



GREEN TALK

ANNUAL MAGAZINE

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EARTH CONCERNS

Newsletter of Green Beans Society
An Eco-friendly initiative of Kamala
Nehru College
Delhi University

FOR FURTHER INFORMATION WRITE TO US AT:
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MISSION STATEMENT

For more than two decades, Green Beans Society of Kamala Nehru College has been working towards sensitizing and encouraging students to protect and preserve the environment and also inculcates in them the idea to spread awareness so as to make world more sustainable place. Our efforts are eco kaleidoscopic in nature ranging from working at grass root levels to participating in National level seminars and collaborating with international organizations like World Wildlife Fund for Nature.

We aim to inculcate the idea of sustainable lifestyle and reduction of wasteful consumption among young women.

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PRINCIPAL'S ADDRESS

There are many people young and old who would like to conserve and protect natural resources, but they don't know where to begin with for becoming more environmentally friendly. Being environmentally friendly simply means having a lifestyle that is good for the environment. It's all about taking small steps towards a big purpose so as to make a positive impact for our communities and generations to come. The environmentally friendly person is the person who moves through his life with an awareness of sustaining the natural resources in the life that he lives. A good way would be to start with conserving water, driving less, walking more, consuming less energy, buying



recycled products, eating locally grown vegetables, creating less waste, planting more trees, avoid using plastics, stay informed of harmful chemicals and many more. When you live environment-friendly way, it leads to 'Green life'. Let us all pledge to live a 'Green life' for the sake of mother earth.

Dr. Kalpana Bhakuni

Principal

CONVENER'S ADDRESS

Down the memory lane,

The Green Beans journey began more than two decades ago and since then it has covered many milestones moving towards disseminating knowledge about the environment to our young members. And at the same time these young members of green brigade have enriched the society with their innovative endeavours. Be they organizing campaigns against tobacco or the anti cracker team taking up cudgels against crackers, they come out in large numbers to fight their cause. The members have actively involved themselves in campaigns for saving electricity in the college and fighting against the use of plastics.



The society in the last 2 years has worked on creating awareness about 'birds on campus' for which a bill board was created and 'Our Green Sentinels' documenting trees and creepers on the college campus. Also our members had completed work on an 'Energy Audit' which preceded our upcoming project on 'Solar Energy for KNC'. We have revived our Rain Water Harvesting System and our Waste Management efforts have been appreciated by one and all. Also a feather in our cap is the botanical audit of the college taken up in 2017 September. The society also took up a Community Outreach Programme on Disaster Threats and Community Resilience in February 2016 which culminated in a workshop in January 2017. This was again appreciated by one and all. The society regularly takes its members to field trips to familiarise them with nature. We went to Nainital in 2016 for trekking and Sultanpur National Park in November 2017.

In this journey of ours, our Principal, Dr. Kalpana Bhakuni has been our bolster of strength and under her guidance; we have had a very satisfying environmental quest. As the convener, I express my gratitude to all the people who made this journey a memorable one and made it a wonderful learning experience for me. I sum it all up with quoting a few words from the Poet Robert Frost "Two roads diverged in the woods and I took the one less travelled by ... and this has made all the difference."

Dr. Sarita Ghai

Convener, Green Beans Society

STUDENT ADVISOR'S ADDRESS

The Green Beans Society of Kamala Nehru College is true to its name. The students and teachers working for the society do everything within the means, to propagate the ideas of environmental conservation and protection. Every member of the society stands for the cause of environment.



The academic session of 2017-18 was one of the exemplary years wherein, throughout the year, various activities were organised to encourage students to come up with creative ideas to depict their commitment towards environment. The activities like best-out-of-waste competitions, flash mobs and anti-cracker campaigns, excursion trip to Sultanpur National park attracted the students' community at large.

Another major activity taken up by the students was the botanical audit of the college. This was initiated with a purpose to develop a better understanding of our immediate environment and appreciation of the biodiversity to sustain different organisms.

The community outreach programme continuing for the past two years in collaboration with the Jawaharlal Nehru University-Disaster Research Programme concluded with a workshop on Disaster and Community Resilience organised in the College. The experts from different fields of disaster shared their views and the students presented their research work from different communities. We wish to carry forward this idea to next level by coming up with community atlas for different areas.

With a world facing various environmental challenges today, be it having the traces of pesticides in our food or deterioration of water bodies or disposal of plastics in oceans, The "Greenvengers" of the Green Beans Society would continue to work for environment wherever they are in life. With all the very best wishes for the students I hope, we continue with the good work and make our surroundings more liveable and paradigms of better world.

Students' Advisor

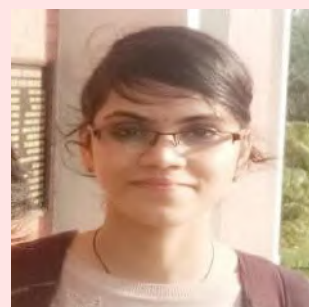
Dr. Akanksha Mishra

FROM THE EDITORS DESK

“Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts” – Rachel Carson



In his new book on global warming, the distinguished sociologist Anthony Giddens coins a paradox. What he helpfully calls Giddens's Paradox runs thus: however massive the dangers posed by climate change, their lack of immediate visibility in daily life means many people will do nothing concrete to tackle it; by the time



they are prompted to action it will, by definition, be too late.

We all know that the evolution of humankind is largely dependent on the quality of the environment and the resources it provides, and the natural environment plays a vital role in ensuring the survival of present and future generations. The earth and its environment are potentially under threat because of numerous human-induced factors, and upon that climate change may drastically alter the conditions of human sustainability.

In this light we bring out the annual magazine Green Talk for the year 2017-18 on the theme “Earth Concerns” Though disparate in their contents, the articles in this issue of our annual magazine point to the important issue to save the planet earth and the issues which are affecting the earth. A newsletter mirrors the vision and mission of a society thus we also talk about the activities that our club has taken up in the whole year in the concern for environment.

I wish that this newsletter serves as a glimmer of inspiration to every reader to express their ideas in an eloquent and informative manner.

With a sense of pride and satisfaction, I would like to say that with the active support of the faculty advisors and members of the Green Beans Society, this issue of “Green Talk, 2017-18” has come alive.

Kendra Vijayvergiya & Pratishtha Choudhary



THE EARTH CONCERNS

“The greatest threat to our planet is the belief that someone else would save it.”

