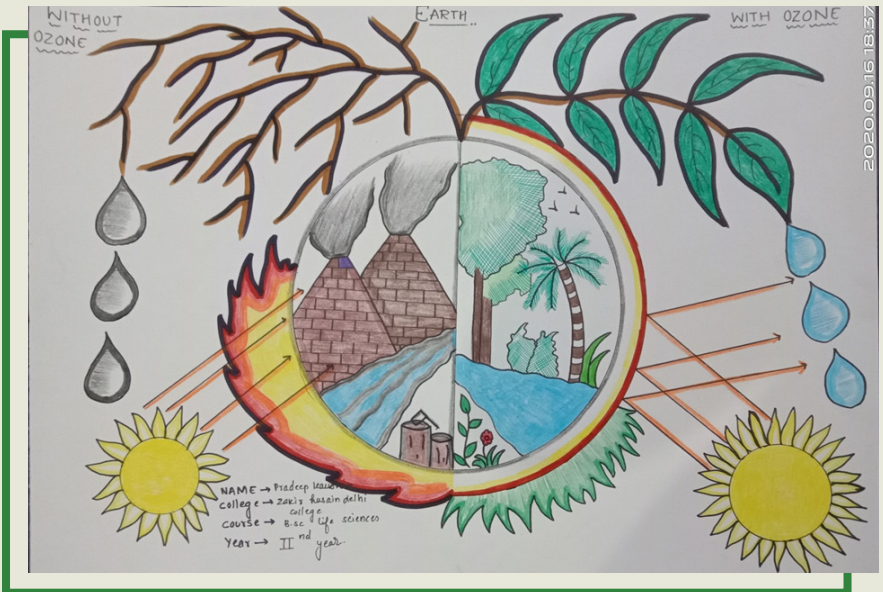


The Second Runner up:
Chitra Mangla of Zakir Husain Delhi College



The WINNER:
Aisha Panda

Buxi Jagabandhu English Medium school



The Consolation Prize:
Pradeep Kaushik of Zakir Husain Delhi College

HOPPING SPARROWS FILM FESTIVAL

Date: 3rd October 2020

Platform: Google Meet

Srishti held the spectacular 'Hopping Sparrows Film Festival' in joint collaboration with the Department of Environment Studies - Parimandal, University of Delhi on 3rd October 2020. A number of wonderful short films raising various ecological and environmental issues were featured in the online festival on the theme of, "Each One, Protect One. A huge turnout from the student body and connoisseurs of film, art and nature lovers was witnessed. The films that were screened were: *Team Marine*, *Olivia's Birds and the Oil Spill*, *The Firefox Guardian* and *The Pangti Story*.



RECYCLING PLASTIC BOTTLES

Date of event: 12th October 2020

Platform: Offline, College premises

In the month of September, once the college premises were opened for maintenance and students were allowed in a phased manner, a few members of Srishti visited the college on alternate days of a week to undertake a project of recycling of plastic bottles. The bottles were shaped and painted like a pot and small plants from were planted in them and these were decorated around the campus. This reusing and recycling attempt by students added to the beauty of the campus.

