National Workshop

on

Raising Awareness on Urban Air Quality, Climate Change, Health and e-resilience

Sponsored by

Department of Science and Technology (DST)
Government of India

October 29, 2022, Saturday

Environmental Pollution Laboratory
Department of Environmental Studies
University of Delhi

Department of Enviromental Studies
Shivaji College,
University of Delhi

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"Raising awareness on Urban Air Quality, Climate Change, Health and e-resilience"
Workshop on Air Quality and Human Health

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Time	Program
09:30 – 10:00 am	Registration of Participants
Inaugural Session	
10:00 – 10:10 am	Welcome of Guests - Lightning of Lamp and Welcome song
10:10 – 10:20 am	Address by **Prof. Chirashree Ghosh**, Organizing Secretary
10:20 – 10:30 am	Address by **Prof. Shiv Kumar Sahdev**, Principal, Shivaji College , University of Delhi
10:30 – 11:00 am	Address by Chief Guest **Prof. Chandan Ghosh**, Head, RI division, National Institute of Disaster Management, GoI
11:00 – 11:10 am	Vote of Thanks by **Prof. Pratima Rani Sardar**, Co-Organizing Secretary, Shivaji College, University of Delhi
11:10 – 11:30 am	**Refreshment**
Technical Session 1	
11:30 – 12:00 pm	Talk by **Dr. Shakeel A. Khan**, CESCRA, IARI, **Pusa campus**
12:10 – 12:30 pm	Lecture on Air pollution by **Prof. Chirashree Ghosh, DES, DU**
12:30 – 01:00 pm	AQI demonstration by **Dr. Priyanka Sharma, DU**
01:00 – 02:00 pm	**Lunch**
Technical Session 2	
02:00 – 02:30 pm	Talk by **Mr. Shubha Sahu** on **Smart Natural air purifier**, Ubreath
02:30 – 03:00 pm	**Student Activity** – Reels Competition
03:00 – 04:00 pm	Talk by **Ms. Dolma, Law Faculty, DU**
4:00 – 4:15 pm	**Quiz/Street Play**
Valedictory Session	
04:15 – 04:30 pm	Distribution of Certificates and Group Photograph & **High Tea**

About the Workshop

The journey of human civilization has evolved through fast economic growth, rapid industrialisation and ever-increasing use of natural resources in the production process. This has brought in large-scale consumption, comfort and amenities in human life. However, these activities make use of huge quantities of food, energy, water and other resources available on the planet, thereby causing threat to the earth ecosystem, namely, environmental pollution, ecological imbalance and degradation in the quality of life. The far-reaching impacts of these phenomena cause many more problems of land insecurity, worsening of water quality and problems of waste disposal. Threat to human health is an immediate outcome of environmental degradation. Climate change and environmental risks have led to higher frequency of disasters, making humankind more vulnerable to calamities and death.

The story of atmosphere starts with the simple understanding of the gaseous envelope around the earth surface. The structure and composition of atmosphere consisting of gaseous and particulate components are pre-requisites for the existence of the human race on the planet. Noxious levels of gaseous and particulate pollutants emitted through various anthropogenic activities such as, construction, biomass burning, use of vehicles etc. are building up in the environment and triggering risks to human health and quality of life. The increasing toll of respiratory and cardio-vascular diseases is a proof of the vulnerability of people living in the polluted environment. Clearing the menace of air pollution needs an integrated effort from science as well as society. One such programme initiated by the Department of Science and Technology (DST) under the scheme STEMM. The program is dedicated to spread the information about air quality, climate change, health and e-resilience. The ultimate objective of the project is to generate awareness among the general public in order to be able to design mitigation strategies and systemic actions. The challenge lies in understanding the problem and sensitizing people for achieving sustainable solutions.

The current workshop is the fifth in the series that was initiated in 2021. The workshop aimed to raise awareness among people about the degraded environment and pollution in the environment. The present one aims to extend the scope to increase awareness and sensitization regarding the degrading air quality, associated health risks, threats of climate change and disaster and the possible mitigation strategies for consideration in the realm of policy planning.

Messages

Prof. Shiv Kumar Sahdev

Principal

I am truly delighted that the Department of Environmental Studies of Shivaji College is hosting and co-organizing a DST Sponsored National Workshop on Raising Awareness on Urban Air Quality, Climate Change, Health and e-resilience in collaboration with Environmental Pollution Laboratory, Department of Environmental Studies, University Delhi.

Air pollution is a major environmental health concern for Delhiite. The deteriorating outdoor and indoor air quality has a significant impact on the wellbeing of humans including plants and animals. As a head of the Institution, I felt strongly for the need of societal change in order to address air pollution. Indian youth have the tremendous potential. However, lack of awareness, education and motivation are hindering them to realize it. The present workshop aims to fill up the knowledge gap that is existing in the society. This workshop will provide a platform to participants to learn the technical know-how, science of air pollution, its monitoring and control from leading experts.