- Robert Swan

Since the existence of man, there has always been a clash between human-centric thinking and the earth-centric approach. The human-centric thinking gave the highest status to human beings, capable of exploiting the nature through technological innovations, economic growth and development. The environmental health and reconstruction of damages inflicted on nature were considered unimportant. The sole motive was to expand production of goods and services, ignoring the economic, social and cultural values attached to pristine forests. On the other hand, the earth-centric thinking believed in earth-sustaining development and discouraged reckless and unsustainable growth. It promoted earth-friendly techniques to accelerate social and economic growth. Before the industrial revolution, societies were led by the eco-centric thinking. The human-centric worldview was the guiding force post the industrial boom. This worldview has caused immense damage to the air, water, forests and diversity of flora and fauna. In our quest to sustainable and inclusive development, the first and foremost need is to debate this philosophy.

Polluted air is one of the biggest concerns that confront mankind. Delhi and Beijing are among the most polluted cities, as declared by WHO. The causes of air pollution are many: burning of crackers, unregulated commercial taxi circuit, dust pollution from construction sites, stubble burning in harvested fields and unorganized public transport systems. Lack of cooperation among states in tackling the menace of pollution further aggravates the problem. Many households in least developed countries have to depend upon firewood and cow dung, which release noxious fumes. Waste burning generates harmful gases like carbon-dioxide,

mercury, PAHs (Carcinogenic substances) and particulate matter such as PM 2.5 and P.M 10. Despite this, waste burning continues due to poor implementation by multiple agencies. Reluctance of nations to shift to renewable sources of energy, and ineffective inter-governmental cooperation further enhances clean air woes.

March 22, celebrated as World Water Day, is a reminder that access to clean and safe water is a fundamental human right. Yet even today, it is a luxury for more than a billion people. Water is polluted as a result of irresponsible disposal of untreated industrial effluents that contain nitrates and heavy metals like arsenic, cadmium, lead and fluoride. Flow of urban sewage, towering mounds of rubbish and disposal of remains and the corpse into the river are other causes. Open defecation on the river bank due to unavailability of clean toilets and household chores like washing of clothes and bathing are some grass root problems that need to be tackled. Due to falling water table, choked channels and skewed rainfall pattern, several perennial water bodies have dried up. For instance, more than half of Delhi's 1000 water bodies have dried up, been acquired for infrastructural development or encroached upon. Moreover, the rampant use of groundwater for domestic and industrial purposes has depleted this important resource. With respect to water pollution, a newer challenge has emerged: micro plastic contamination. A multinational study identified 93% of the bottled water samples as contaminated with micro plastics. Hence, it rings an alarm bell: the plastics that we carelessly use might end up in our stomach one fine day!

Overexploitation of land resource is another major concern. Land is a finite and valuable resource upon which we are depended for food, fiber and fuel wood. With increasing population, the demand for land is increasing. This has led to drastic changes in land use pattern. Activities such as deforestation, overgrazing, salinization, water logging and contamination of soil with industrial wastes like fly ash and heavy metals cause degradation of land. Mining and quarrying operations also lead to a fall in productive potential. The environmental impacts of mining are many: devegetation and defacing of the landscape, subsidence of land, groundwater contamination due to acidic drainage, surface water pollution and air pollution. Modern agricultural methods have also taken a toll on the quality of land. Use of HYV seeds causes micronutrient imbalance, nitrate pollution and eutrophication. Reckless use of insecticides and pesticides kill many useful species in the soil and disorient chemical composition of the soil. In the urban areas, illegal colonies and slums increase pressure on the finite land resource. Location near garbage piles and toxic waste, inadequate supply of water and sanitation resources, insecurity of tenure are some problems that affect these poor and informal housing systems.

India is ranked 10th in the world with 24.4% of the land area under forests, falling short of the target of 33% as per the National Forest Policy. Despite the awareness about the importance of the forests, loss of primary forests has increased by an alarming 25%. The major causes are: shifting cultivation, collection of raw materials for industrial use, developmental projects such as big dams and mining, overgrazing and forest fires. A proposed revamp of the Indian Forest Service for better forest management has been lost in the bureaucratic paperwork. Reluctance of

State departments to engage tribal communities in the process of conservation has taken a toll on our forest conservation measures. Poor inventory data and technology is limiting planning effectiveness. Loss of forests and habitat loss has threatened the existence of many wildlife species. Biodiversity has been lost and the genetic diversity eroded. With disappearing forests and animals, ecological imbalance is inevitable.

The 21st century woke up to the horror of climate change. The rise in the average temperature of the earth, and the consequent rise in the sea level is the concern that led to the Paris Climate Agreement. Small glaciers may vanish in the long run, causing water scarcity in the regions fed by low altitude glaciers. The global warming would lead to changes in rainfall pattern, increasing frequency of vector-borne diseases and adversely affecting crop yields. A recent IUCN report warned of an increasing threat to the UNESCO Natural Heritage sites as a result of climate change. Hence, climate change would affect everything we could possibly think of.....

In the age of climate change, effective disaster management is a bigger challenge. The natural catastrophes will increase in frequency as well as intensity, as a result of climate change. This would mean more frequent floods, cyclones and droughts. In a world where disasters cost the global economy \$520 billion every year and push 24 million into poverty, it becomes even more important to manage risks that drive these disasters. These risks include bad planning, lack of building codes, destruction of protected ecosystems, climate change and population growth in disaster prone areas.

The menace of climate change can be tackled by shifting over to renewable sources of energy, adopting sustainable agriculture practices and cutting down on the use of CFC's and fossil fuels. These steps are easier said than done. This is because of the lack of inter-governmental cooperation. In most international agreements, the burden of performance is put on the developing nations, while the developed nations fail to perform. This creates friction among the participant nations, and the climate goals are stranded. The recent example being the Paris Climate Agreement. This problem can be resolved during rounds of negotiations, by adopting a voting pattern that is free from biases. The developed countries need to shoulder the burden of climate goals along with the developing countries. Fixing accountability of member nations and regular review meetings and negotiations are important.

The 21st century is a test of leadership that is apt to tackle the menace of climate change and pollution. The problems have a complex nature, owing to the complexities of an unequal world. But every cloud has a silver lining. If our solutions are innovation driven and can bring about behavioural changes, the battle can still be won.