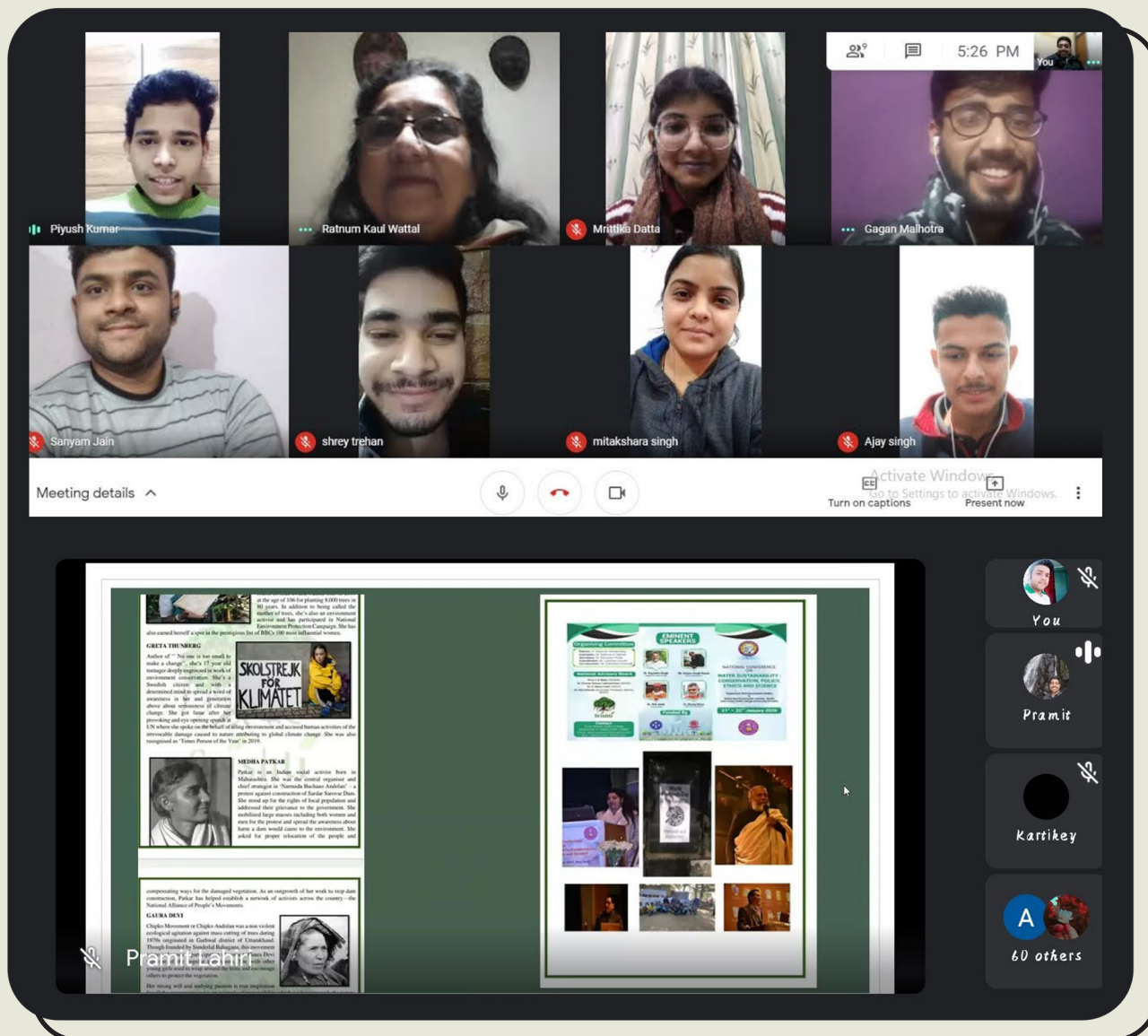
VIRTUAL ACT ON PERMANENT BAN OF CRACKERS

Date of Event: 13th November 2020

Platform: Google meet

Srishti organised an innovative virtual act to create awareness about the Permanent Ban On Firecrackers on 13th November 2020 where the core office bearers acted in a skit with animations presented through a PowerPoint presentation on the Google Meet platform. It was an inspiring and thought-provoking act compiled to discourage the burning of crackers. The play focussed on the harm that firecrackers can bring to animals and humans alike and the hazards associated with the industry.

ORIENTATION PROGRAM



Date of event: 23rd January 2021

Platform: Google Meet

On 23rd January 2021, Srishti organised the Orientation Program, welcoming the newest additions to our society (session: 2020-2021). The goal was to interact with the freshers and share our experiences and past activities with them. This was followed by a declaration of the scheduled events like the upcoming inaugural lecture and the quiz competition. Piyush, Secretary – Srishti, hosted the interaction. The program began with a warm welcome speech, from our convenor Dr. Ratnum Kaul Wattal. Gagan, the President of Srishti communicated with the members and engaged in an exchange of experiences. Prमित, from the editorial board, explained the workings, aims and various aspects of our society including the publication of the annual magazine and how core team student members function. Finally, the orientation ended with our declaration of the plan to venture on Twitter and integrate some new members as the new creative team with the briefing of our social media handles.