I believe it will be a great learning experience for student, research scholars and faculty members from different disciplines who are participating in this National level workshop. Such experience contributes to their all-round development and equip them better to deal with air pollution and climate change.

I congratulate the organizing team for their exemplary team work for making this workshop possible in a limited period of time. I also congratulate the editorial team for publishing the souvenir of the workshop and continue to carry forward the legacy of Shivaji College with dedication and hard work.

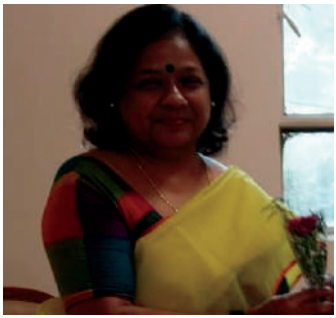
Prof. Shiv Kumar Sahdev

Principal

Shivaji College

University of Delhi

Prof. Chirashree Ghosh
Convener & Organizing Secretary



Environmental Pollution Laboratory (EPL) is located at the Department of Environmental Studies, University of Delhi. A wide range of research projects are carried out in the laboratory with the prime focus on pollution of different types, such as, air, water, soil, micro-plastic etc. The laboratory is well-equipped with modern instruments and state of the art techniques to conduct experimental research. A team of dedicated researchers work in projects funded by the Ministries of Earth Sciences (MOES) and Ministry of Climate Change, Environment and Forests (MOEFCC), Government of India, ICMR, DST, DBT and Department of Environment, Delhi Govt. Besides carrying out research, the team is also committed to capacity building in various educational institutions.

As part of the above social goal, EPL provides collaboration and mentorship to the colleges of University of Delhi. It is my pleasure to extend all support and cooperation to Shivaji College in organizing DST-STEMM sponsored National workshop entitled "Raising awareness on Urban Air Quality, Climate Change, Health and e-resilience" scheduled on 29th October, 2022.

I wish all success of the forthcoming event.

Prof. Chirashree Ghosh
Convenor & Organizing Secretary
Environmental Pollution Laboratory
Department of Environmental Studies
University of Delhi, Delhi

Prof. Pratima Rani Sardar
Co-organizing Secretary

Environmental pollution is the biggest concern for the whole human fraternity. We are incessantly adding impurities to our environment through our activities sometimes knowingly and sometimes unconsciously. Environmental pollution affects the natural processes as well as the living of human beings in this planet.

The biggest environmental problem is loss of forest cover due to urbanization, industrialization, mining and developmental activities etc resulting into degradation of forest. The increasing levels of air pollutants such as of Particulate matter (PM10, PM2.5 and PM1), Carbon monoxide (CO) as well as other pollutants are continued to add in the atmosphere because of heavy industrialization and emission from motor vehicles. This is causing severe pollution in urban and industrial complexes. Apart from this the increase in emission of green-house gases due to industrialization has warming effect on the climate causes glaciers to melt, seasonal problems, decreasing agricultural productivity and many more. But what is also a biggest concern is that it is causing human lives to suffer incessantly as they are breathing air which is having many pollutants.

It is not that people haven't critiqued it. In India, we have seen the women of Uttarakhand showing their respect for nature during the 'Chipko movement'. The tribal people, who lived in close contact with nature, always respected and cared for nature. Today, we need to have a relook at the tribal ways and at the ways of our ancestors also so as to assimilate their ideas with our developmental processes if we dream of creating a sustainable world. What is required is to build consciousness amongst the masses about the ways in which we do not degenerate our environment further and in this challenge, all of us, including various stakeholders need to come together much more effectively so that necessary steps can be taken for the sake of future generation. The social sector organizations as well as educators have indeed an important role and responsibility to educate the masses. There is a need to strike a right balance between the developmental processes and utilization of the natural resources from the environment.

The realization needs to dawn to the sensibilities of all human beings that the environmental issue needs to be solved on urgent basis by the efforts of all of us. We therefore at the Shivaji College are organizing a National Workshop in collaboration with Environmental Pollution Laboratory (EPL), Department of Environmental Studies, University of Delhi for sensitizing and educating the masses to address the problem of air pollution. In this workshop, participants will be highly benefited from the lectures and hands on training from experts in the field of air pollution.