- Gurleen Kaur

BA. Economics(H) 1st Year

Botanical Audit of Kamala Nehru College

Introduction

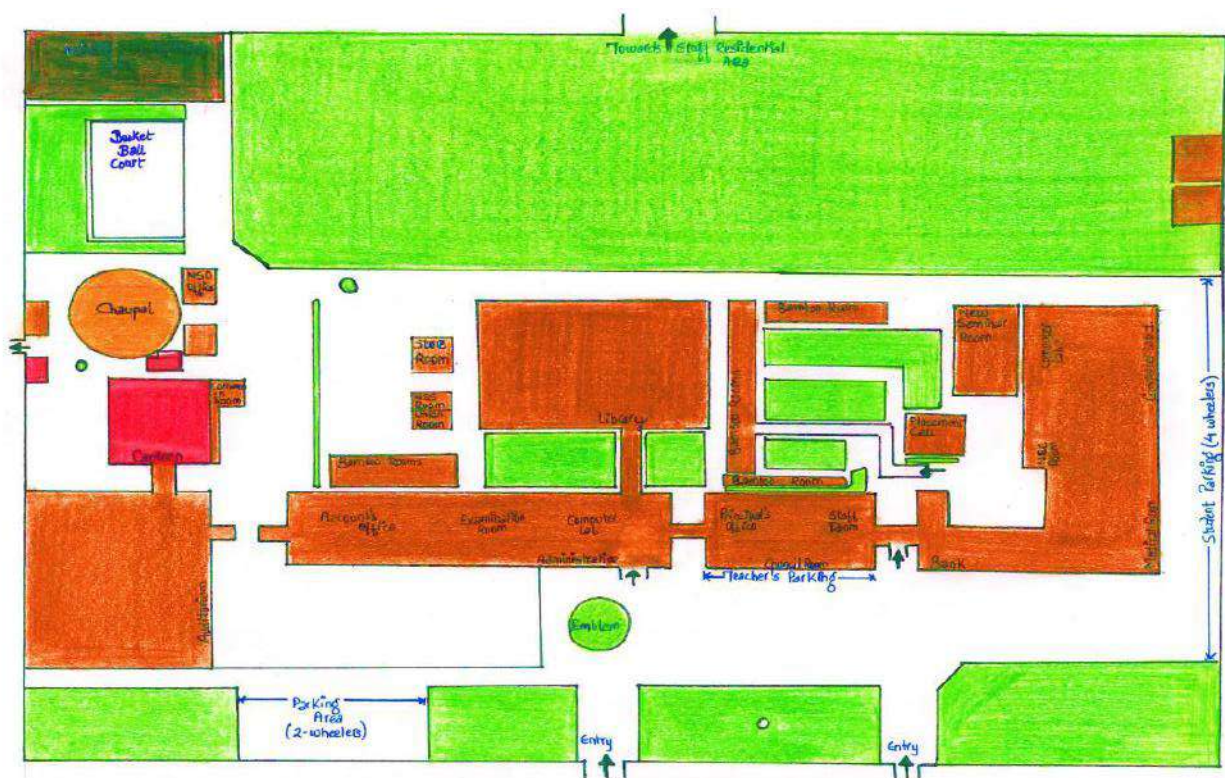
We at Kamala Nehru College through the Green Beans Society and the Department of Environment Sciences work for the awareness and sensitisation of students towards contemporary environmental issues that goes a long way in making environmentally conscious citizens. Issues like conservation of energy and water, solid waste management and biodiversity study are the key issues to focus. We have conducted an energy audit of the College in 2014 and initiated the solid waste system as well in the past. The birds and trees on campus have already been accounted for. Such studies have helped in raising the students' awareness towards biodiversity and its importance in maintaining ecological balance.

We stepped forward in the second phase of the project Botanical Audit in the session 2017-2018. The project was undertaken by the students of the society under the guidance of Dr. Sarita Ghai and Dr. Akansha Mishra. The interested students of the society enrolled themselves for the project.

Biodiversity is the variety of living forms present in an area. Not only a biodiversity rich area increases the aesthetic value, it plays a crucial role in maintaining the ecological balance of any given ecosystem. Any given species inhabits an area where all its requirements are fulfilled. Hence the species are particularly specific to the area/region and climate where they are found. This gives a unique characteristic biodiversity pattern to a given area with certain climatic conditions. In this study we are trying to analyse the floristic biodiversity present in our college excluding trees.

Study area

The study area for this project remains the premises of Kamala Nehru College campus.



Sampling and Analysis

The sampling of plants for conducting this biodiversity study or Botanical audit is multi-layered. To begin with, all the plants are classified based on their size. The three major categories are herbs, shrubs and trees. The description of each of the categories is given below:

Herbs: Plants which have soft, green and perishable stems are called herbs. They are generally smaller in size, they are not more than one metre in height and may live for 1-2 seasons.

Shrubs: Plants with woody stems, and branches of almost equal size arising from the stem immediately above the soil are called shrubs. They look like bushes and are medium sized plants. They survive for many years through less than trees. Examples: china rose, lemon, jasmine etc.

Trees: The trees are tall and big plants. They have one hard, woody stem called trunk, It bears woody branches, twigs and leaves at some distance above the ground. Trees generally survive for many years. Examples: mango, neem, banyan etc.

Botanical Audit of Trees (the updated information)

The biodiversity study for the trees has been conducted last year in which it was found that there are a total of 32 species of trees all of which have been identified to species as well as to the genus level. A total number of 247 trees were found in the college campus. Upon calculating the Biodiversity Index for the same we have inferred that the Biodiversity of trees in our college is quite rich. The value of D ranges from 0 to 1 and the biodiversity index (D) of trees in the college ecosystem is 0.88. This figure is a direct as well as indirect reflectance of the diverse species of trees present here.

Second Phase of the Study: Herbs, shrubs and grasses

A comprehensive study of the herbs and shrubs of the winter season was conducted by the students. For this the entire green area of the campus was divided into several zones (a rough thematic map for the same is attached herewith). Within each zone the variety and number of shrubs were counted and documented. The same procedure was followed for the herbs of measurable size above the ground.

To reflect the microcosm of the college we have catalogued few varieties of shrubs, herbs and grasses:

1. Category : Shrub

Scientific name – *Duranta erecta* "Gold" / *Duranta repens*

Common Names – *Duranta Gold*, *Golden Dewdrop*, *Golden Skyflower*, *Golden Pigeon Berry*

Family – *Verbenaceae*

Description – It is a vigorous large broadleaf evergreen shrub and is widely cultivated as an ornamental plant in tropical and subtropical gardens and has become naturalized in many places. It attracts butterflies and hummingbirds.