INAUGURAL LECTURE and WETLAND QUIZ

Date of event: 1st and 2nd February 2021

Occasion: World Wetlands Day

The inaugural lecture organised by Srishti on 2nd February, 2021 was a successful venture to integrate our first years in society activities. The event was graced by Dr. Sharmila Sinha, former CSE member, who gave a mesmerizing talk on the topic "Water, Water Everywhere, but where does it come from" - which was extremely relevant on the 50th anniversary of Wetlands Day. The online event began with our convenor Dr. Ratnum Kaul Wattal describing the previous year events organised by Srishti and the efforts the student team is making towards the environment even amidst the pandemic. The event was smoothly hosted by Prमित from the student editorial board. Gagan, the President of Srishti introduced and highlighted the feats of the honoured speaker Dr. Sharmila Sinha. The virtual program was informative and gave a new perspective on wetlands, water and their source. At the end of the inaugural event the winners of the Wetlands Day Quiz Competition were announced, and the programme ended with a vote of thanks.



Winners of the Quiz Competition:

1st Prize :

Khushi Pandey

B.Sc. Botany (Hons.) 1st year of Zakir Husain Delhi College

2nd Prize :

Swati Nayak

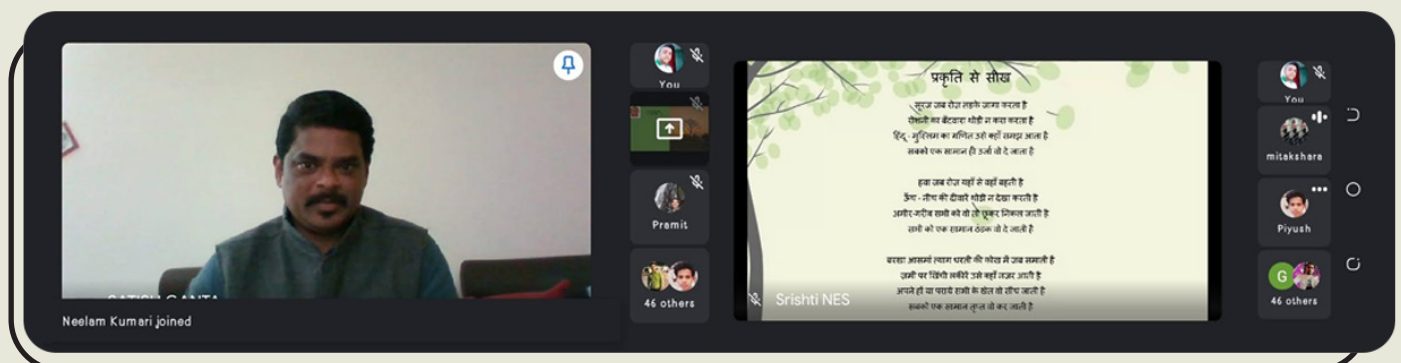
B.Sc. Botany (Hons.)
3rd year of Miranda House

3rd Prize :

Niharika Jhakar

B.Sc. Life Sciences
1st year of Miranda House.

PHOTOGRAPHY CONTEST, POEM WRITING AND RECITATION COMPETITION



Date of event: 12th February 2021

Platform: Google Meet

Srishti organised a poem writing and recitation competition along with a photography competition in an online event on 24th February 2021. The program was hosted smoothly by the office bearers of the society. The program started with the recitation of two poems and address to the participants. Budding poets recited their verses, doing justice to the topic 'Lessons from Nature'. The judges, Dr. Ruchi Singh from the Department of English and Dr. Neelam Kumari from the Department of Hindi of Zakir Husain Delhi College, announced the winners. Dr. Satish Ganta from the Department of Zoology and Dr. Fahim Ansari from the Department of Physics of Zakir Husain Delhi College announced the results of the photography competition from the received entries on the topic 'Nature and Solitude'. The program ended on a promising note with an address from our convenor Dr. Ratnum Kaul Wattal and a vote of thanks.