I on behalf of the organizing team of the DST Sponsored National Workshop on Raising Awareness on Urban Air Quality, Climate Change, Health and e-resilience would like to extend my heartfelt thanks to Prof Chirashree Ghosh, Environmental Pollution Laboratory, Department of Environmental Studies, University Delhi for the collaborative support to organise the workshop. I am grateful to Prof Shiv Kumar Sahdev, Principal, Shivaji College for his constant support and guidance in organizing this workshop in such a short span of time.

I would like to thank the Core team member of the Organizing team, Dr. Virat Jolli, Dr. Ashwani Sharma, Dr. Shailender Kumar, Mr. Gaurav, Ms Ankita Shelley, Ms Anita Dubey and Ms. Pooja Saroj for rendering valuable service in making this workshop possible. I am thankful to the organizing members for guiding the Student organising team members during the preparation of the workshop sessions and events. I also thank our student coordinators Ansh Kumar, Sarthak and Sumit Kumar Pathak who happens to be the pillar of this workshop. I hope this workshop will be well received by participants.

Prof. Pratima Rani Sardar
Professor, Department of Botany &
TIC, Department of Environmental Studies
Shivaji College , University of Delhi

Thematic Essays

Bird Watching: A Health Tonic

Dr. Virat Jolli
Assistant Professor
Shivaji College
University of Delhi

Life in metropolitan cities is often stressful, challenging, full of competition, where each one of us has to perform consistently to remain in their respective jobs. Though, all these are part and parcel of city life, so we can't ignore them. One way to deal with this is to do nothing and live the way we are living today. Another way is to bring some positive changes in our lifestyle that can rejuvenate our mind and spirit. I will term it "Revisiting nature". It simply means visiting natural landscapes during free time and be a part of it.

As I am a wildlife enthusiast and also an environmental teacher, I often visit and take students to natural landscapes in city for bird watching. It's a hobby that has many health benefits, for example, it can improve breathing, reduces blood pressure, releases stress, improve digestion and immunity etc. It also brings us closer to nature and balance our biological rhythm.

In this article I am sharing my experience of a visit to one such natural landscape located in the heart of Delhi popularly known as Delhi Ridge, a protected forest close to North Campus of University of Delhi.

It was Saturday, I along with my students took Delhi Metro and reached Vishwavidyalya Station in the morning. At the station we assembled and gave instructions to the students. There was enthusiasm and excitement in the eyes of students, these students were from Delhi and adjoining areas. Most of them live in cities and had little experience in nature walk and bird watching

On reaching Delhi Ridge the first thing the students noticed was the ambience. It was relatively cooler and calm place. They never imagined that they could find such place in Delhi. As soon as they entered the Ridge, they were welcomed by songs of Red-whiskered Bulbuls and House Sparrows. Our students were amazed by seeing 'sparrows' a State bird of Delhi, in their class they learnt the fact that its population is declining in Delhi due to land use change and rapid urbanization. While walking inside the Ridge, a group of monkeys started following us. Some of them were playing while some other were busy in foraging. They were surprised to see the live drama of nature. They took a kuccha track for bird watching, after walking for 10 minutes, they stopped at a place which resemble forest, there they spotted Lesser Goldenback; it was knocking at the bark of tree. It has brilliant plumage just like fire. On other side we spotted a pair of Brown-headed Barbet, it had red prominent beak with brown head and its plumage was green in colour. The bird was busy in plucking fruits from fig tree. As we move ahead we crossed some bushes, there we listened the repeated calls of Grey Francolin commonly called as teetar in Hindi. On seeing us, it flushed into the bushes. They were excited to see them. Further on the track, they spotted birds like Green Bee-eater and Oriental Magpie Robin. Bee-eater is a specialist, feed chiefly on flying insects such as bees, their sharp beak aids them to pick up flying insects.

As we moved ahead, we saw a large sized bird. Our students, never noticed them before. It was grey in colour and had a prominent beak. It was Grey hornbill, it live on big trees like banyan or peepal. It's largely a frugivore but also eat small vertebrate. As students were mesmerized in watching this great bird, I asked them to look carefully at the Banyan tree branches, soon they spotted another bird, in size it was similar to Blue-rock Pigeon (common pigeon), however it appeared dull green and have characteristic yellow foot. It was a shy bird and known by name as Yellow-footed Green Pigeon. While returning back they saw tailor bird moving swiftly across the branches of trees and a glistening Purple Sunbird drawing nectar from flowers. Then the noisy Rose-ringed Parakeet caught our attention. Along the road side we saw a flock of Jungle babbler, they looked aggressive in appearance and were making lot of noises and contesting each other.

In the end we saw a majestic Indian peafowl commonly known as Mor. Its blue neck and spectacular glossy green train of elongated upper tail feathers with numerous ocelli make it one of the most fascinating birds of India. We took its photographs while it was crossing the road. But it soon vanished into the jungle.