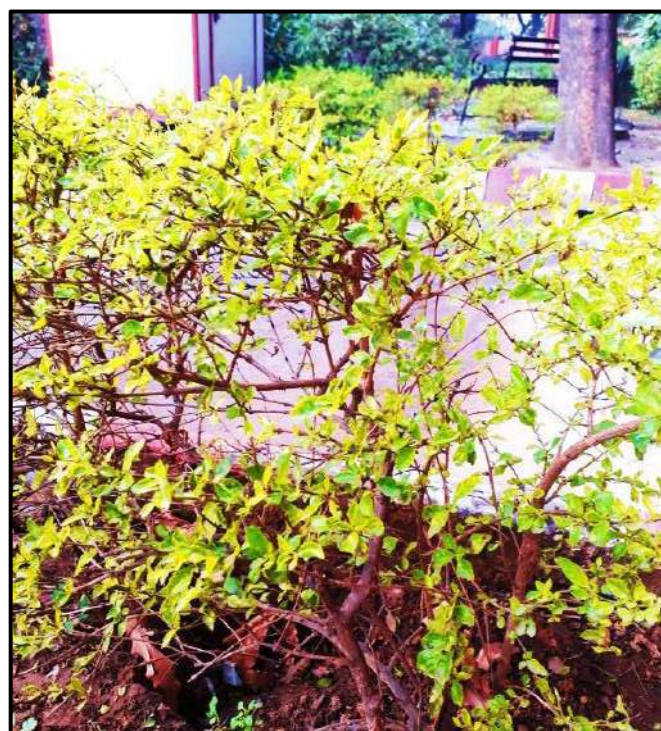


Fig.1 **Duranta Gold**

Source: Primary Field Survey



Fig.2 **Ganda**

Source: Primary Field Survey

2. Category: Herb

Scientific Name – *Calendula officinalis*

Other names – *Garden Marigold*, *Gold bloom*

Local name – *Ganda*

Family – *Calenduleae*

Description – A native of Southern USA and Mexican regions it is a multi-purpose herb. They produce one of the most beautiful flowers in the plant kingdom.

3. Category : Herb

Scientific Name – Lobularia maritime

Common Names – Alyssum, Sweet Alyssum, Carpet Flower

Description – It is a delicate carpet of tiny flowers with a subtle, sweet scent with narrow, lance-shaped, slightly hairy gray-green leaves. It is a cool season flower.



Fig.3 Carpet Flower

Source: Primary Field Survey



Fig. 4 Sweet Pea

Source: Primary Field Survey

4. Category : Herb

Scientific name – Lathyrus odoratus L.

Common Name – Sweet pea

Family – Fabaceae

Description – It is an annual climber which can grow up to 2 m at a fast rate. The leaves are pinnate with two leaflets and a terminal tendrils, which twines around supporting plants and structures, and thus helps the plant to climb.

5. Category : Shrub

Scientific name – Dieffenbachia amoena

Common Name – Dumbcane

Family – Araceae (arum family)

Description– Dumbcanes are easy houseplants that can tolerate a wide range of conditions. The name Dumb Cane comes from the fact that the acrid sap will burn the mouth and numb the throat to the extent that it may even paralyze the vocal cords.

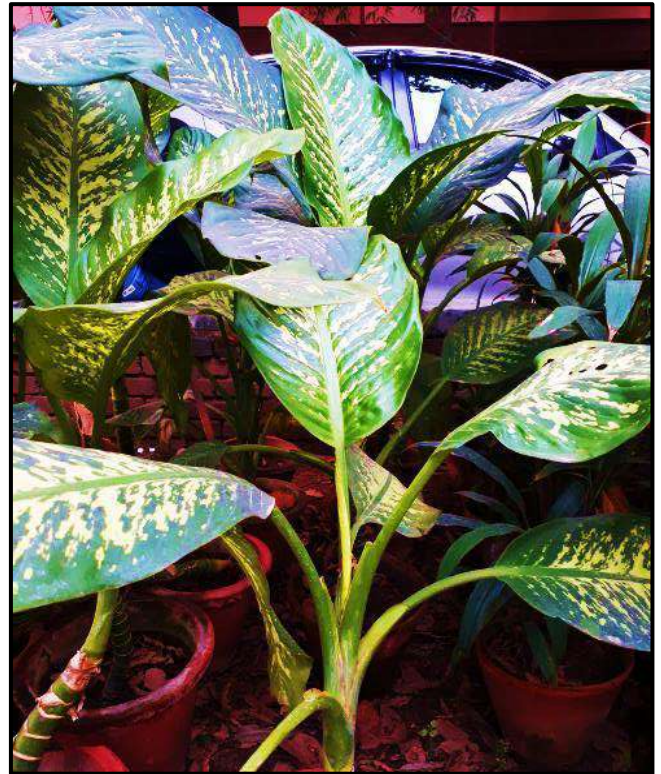


Fig. 5 Dumbcane

Source: Primary Field Survey



Fig. 6 Spider Plant

Source: Primary Field Survey

6. Category : Herb

Scientific name – Chlorophytum comosum

Common Name – Hen-and-Chickens, Spider plant

Family – Agavaceae

Description – These plants are known for their drought-tolerance and their relatively disease- and pest-free nature. These are perennial evergreen herbs which can grow up to 1 m tall and 1 m in diameter.

7. Category : Shrub

Scientific name – *Hamelia patens* Jacq.

Common Name – *Fire Bush, Scarlet Bush, Humming Bird Bush*

Family – *Rubiaceae*

Description – *An ornamental evergreen shrub having branched tap root system. Its flower's attracts hummingbirds and its fruits attract other birds.*



Fig. 7 Hamelia

Source: Primary Field Survey



Fig. 8 Dragon Tree

Source: Primary Field Survey

8. Category: Shrub

Scientific name – *Dracaena draco*

Common Name – *Dragontree*

Family – *Asparagaceae*

Description – *It is a broadleaf evergreen shrub that grows to 6' tall or more. Slender gray upright stems are topped by tufts of arching, glossy, sword-shaped leaves. The leaves are deep green in colour with narrow reddish edges.*

9. Category : Herb

Scientific name – *Lupinus polyphyllus*

Common Name – *Lupine, Wild*

Family – *Fabaceae (legume family)*

Description – It is a perennial herbaceous plant with stout stems growing to 1.5 metres (4.9 ft.) tall. These legumes put nitrogen back into the soil (natural fertilizer); host a number of beneficial insects. It produces beautiful blue-purple flowers



Fig.9 Lupine

Source: Primary Field Survey



Fig. 10 Yellow Bluestem

Source: Primary Field Survey

10. Category: Grass

Scientific name – *Bothriochloa ischaemum*

Common Name – *Yellow Bluestem*

Family – *Poaceae*

Description – This species of grass is very good for soil conservation and reseeded eroded soils, producing excellent ground cover, even on infertile soils, and possessing an extensive root system.