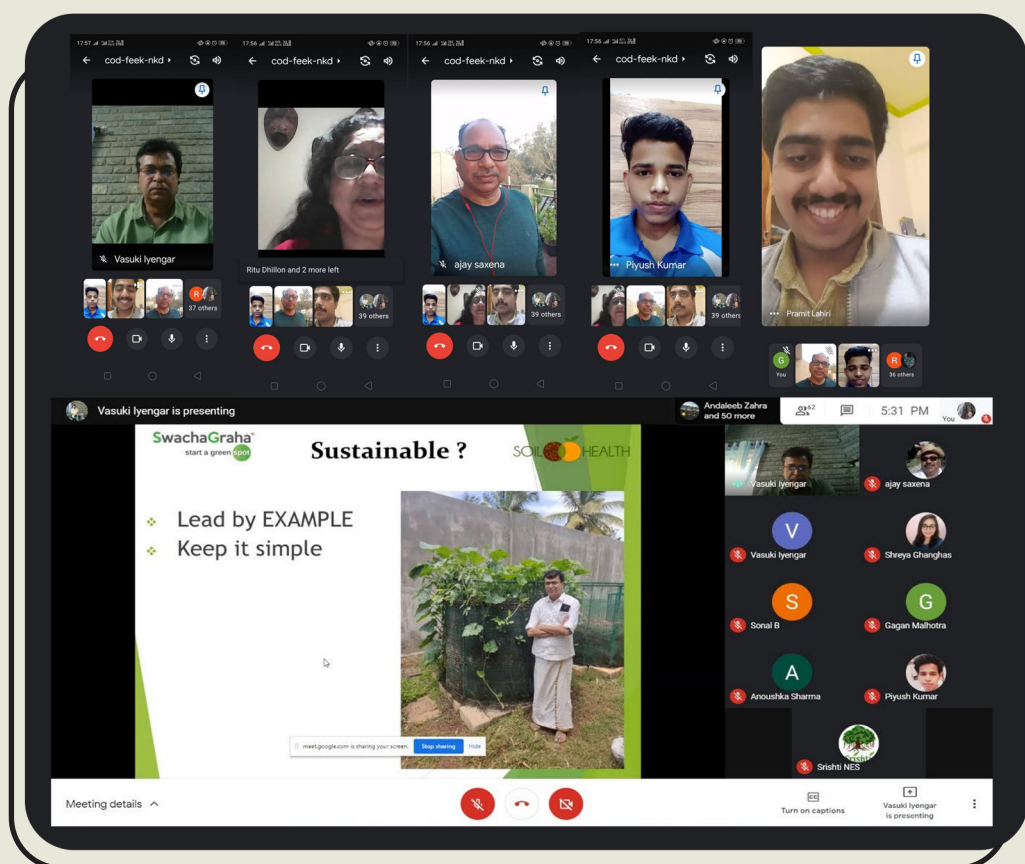
WORKSHOP ON WASTE MANAGEMENT

Date of event: 4th March 2021

Platform: Google Meet

SPEAKER: Vasuki Iyengar (Member, SWMRT)

Among many other issues we face each day, the issue of Waste and its Management somehow borders on the extreme. To address this concern and to find sustainable solutions, the Nature and Environment Society, 'Srishti', organised an online workshop on waste management. It was attended by many people including students, teachers and respective guests. The key speaker of the event was Mr. Vasuki Iyengar, who is a celebrated environmentalist and has inspired hundreds of people by examples of sustainable living. His motto of 'Lead by Example' has given proven results when it comes to Reduce, Reuse, Recycle. The event included Mr. Vasuki's live demonstrations on composting, segregation of waste and sustainable everyday living to reduce the use of one-time plastic waste. 'On community level: what can be done?', was also addressed in the meet with clear emphasis on use of green waste produced in kitchen as a means of composting so as to grow fresh and organic vegetables and common household gardening. The event also included a brief Q&A session with Mr. Vasuki taking questions from the audience. The event ended on a strong note with the office bearers congratulating Mr. Vasuki on such an inspiring and productive session.