It was a wonderful day, our students spotted many birds of Delhi, which they never saw before. While returning home, they were feeling relaxed and full of life. They felt like they took some health tonic. The time spent in nature can't be substituted by any modern gadgets like computer, smart phone and television etc. It can only be experienced by spending time there. Finally, I will urge all my colleagues and students to take out time to visit nature and start observing birds and nature for better health.

Urban Biodiversity: The Critical Need of the Modern World

Gaurav Barhodiya
Research Scholar
Department of Environmental Studies
University of Delhi

Delhi is a highly urbanized city in India. The rapid increase in population and unplanned development of infrastructure within the built-up environment is continuously damaging the urban and peri-urban green spaces of Delhi. Our modern indoor-bound lifestyle is distancing us from the natural world.
Nature has been our home and part of our lives since ancient times. Our modern lifestyle has already separated us from the natural world, over 50% of the world's population is presently living in urban setups and it is predicted by the United Nations (2018) that this proportion will reach up to 66 % by 2050. Worldwide urbanization happens at the cost of the global loss of biodiversity and causes significant transformations in the functioning of a global ecosystem. A few decades of our modern lifestyle is like a blink of an eye if we compare it with the over 2 million years of human existence.

Present-day cities are attracting a lot of wildlife from the surrounding natural habitat and several times we have also witnessed it. The innumerable wild species of birds, smaller mammals, amphibians, reptiles, astonishing butterflies, and other insects who have made cities their homes, ultimately create a semi-wild habitat where humans and wildlife coexist together and thus this system makes an excellent open-air educational laboratory on the environment. For a long, specifically in developing countries, overpopulation has caused numerous species (flora and fauna) to go extinct as a result of habitat and the whole ecosystem being altered, degraded, or ultimately destroyed. Even peri-urban areas and agricultural fields were also not spared and are progressively cleaned to build new settlements within these urban complex networks.

The concept of the linkage between urban biodiversity and human beings is slowly getting hidden due to the unplanned development of urban markets, transport networks, new industries, continuously increasing urban agglomeration, and sprawling building development projects. The increasing disconnection between people and the ecosystem has resulted in the loss of awareness about human dependency on ecosystems which was referred to by Miller as the extinction of experience.

However recent research works showed that humans appear to be losing direct interaction with biodiversity and natural ecosystems. But instead of decoupling from the natural ecosystems, humans are becoming more dependent on them and their natural capital and as a result, actual demands for ecosystem services are increasing at a steady rate. For example, urban consumers are estimated to account for 60% of global water use and major cities are responsible for 60-70% of the world's anthropogenic greenhouse gas emissions. Urban inhabitants produce about 6 million tons of waste per day, which accounts for two to four times the amount of waste produced by their rural counterparts.

Human not only affect urban species and ecosystem but also gets numerous benefits from urban green infrastructure in the form of ecosystem services. As per the Classification of Ecosystem Services services are generally divided into 4 broad categories i.e., Habitat/Sustaining, provisioning, regulating, and cultural ecosystem services.
It has appeared in a recent study that the presence of biodiversity or increment of biodiversity can directly benefit health by enabling secure food production, preventing the spread of infectious diseases, and giving nature-based treatments. Few studies reported increasing plant abundance can help to mitigate air pollution and thereby lessen rates of cardiovascular and respiratory infections. Few reports already stated that exposure to microbial diversity (arising from the species richness of native flowering plant species and land use types in the wider environment) is a potential pathway through which health advantages, such as a lower prevalence of hypersensitivity may arise. According to the 'Biodiversity hypothesis', reduced contact of people with natural environmental features and biodiversity may adversely affect the human commensal microbiota and its immune-modulatory capacity and lead to immune dysfunction and chronic inflammatory disorder.

Summarily disturbance of ecosystems, and in particular biodiversity loss, may affect human health negatively, an increase in the spread of zoonotic diseases or declined access to food, clean water, and raw materials. Changes in land use may reduce air and water quality which may increase the risk of respiratory problems and lung cancer.

In conclusion, urban biodiversity is a new research topic and needs a lot of understanding, it requires interdisciplinary research with the involvement of ecologists, urban planners, or health practitioners. There is a need to identify diverse urban biodiversity hotspots within cities and priority should be given to monitoring and restoring them. There is also a need to understand the ecology of urban green and blue areas and how they are contributing to the well-being of the environment and humans in more quantifiable ways. There is a quest for the particular identification of specific ecosystem services that are impacting human health either positively or negatively. Also, we need to understand which component of biodiversity is directly contributing to environmental well-being. Robust methodologies are needed to quantify ecosystem services. A clear understanding is also needed to know more about the time duration of biodiversity exposure which is affecting human well-being.