11. Category: Herb

Scientific name – Mentha longifolia

Common Name – Pudina

Family – Lamiaceae

Description – It is a perennial herb which is used in the treatment of indigestion, pain in joints etc.



Fig.11 Pudina

Source: Primary Field Survey



Fig. 12 Aloe Vera

Source: Primary Field Survey

12. Category: Herb

Scientific name – Aloe Barbadensis,

Common Name – Aloe, Indian Alces, Kumari, Ghirita

Family – Aloaceae

Description –The plant stores the limited rain water it gets in its succulent leaves, in the form of a gel. It is a stem-less or very short-stemmed plant, growing approximately 80-100 cm tall. It spreads by offsets and root sprouts. The gel it produces has notable ability to heal wounds, ulcers and burns.

THEN AND NOW

The world is changing. We can observe it in the air we breathe in, the water we drink and the surroundings engulfing us. Our lifestyles have changed over the years. We, humans have transformed the environment, our mother earth to ensure convenience and comfort in our lives. Technology is the weapon. All the modifications are introduced with this tool. Earth is changing. Earth is not same as it used to be years ago. Change is permanent and is inescapable. Some of the changes are natural and climatic while some are solely human induced.

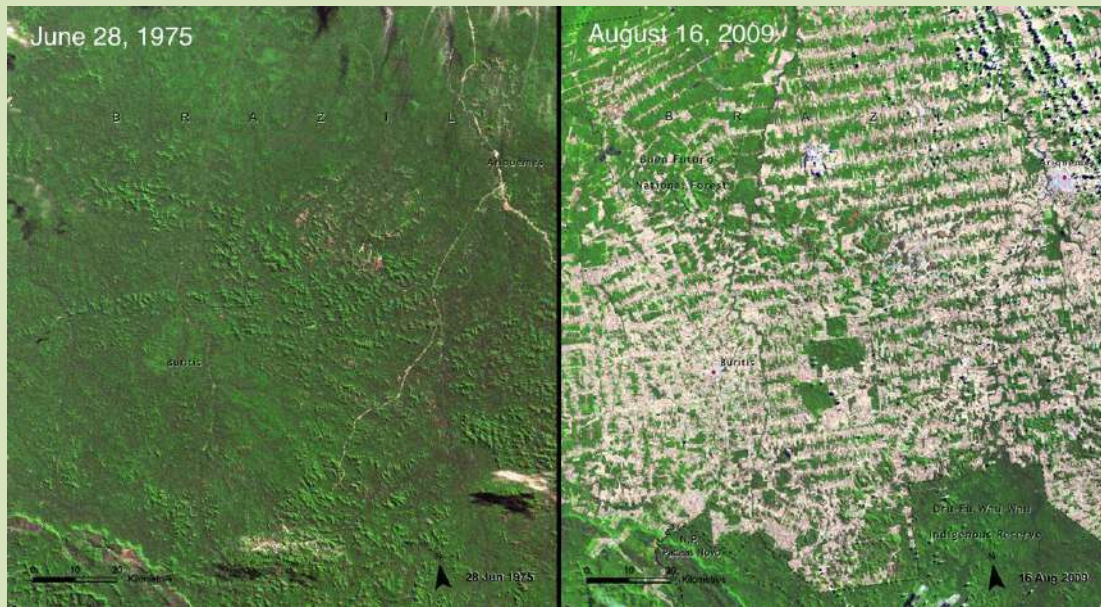
The changes such as increasing sea levels, increasing contamination of water, air and land are completely anthropogenic. What the environment used to be years ago, is not the same now. One of the negative changes brought by humans in environment is the building of dams to ensure and fulfill the increasing water and energy demands. The picture below depicts exactly how the water flow depletes if its course is obstructed. The picture compares the condition of Lake Oroville with that of six years earlier.



Lake Oroville, California. July, 2010 — August, 2016.

Another example of depletion of water sources is Aral Sea. A massive irrigation project has devastated the Aral Sea over the past 50 years. The increasing demand for water has increased its exploitation. It is used inefficiently and with utmost ignorance. Another major element in danger is the forest. The consumption levels are accelerating and land is demanded. The forest resources are valuable. Barring the vitality of its presence, the forest is cut down in desire of more space. The prominent case of huge fall in forest land is the Amazon forests. The increasing mining projects, cultivated farms, industrial units and residential areas have swallowed the rainforests in this area. The area of western Brazil is displayed below showing the drastic reduction in the rainforests.

Amazon forests are known as the storehouses of oxygen in the world. If the deforestation continues incessantly, the end of this vital resource is not far away. As the purifiers of the air are on verge of end, the constituency of air is changing. The increasing levels of certain components and gaseous parts have led to disturbance in the year old balance. These soaring levels are further increasing the temperatures of the atmosphere. The phenomena like melting of ice, submergence of islands are an effect of this change. The ice glaciers are melting rapidly and thereby causing sea level upsurge.



Satellite images of Rondônia in western Brazil. Taken in 1975 (left) and 2009 (right). (NASA, Images of Change)

The Toboggan Glacier in Alaska is one such example. Receding glaciers are one thing. But the massive ice sheets atop Greenland and Antarctica are an even bigger deal. Scientists witnessed a dramatic example of this in 2002, when a huge chunk of the Larsen B ice shelf in Antarctica — an area of 1,250 square miles — simply disintegrated into the ocean in the span of a month. Thus disintegration of ice shelves is another disturbing phenomenon which is human induced.



Toboggan Glacier, Alaska. June, 1909 — September, 2000.