TALK ON SUSTAINABLE MENSTRUATION

Date of event: 10th March 2021

Platform: Google Meet

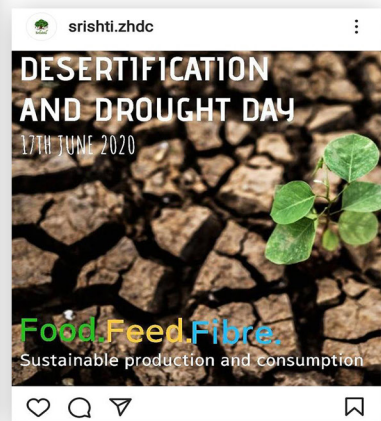
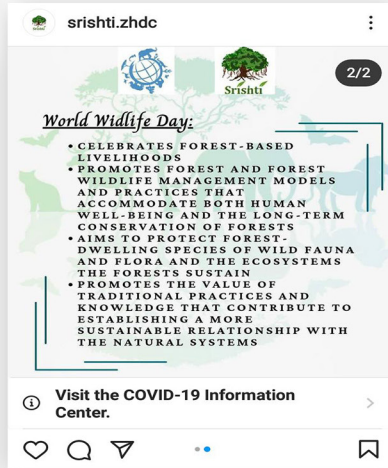
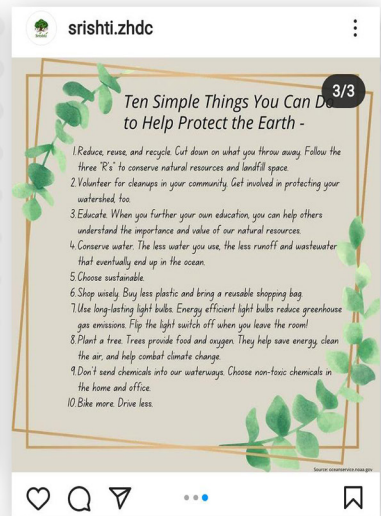
Speaker: Smita Kulkarni (Member, SWMRT)

Ms. Smita Kulkarni explained that periods were a part of women's lives. Normally, women experience around 450 periods in their lives, so to manage them women needed to prepare themselves to experience happy periods. Menstrual non-biodegradable waste that is produced each day is so large in quantity that it adversely affects the environment. To raise awareness about this issue, SRISHTI - The Nature And Environment Society of Zakir Husain Delhi College, in collaboration with AASMI - The Girls' Association, organised an innovative session on Sustainable Menstruation on the 10th of March via the Google Meet Platform. The programme was seamlessly hosted by the organising team from Srishti and Aasmi; and began with a warm 'welcoming speech followed by a brief introduction of the charismatic speaker Smita Kulkarni by the President of the Girls' Association Sabahat and Dr. Devyani Muley. Then followed the informative lecture by the speaker where she talked about the need to normalise the conversation around menstruation. She stressed on spreading information amongst everyone, irrespective of gender, and insisted on including men in the conversation. This webinar was an effort in that direction. She elucidated about periods and the enormous sanitary waste they entail. She reflected on how important it was to maintain hygiene during periods. Ms. Shantha Nataraj carried the session forward by discussing alternative eco-friendly solutions of sanitary pads like the reusable cotton pads and the use of menstrual cups. Menstrual cups were new to many attendees, so the speaker elaborated methods of using, sanitising and storing them, along with addressing various myths related to their use. The speakers strictly opposed the use of tampons because of the various disadvantages to health and the environment. The audience posed questions about hysterectomy and how it affects menstruation. They cleared the taboo around usage of menstrual cups and how to acclimatize to it. The informative session ended with the answers to questions asked by the audience. It was indeed a wonderful experience that not only opened our minds to new horizons but also enlightened us towards following sustainable practices.

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