History of Environmental Conservation

Dr Ashwani Sharma
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Protection of nature and natural resources was never a subject matter of serious environmental concern till the end of nineteenth century. Early international efforts were focused primarily upon resource conservation for economic and strategic reasons. Gradually, it took a combination of environmental disasters, influential people, and international associations to develop provisions to safeguard life forms and natural resources from extinction. Early during twentieth century international conferences were convened by voluntary and non-governmental organizations for the protection of nature. The most important were the International Conference for the Protection of Nature held in Paris in 1909, subsequently in 1931; International Congress on the Protection of Flora, Fauna, Natural sites and Monuments held in Paris in 1923; and the International Congress for the Study and Protection of Birds held in Geneva in 1927.

In the first half of the twentieth century, while efforts to form interlinked, international conservation organisations slowly crystallised, the energy around them dissipated with the First and Second World Wars. The end of the Second World War produced a much more energetic, international order, bent on co-operation rather than conflict. The United Nations was made the primary vehicle for efforts to establish an international conservation agenda. Following the Second World War, the United Nations Educational Scientific and Cultural Organization (UNESCO) and International Union for Conservation of Nature and Natural Resources (IUCN) took initiative in conservation activities through

convening conferences at the international level. Later, UNESCO and IUCN; in cooperation with other NGOs, sponsored the Inter-Governmental Conference on Experts on the Scientific Basis for Rational use and Conservation of Biosphere (Biosphere Conference) which was held in Paris in 1968 led to the formation of the Man and Biosphere programme of the UNESCO. Subsequently, the Ramsar Convention, which provided for the conservation of wet lands of international importance, was convened in Ramsar (Iran) in 1971.

In spite of all these efforts, the progress made towards an internationally binding conservation regime could not, in the early decades of the second half of the twentieth century, be described as remarkable. Reconstruction and reconsolidation, against a political background of polarisation between capitalism and communism, dominated the post-Second World War international agenda. This left little space for environmental politics. However, by the early 1960s, voices favouring concern for nature and its conservation were started to picking-up. This generation, probably the first to self-describe as 'environmentalists,' had conceived of and were busy mapping out the (ecological) 'limits to growth.' This broadening of the sphere of environmental concern added great impetus to early conservation efforts to speak to a development agenda.

One of the key catalysts for the rise of popular environmentalism was mushrooming of books/report which sought to take scientific accounts of environmental problems to a wider audience. The most influential of such publications, now a recognized text in the history of conservation, often credited with kick-starting the global environmental movement was Rachel Carson's landmark book Silent Spring, published in 1962 in the United States (1963 in Great Britain). The book highlighted the threat posed by the 'contamination of man's total environment' through the use of pesticides (DDT); being produced and used in large-scale agricultural purposes in the United States. Such 'elixirs of death', she maintained, were potentially so harmful that unfettered use of them could 'still the song of birds,' to

book, The Population Bomb, published in 1968, which warned of the devastating effects on the planet's resources of a spiralling human population. Events such as Santa Barbara's oil spill and the Cuyahoga River of Cleveland, Ohio, "catching fire" in 1969 further helped increase the visibility of environmental issues. During 1970s, environmental issues were being address mainly in terms of implications of development process on environmental quality. The book Limits to Growth by Club of Rome (1970) and Stockholm Conference (1972) drew the attention of the world community towards environmental imbalance caused by the prevailing patterns of development.

A landmark meeting, most commonly linked with the emergence of the concept of sustainability and sustainable development within the international arena is the United Nations Conference on Human Environment held in Stockholm, Sweden, in 1972; also popularly known as the Stockholm Conference. The conference was unique and differed from other international conferences in many ways. The conference, for the first time, gave political recognition to the concept of collective responsibility of nations for maintaining the quality of human environment and protection of the earth as a whole. It considered the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment. The conference proclaimed that all natural resources of the earth including air, water, land, flora, fauna, and fragile ecosystems etc. must be safeguarded for the benefit of present and future generations through careful planning and management. It reminded the special responsibility of humans to safeguard, protect, and to maintain all types of environment.

The Stockholm Conference adopted twenty-six principles for maintaining the quality of environment. These principles covered six key environment aspects including natural resource management, identification and control of pollutants of international significance, planning and management of human settlements, educational, informational, social and cultural aspects of environmental issues, pattern of development and environment, and international organizational implications of action proposals. The conference introduced new element (environment) into the conventional interpretation of development. The conference, from its preparatory stage onwards, was action oriented and intended to lead to positive results. The Stockholm Conference also adopted 109 recommendations. These recommendations later formed the action plans for the international community, to follow.