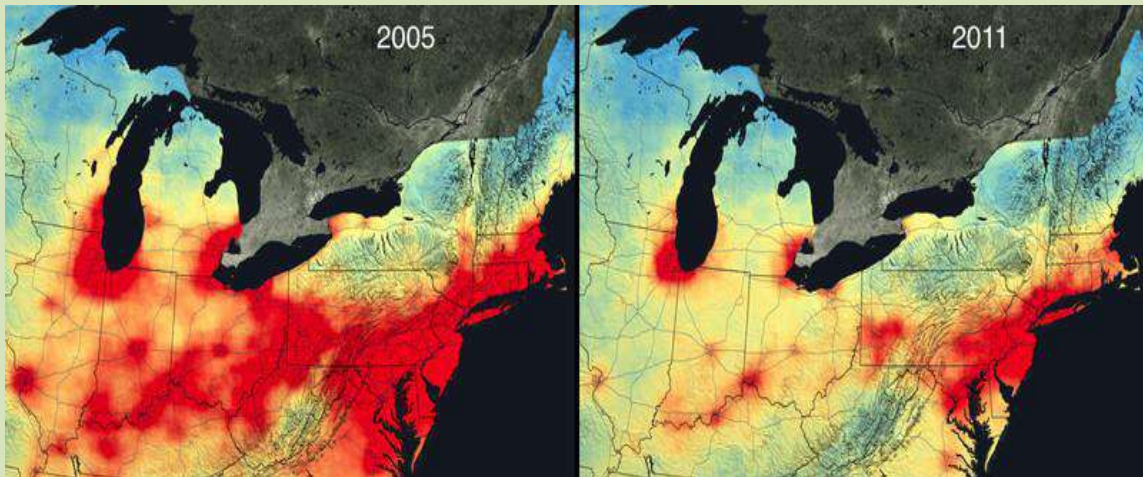
The Toboggan Glacier in Alaska is one such example. Receding glaciers are one thing. But the massive ice sheets atop Greenland and Antarctica are an even bigger deal. Scientists witnessed a dramatic example of this in 2002, when a huge chunk of the Larsen B ice shelf in Antarctica — an area of 1,250 square miles — simply disintegrated into the ocean in the span of a month. Thus disintegration of ice shelves is another disturbing phenomenon which is human induced.

Urbanization is on upsurge since past centuries. Dubai has creatively reclaimed land from the sea. To promote beach tourism, the city built hundreds of artificial islands along the coast using sand dredged from the seashore. As the following image show, the growth of Dubai on land has been no less dramatic, with barren desert replaced by irrigated land and roads.



The picture is showing Dubai (United Arab Emirates) in 2000 and now.

Not all the ways we're transforming the planet are negative. Realization is the key ingredient of bringing a positive change. The degradation of natural resources is eye opening and some examples evidently show the improvements which have taken place. The Satellite data from NASA revealed a huge reduction in nitrogen dioxide pollution from cars, trucks, and power plants in the United States between 2005 and 2011 not only this, the ozone hole upon the Arctic is showing signs of improvement.



Images show concentrations of nitrogen dioxide in 2005 and 2011 in the US, from low (blue) to high (red). (NASA, Image of Change)

The biggest problem of man is its ignorant nature and incessant exploitation of nature. We need to realize that the earth we live on now is what we are borrowing from our future generations. The resources of our part have been realized long ago. We need to be wiser and change ourselves first. The diurnal changes on earth have already occurred. It is our turn to bring a change in the way we live and the way we exploit the nature. It is rightly said "Earth provides enough to satisfy man's need, but not every man's greed". A thoughtful action is the need of the hour. All the sustainable and efficient means shall be adopted so that our surroundings does not deplete but improve. We must preserve and enhance earth's beauty, not destroy it.

"Green, not greed is the motto"

-Swati Phogat,
Kamala Nehru College

Jugaad – The nature's way

The prospect of comprehending the various ways to unconventionally groom a scope of protecting the environment has lately become a matter of utter normalcy. With the understanding of what we call conservation, there is more likelihood of the general populace attaching a little predicament of hardship to it. When we look at a certain environmental problem, and delve down to its roots, we often come across factors that are way out of control or require huge investments and techno-grace to get it solved.

For instance, considering the issue of wetland conservation, there is a necessity to ensure that these areas receive adequate rain water and its subsequent drainage to sustain them. On the other hand, there is also a pre requisite to maintain the nutritional balance in these wetlands, coastal lagoons, etc. Now, the basic understanding of this issue is what is perceived to be the first step towards its conservation. Nevertheless, a majority of the population does not really understand, or more clearly, are not aware.

The ambit of environmental conservation is a gargantuan one and therefore, it is highly difficult to make everyone aware of everything that is there. Here is where simple steps, which are environmentally secure and don't really need the entire understanding of the problem, emerge. This however, does not mean to minimize the significance of

awareness. Rather, this is a step towards conservation which concurrently goes on with spreading awareness.

These simple and easy ways, go now with the trending term '**jugaad**'. These little yet massive contributions to the environment have an unobtrusively important feature that gets represented in the ease to execute them. Like mentioned earlier, these steps need not much knowledge about the working mechanisms of the environment and its conservation, but just a minimal urge to be a part of the entire saving process. Coming along are some of these steps.

1. Replace regular light bulbs in homes with compact fluorescent bulbs.
2. Join the carpool or public transportation to save fuel and its cost.
3. Avoid using disposable cup or coffee mug at work in order to save space in the landfill and energy. Bringing an own ceramic cup or mug would help.
4. While making purchases, try to opt for the brands that use recyclable packaging.
5. While making purchases, try to opt for the brands that use recyclable packaging.
6. Where possible, try not to use water as a cleaning solution. Baking Soda and Vinegar can work just as well as other cleaning products.

7. Get the IT equipment like computers, laptop, printer, and phones recycled or decomposed in order to reduce related air pollution and water pollution. It can take a million years to decompose. Contact a company offers IT equipment recycling or disposal services in your area.
8. Put the cruise control button on cars to work as it can get better mileage. With increasing gasoline prices, this is a boon for the budget and the environment too.
9. About 10% of energy can be saved by adjusting the thermostat usage by 1% cooler in winter and 1% higher in summer.
10. Maintain vehicles by regularly checking the air filter and giving it a clean. This will help them more efficiently. It's also important to inflate the tyres to a specific pressure as it reduces tyre-wear and helps the fuel economy.
11. Energy at home can be saved, by:
 - Setting the freezer temperature 0-5 or refrigerator temperature at 36-38
 - Minimizing door opening while using the oven
 - Avoid using chemicals to clean the home, instead use a microfiber cloth

Now these 'jugaad' activities are already available to the prime cognizance of most people. However, there is an incessant need to improvise on making them more popular and hence usable. As there is also an evident rise in the people's level of concern for the environment, an authentic effort to make it work through public policy, could definitely stimulate a change in the times to come.