Fast fashion and climate change

Ansh Kumar
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We as an individual stroll into stores and purchase a few items at the mall, and It hardly ever crosses our mind that how these clothes are being produced at such a large scale and how are they so cheap?

Along with its affect on the environment fast fashion industry exports its production business overseas for cheaper labor where workers are exploited and are forced to work in inhumane conditions.

Fast fashion is a term used to describe the clothing industry's business model of replicating recent catwalk trends and high-fashion designs, mass-producing them at a low cost, and bringing them to retail stores quickly, while demand is at its highest. The term fast fashion is also used generically to describe the products of the fast fashion business model. This industry grew during the late 20th century as manufacturing of clothing became cheaper. Social media and influencer culture is also responsible for growth of this industry. Consumer demands have become insatiable and ever-changing as there is a new trend every day. But not only these trends are responsible this industry is also creating demand by a strategy is known as planned obsolescence. Planned obsolescence is designing, manufacturing and marketing items so that they are discarded after a short period of time. Another type of this is psychological obsolescence in this industry relies on ephemeral trends. We are brainwashed into feeling dissatisfied with clothes in good condition.

Fashion and its supply chain is the third largest polluting industry, after food and construction. It emitted 10% of global greenhouse gas emissions, releasing 1.2 billion tonnes of carbon dioxide per year, more than the shipping and the aviation industry combined. If it continues at the same pace, the industry's greenhouse gas emissions are predicted to increase by more than 50% by the year 2030.
The fashion industry consumes one-tenth of all the water used in industry to run factories and clean products. To do this, it takes 10,000 liters of water to produce one kilogram of cotton or about 3,000 liters of water for a cotton shirt. In addition, dyeing textiles requires harmful chemicals, which then end up in our oceans. About 20% of the world's wastewater is due to this process, which accumulates over time. many factories have moved overseas, they may be in countries without strict environmental regulations, resulting in untreated water entering the ocean. Unfortunately, the wastewater generated is extremely toxic and in many cases cannot be treated to become safe again.

Polyester, a kind of synthetic fibre produced from the fossil fuel petroleum, is one of the least expensive textiles to make. Though it may be produced fast, polyester doesn't breathe as well as natural fibres. It doesn't last very long either. While polyester degrades, it does not decompose biologically. As opposed to that, it disintegrates into tiny microplastics, which usually end up in the ocean. These microscopic microplastics can also enter the water system while washing polyester while it is in use. Some research suggest that aquatic creatures' lifespan and even their genetic composition may be significantly impacted by microplastics. Different study findings, including those from clothing microplastics, appear to indicate that some microplastics are more environmentally damaging than others.

Presently, the yearly carbon emissions from the fashion business exceed those from all international travel and marine transportation put together. Within ten years, greenhouse gas emissions are predicted to climb by 50% if the sector continues on its current path. The following phases are simpler to comprehend since we can make connections and come up with solutions by looking at the underlying reasons of the issue. In addition to the ones mentioned in the article, some alternative remedies include supporting change and making thoughtful purchases of fast fashion firms. You are not alone if you are unsure about which brands to support. Before making a clothing purchase, doing some background study on a company may make you a more knowledgeable customer and influence your choices to reflect your environmental beliefs. Our environment has been seriously harmed by the fashion industry. However, we may eventually slow down climate change if we begin to take proactive measures to support a fashion sector that is ecologically friendly and become environmentally conscious consumers.

Microplastics Being A Macro Problem

Ankita Shelly
Research Scholar,
Environmental Pollution Laboratory
Department of Environmental Studies
University of Delhi

The plastic industry had a revolution in the 20th century due to the overproduction of plastic-based products, ranging from buckets to cars, and it is now time to deal with the effects of that revolution. This planet becomes a "plastic planet" due to improper management, ignorance of the detrimental effects, careless use, and dumping of plastic products. These plastic materials not only became a major hazard to human and animal health, but also emerged as solid garbage. It poisoned our oceans in addition to the highways, woods, and mountains. Unaware human populations consistently dump plastic waste into bodies of water, perhaps motivated by the idea that "out of sight, out of mind. Because of this, the issue of microplastics in the marine ecosystem is currently a major concern.

Microplastics, as the name implies, are tiny plastic particles. Officially, they are defined as plastics less than five millimetres (0.2 inches) in diameter—smaller in diameter than the standard pearl used in jewellery. The problem with microplastics is that—like plastic items of any size—they do not readily break down into harmless molecules. Plastics can take hundreds or thousands of years to decompose—and in the meantime, wreak havoc on the environment. On beaches, microplastics are visible as tiny multi-coloured plastic bits in sand. In the oceans, microplastic pollution is often consumed by marine animals.