-N. Sri Vaishnavi
Kamala Nehru College



"Creating a better future requires
creativity and action in the present"

- Matthew Goldfinger

Refuse

Think twice before you use

Cause it's a price for your amuse

Not just paid by you but the generations to come

The harm that will take toll on existence to get undone

And all the voiceless suffer in pain

Just for the producers gain

Everything humans replace by a single – use plastic

A problem generated by reckless consumerism

It's a new form of barbarism

Economies are no more socialist, communalist or capitalist rather plastic

It's agony in the oceans and the marine population decline is drastic

Bottles, cutlery, boxes and these days' faces are also plastic

When we will mature enough to understand

That it's a curse disguised as blessing

A PET water bottle takes forever to biodegrade

All those green soldiers understands it's dangerous than a grenade

A world on a plastic binge,

Every minute we dump a truck full of plastic into our seas

Just like an addict require a drug syringe

We obsess over plastic as we move towards materialism

It a trap! We must understand otherwise it will be too late

Now the 3Rs won't suffice

We need to reduce, reuse, recycle and **"Refuse"**

- Kendra Vijayvergiya
Kamala Nehru College



'BREAKUP' WITH PLASTIC

"He eats plastic food with a plastic knife and fork"

From toothbrush, shavers, soap case, bathtubs, hairbrush to chair, mats, toys, CD, clock to water bottle, tiffin, plate, cups, cans to plastic bags, gadgets, machines etc;

Human in twenty first century is surrounded by plastic throughout the day and can't imagine a single day without it.

Meaning and definition of PLASTIC

The scientific definition of plastic is – a material which is composed of various elements like carbon, hydrogen, oxygen etc. having high molecular weight, which signifies that each molecule can have thousands of atoms bound together.

Simply plastic is a material made of variety of synthetic or semi-synthetic material that is malleable enough to be moulded into solid objects.

History of PLASTIC and how it is made

Alexander Parkes was a metallurgist and an inventor from England, he created first man-made plastic called Parkesine. Plastics are derived from materials that are found in nature and mostly they are based on carbon atom.eg- natural gas, oil, coal, minerals and plants. The common process involves combination of petroleum distillates with specific catalysts to create novel and typically larger molecules.

Advantages of PLASTIC

Well, there is not much effort required to mention the advantages of using plastic as there are many such as-

1. Plastics are durable, low cost, water resistant, light weight, reusable, corrosion resistant, chemically inert, shock absorbant etc.
2. Many studies show that plastic bags have less net environmental effect than paper bags.
3. Plastic requires less energy to produce, transport and recycle.

PLASTIPOCALYPSE

Plastipocalypse is a term which is made of two terms- plastic and apocalypse. Apocalypse means damage on a catastrophic scale. Hence the term means- destruction of plastic or simply-'beat the plastic'.

Why PLASTIPOCALYPSE

Interesting facts about PLASTIC

1. In 2008, a sperm whale died in California, the reason was attributed to more than 22 kilograms of plastic found in its stomach.
2. Once plastic is dumped, it only starts degrading after 700 years and fully degrades only after 1000 years.

3. Plastic bags does not biodegrade, it photo degrades, which means it remain toxic even after it breaks down.
4. An estimated 8 million tons of plastic waste enter the world's oceans each year.
5. Every second 160,000 plastic bags are used and 5 trillion plastic bags are produced yearly at global level.

After knowing these facts, there is no need to mention the reason for Plastipocalypse, it is but obvious the need of the hour!

PLASTIC Pollution and Disadvantages of PLASTIC

After knowing the facts about plastic, there is no doubt that **plastic causes more harm than good**.

Critical disadvantages are listed below-

1. Plastic is a non-renewable resource, causes cancer, has low heat resistant, has poor ductility, affects and destroys marine and ocean life, blocks drainage system, causes land degradation, affects agriculture etc.
2. Recycling process is very costly.
3. It makes the place look unattractive, hence decreases tourism.

Steps taken at global level against PLASTIC

United nations celebrate '**World Environment Day**' every year on 5th June.

The theme for 2018 is 'beating plastic pollution' which will be hosted by India this year.

The focus on the host country helps highlight the environmental challenges it faces, and supports the effort to address them. This gives us an idea of why India is hosting it this year.

Apart from this, many countries have taken strict action against plastic such as ban like-France, California, Rwanda etc. This encourages other countries to take inspiration from these and act accordingly. Kenya is the latest country to ban polythene plastic bags.

Steps taken at India level against PLASTIC

India is one of the largest consumers of plastic products. Seeing to the danger, if we talk of recent steps taken by government of India in this regard then this leads us to –

Plastic Waste Management Rules, 2016.

This is in suppresion of the earlier Plastic Waste (Management and Handling) Rules, 2011.

EFFECT OF NEW RULES-

1. As per new rules, the thickness of plastic carrying bags has increased from 40 micron to 50 micron; this is likely to increase the cost by 20%.Hence tendency to provide free carry bags will come down.
2. Also, these rules which were earlier admissible upto municipal areas have now been extended to all villages.

Steps that should be taken at individual level against PLASTIC

As we know that formulating rules is one aspect and implementing them is another therefore apart from government policies, there is a need for change at individual level also.

1. Avoid plastic bags, don't buy plastic water bottles, and instead use other alternatives
2. Boycott micro beads, due to their tiny size, they slip through water, and marine animals interpret them as food and consume it.
3. As far as possible try to purchase items second-hand as it reduces the excessive plastic packaging.
4. Support a plastic bag tax or ban and encourage others to not use it.

How can we spread awareness to -beat the PLASTIC

There has already been many online movements like-

'No Straw Campaign 'Rethink Plastic Foundation 'Plastic Pollution Coalition' and many more.

So the idea is to take active participation in such events and create many more such awareness so that every individual gets to know the critical condition of the earth.

A short self-created poem-

To make life easier
We invented plastic
Which was so drastic?
That it made environment inelastic
Which earlier used to be elastic?
So now we need to be enthusiastic
And work to make the environment back to fantastic
So let's cut the plastic!

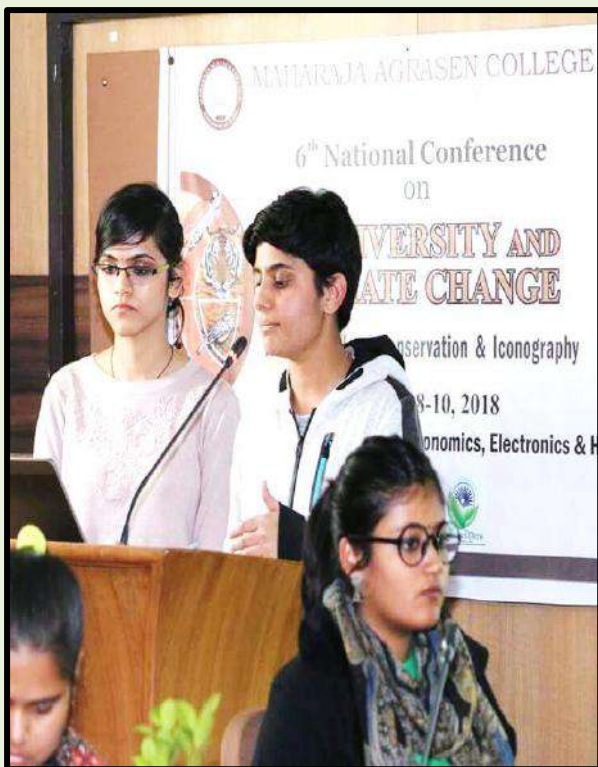
Conclusion

There is no such thing as 'away', because when we throw anything 'away' - it must go somewhere.