Last year, alarm bells went ringing after scientists found microplastic pollution in the snow near the peak of Mount Everest. Tiny plastic fibres – within a few hundred metres of the world's highest mountain, at a spot called the balcony, located at 27,500 feet, just a few hours climb from Everest's summit, studies published in the journal One Earth revealed. Another study conducted by the World Wide Fund for Nature last year revealed that an average person consumed 5 grams of plastic, which is equivalent to a credit card.

The very urgent call in this field is to spread awareness among the general public regarding the nocuous effects of microplastics. This would stimulate various innovations to reduce the utilization and consumption of plastic and its products. To minimize the plastic input into the ecosystem the most important approach is to collect and reuse of plastic fragments. To avoid future threat, the best solution is to stop producing it further and find out the alternative of plastic products.

Ecofemenism - An Overview

Sarthak
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Ecofeminism, also known as ecological feminism, is a subset of feminism that looks at how women and nature interact. French feminist Françoise d'Eaubonne gave it that name in 1974. The fundamental feminist ideas of gender equality, revaluing non-patriarchal or nonlinear structures, and a worldview that respects biological processes, holistic linkages, and the value of intuition and cooperation are all used by ecofeminism. Ecofeminism brings a dedication to the environment as well as knowledge of the linkages created between women and nature to these ideas. This worldview specifically stresses how patriarchal (or male-centered) society treats both nature and women. Ecofeminists look at how gender categories affect people in order to show how social conventions unfairly dominate women and nature.This worldview specifically stresses how patriarchal (or male-centered) society treats both nature and women. Ecofeminists look at how gender categories affect people in order to show how society standards unfairly dominate nature and women. The philosophy argues that these rules provide an inadequate understanding of the world, and its proponents promote a different way of looking at things that views the planet as sacred, acknowledges how dependent humans are on nature, and sees all life as precious.

Since it was formally founded in the mid-1800s, feminism has undergone evolutions and resurgences in all of its phases. Feminists started to see the connections between the movements for gender equality and environmental conservation as climate change awareness and consequent advocacy increased in recent decades. French feminist Françoise d'Eaubonne first used the word "ecofeminism" in 1974. She argues that because both resulted from patriarchal rule, the marginalisation and oppression of women, people of colour, and the poor are inextricably related to the deterioration of the natural environment.

The biggest criticism of ecofeminism comes back to the idea of essentialism, or "a belief that things have set characteristics." Some people believe equating women with nature reinforces the dichotomy of gender norms that feminism sought to avoid.

"Val Plumwood writes about this idea of binary structures and talks about how they're problematic—and part of this patriarchal structure that's not working," Hutner adds. "It's the idea that we need to break down all these binaries: man/woman; black/white, etc."

Nowadays, as more people begin to assert that we each have our own combination of feminine and masculine qualities, whether we are male or female, this criticism has lost some of its steam.

Eco-Feminism: The Spine Of The Environmental Movements

Pooja Saroj
Research Scholar
Environmental Pollution Laboratory
Department of Environmental Studies
University of Delhi

Ecofeminism, according to Merriam-Webster, is a movement or a theory that applies feminist ideals to ecological concerns. Francoise d'Eaubonne, a French feminist, originally used this phrase in her book "Le Feminisme ou la Mort" (Feminism or Death).She made the argument that patriarchy is the primary cause of every ecological disaster because of how much power males have over women and the natural world, which has resulted in overpopulation and overuse of the environment, respectively. When we discuss the environmental catastrophe that is occurring, gender plays a part in how we might move forward. According to the United Nations Environment Programme, "Environmental conditions around the world have varied effects on the lives of women and men as a result of existing inequalities."

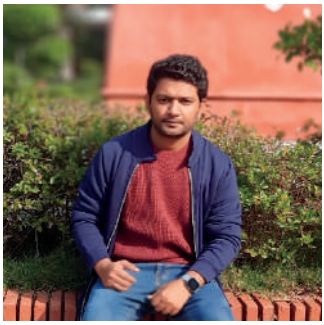
Women's interaction with nature and their responses to environmental degradation must be analysed and located within the material reality of gender, caste class and race based division of labour, property and power. Women are victims of environmental degradation as well as active agents in the regeneration and protection of the environment. The adverse class-gender effects of these processes are reflected in the erosion of indigenous knowledge systems and livelihood strategies on which poor, rural women depend. The nature and impact of the processes of environmental degradation and the appropriation of natural resources by a small minority are based in the dominant ideas about development, gender division of labour, as well as on differentials of property, power and so on. Hence, there is growing opposition to such inequality and environmental degradation, as reflected in widespread grassroots resistance movements. The dominant development paradigm and short-term solutions to development problems are

implicitly questioned by these movements. These movements highlight the interconnections of class, caste and gender issues in it. In fact, one would like to argue, that the women's movement must take up environmental issues that impinge on the survival strategies of a vast majority of women from different castes, classes and race backgrounds. This would help to broad base the movement. On the whole, what is needed is a total change, relating to development, redistribution and institutional structures. Environment and gender issues need to be taken together and the new social movements in India seem to provide the ray of hope for change.

Poems

जख्मी पर्यावरण

डॉ. शैलेंद्र कुमार
सहायक आचार्य
पर्यावरण अध्ययन एवं आपदा प्रबंधन केंद्र,
मिरांडा हाउस, दिल्ली विश्वविद्यालय



जहरीली हो गई है फ़ज़ा,

जहरीले हो गए है दरिया और दरख्त

बेपरवाह जी – रूह हताश, परेशान

बिलखती रहती है बेबस यहाँ

न जाने किस शौर में मशगूल है इन्सान

और क्यूँ है इतना सख्त

यह किस्सा नही है हकीकत है,

किसे और कैसे लिखूं मै ये ख़त।

DARK SKIES

Rajyashori Limbu
B.A. programme
Shivaji College
University of Delhi

The incensed smoke filled the skies,
Its scented ashes burned the eyes,
Lost in the dark smoke, and loud noise,
ooked for all of the joys,
that came with every celebration.

Where was it- the joy and the beauty,
the love of nature, of life, and of harmony,
Is it only the cursed air that awaits me?
Is it only the darkened skies that I shall see?
I hate them – the dark skies, the smoky air.

I only long for home-
The air scented with flowers,
The beautiful blue sky,
Birds chirping and flying by,
Across the dark green mountains.

A FOREST'S TALE

Lenthoibi Thokchom
Bsc Hons Botany
Miranda House
University of Delhi

Along the boundary of land,
He who wears Feather Headdress,
Roams around the dark forest,
Unbothered and with no fears,
With luxuries and with pride.
Cause he was the son of the richest Mother, " Nature"

He lived off his mother for years,
He had plentiful meats and fruits he loved,
He built mighty houses, cutting off the trees,
He wore expensive outfits, from the flesh he killed,
Blinded with richness, little did he knew: Nothing Last Forever.

Only when his Mother was dying,
Only then He realised his grave mistake.
To make his dying Mother healthier and happier, He changed his habits:
From cutting to cultivating,
From hunting to rearing,
He changed! Yes he's trying!

He’s trying hard to redeem what he has lost. To tell his
Children a Forest's Tale,
Standing bold in front of the forest ,
Surrounded with the rich wildlife. For such a Forest Tale to tell,
He’s trying.

The Gladness/ Gaiety of Nature

Kamal Khosla
Motilal Nehru college
University of Delhi

Oh, Greenery where your leaves are shed Creating problems for future ahead
Those shiny leaves, those brown branches
Have become the talk of past
Those voice of the shower, those songs of the rain Are crying on the nature's pain
Save me Save me, shouting the forests
Earning money, the only purpose of pests
The flowers are begging, the plants are crying Each for their growth
Think for the generations to come
And let's take an oath.
Those barren lands are teasing the future
That coming ones will be unable to see some creatures Generations would be left with their salient features May this, force us to take some important measures. Revolution is demand of the Nature
Precaution can create the marvelous future
Do Something for your progeny
By saving the present greenery.

Come Around

Ashish Kumar Sharma
(B.Sc. (Hons.) Physics
Motilal Nehru College
University of Delhi

Come Around for a while
the rain that showers upon
touches your body head to toe
What's more beautiful in the world than this?
you look for aesthetics, right?
come to me in my best form
the raindrops are touching you
the wind is playing with your hair
the sun is kissing your face
the earth beneath is holding you
asking you not to despair.
the nature's call to,
Come Around.

How do you not love it?
You love natural beauty, right?
Here it is, in its marvellous form
The purest nature itself
See those farms, the trees,
the birds and the bees
beautifying each other
and sending you love, human.

Alas! lost in the materialistic world of yours
failing to appreciate what needs to be
what rejoices your inner core
you once used to, but now it's like
you have forgotten to embrace it.
you feel the breeze tickling your ear
birds singing songs for you
creatures creating harmonies
waiting for your part to turn into a Symphony.

Organising Committee

Convener and Organising Secretary

- Prof. Chirashree Ghosh, Environmental Pollution Laboratory, Department of Environmental Studies, University of Delhi

Co- Organising Secretary

- Prof. Pratima Rani Sardar, Professor, Department of Botany & TIC, Department of Environmental Studies, Shivaji College

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- Dr. Shailender Kumar, Centre for Environmental Studies and Disaster Management, Miranda House, University of Delhi

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