Hence the solution lies in avoiding it completely. Hence let's be a part of the solution rather than being a part of the pollution, So let's-end the long relationship with plastic and have a 'Breakup' with plastic by 'BEATING the PLASTIC'. Although break up in actual relation causes harm but this special 'breakup' will lead to a new beginning...

- Ayushi Kumari
Kamala Nehru College

BIODIVERSITY PROFILE OF KAMALA NEHRU COLLEGE



“To my untrained eye, the ridge was just a wild-looking place in the middle of the city, with lots of thorny trees and bushes.” – Pradip Krishen

These words beautifully summarise the idea behind our project. This statement also highlights the everyday ignorance we have when it comes to acknowledging the surroundings. The trouble with a common understanding of the valuable supporters of our existence is that it leads us to deceitful rituals which we practice in the name of environmental protection. Just like a species as similar yet diverse as human beings, flora is an array of individuality and sacrilege. It's unfortunate, but not surprising that environmental

problems are at loggerheads with human existence. Yet we are unable to devise target-oriented solutions to these grave issues.

Biodiversity, a multidimensional property of a natural ecosystem is a difficult component to measure. However, the study of biodiversity of a region is of fundamental importance for environmental conservation and monitoring. Biodiversity of any vast forest is as important as of a small pond ecosystem or a small garden and for that matter of a college campus as well.

Therefore, as a target-oriented study two students of Green Beans undertook a research paper to present the Biodiversity of our college campus under the supervision of Dr. Sarita Ghai, the teacher convenor and Dr. Akansha Mishra, the students advisor. The paper encompassed identifying specific components of biodiversity with special reference to flora in the college campus in different flowering and fruiting season. The study is oriented in conducting the audit of the diverse species of grasses, herbs, shrubs and trees. For herbs, shrubs and trees individual species and numbers would be counted and for grasses stratified sampling using quadrant method would be used. The methodology of the study includes identification of the different species of plants according to their morphology which includes the shape of leaves, types of roots, phyllotaxy and nature of branching. Finally, we prepared a Biodiversity Index emphasizing over the

vegetation cover and its density. Since the study is in its nascent stage the paper presented covered only the diversity of trees and its findings were presented during the National Biodiversity Conference on Climate Change in Maharaja Agrasen College of Delhi University.

We had conducted a tree audit through which we have been able to study the species richness and evenness of the variety of trees in our college. A total of 32 species were recorded all of which have been identified to



species as well as to the genus level. A total number of 247 trees were found in the college campus. From the 26 families identified the Moraceae family had the highest number of genera (3) and species (5) followed by Myrtaceae and Fabaceae with 2 species and 2 genera each. The species with the highest number of the individual was Ashok (*Polyalthia longifolia*) (72). It was followed by Saptsparni (*Alstonia scholaris*) (25) and Neem (*Azardirachta indica*) (25). These are followed by trees of Sita Ashok (*Saraca asoca*) (16) and of Kanaĳ Champa (*Petrospermum acerifolium*) (12). Thus, based on the calculation of the Simpson's Biodiversity Index we found a high "Tree Biodiversity Index" value of 0.88 and we concluded that microcosm of our college campus is quite diverse. Simpson's Diversity Index (\mathcal{D}) is a measure of diversity which takes into account the number of species present, as well as the relative abundance of each species. As species richness and evenness increase, so diversity increases. The value of \mathcal{D} ranges from 0 to 1.

- Kendra Vijayvergiya and Pratishtha Choudhary

THE ANNUAL REPORT 2017-18

In the year 2017, the society organised various workshops, competitions and events aiming to sensitise students towards environment. To begin with, a poster making competition was organised on 19th January, 2017 on the contemporary theme of Air pollution in Delhi. Participants portrayed their vision of the problem in unique ways. The event witnessed a good participation of 25 students from different streams.

A workshop on Disaster Preparedness and Community Resilience was organised by the society on 21st January 2017 to conclude the on-going Community Outreach programme (October-December 2016). The programme was part of the JNU-Disaster Research Programme in collaboration with our College. Kamala Nehru College was one of the cluster Colleges' chosen for conducting the community disaster resilience study in different parts of the city. Professor Amita Singh from the Centre for Disaster Research, JNU and many other eminent professors graced the occasion.

On 2nd February, a "Best out of Waste" competition was organised which was a testimony of the students' resourcefulness to create things of utility out of the undesirable material and waste. The idea behind was to motivate students to upcycle the waste. On similar lines, a paper quailing competition was organised by the students on 16th February to utilise waste paper to create cards and ornamental items.

In the month of March, the Society's annual event 'Terra' was marked by inaugural lecture by Prof. N. Janardan Raju, faculty, School of Environmental Sciences, JNU. He is an eminent scientist working in the field of Rain Water Harvesting. During Terra, various inter-college competitions such as Paper Quailing, Environmental Quiz, Extempore and eco-friendly rangoli making were organized. Participation in large number from various Colleges was the highlight of the event.

With the beginning of new session, we received a good number of applications from environmental enthusiasts to work for the society. On August 17, an Orientation Programme was conducted for the new members of the society. It was followed by an online competition – "Art and Artefacts of Nature". Students were required to use their creativity and make environment friendly cards, folders and bookmarks using waste materials such as broken bangles, used foil paper, invitation cards etc. In the last week of August the GBS creative team prepared the Society's wallpaper on the theme of "Retreating Antarctica".

On 7th September, a faculty meeting was held to discuss the prospects of the project "Botanical Audit" that the society has taken up for the session from August 2017 - March 2018. The details of the programme were conveyed to the students by Dr. Akanksha Mishra. It was followed by three more preliminary meetings with the students to prepare for Botanical Audit wherein mapping procedure and herbarium making were discussed.

In September, the Society was approached by WWF (World Wide Fund for nature) India, to send two representatives of the eco club of college for an Inter-college panel discussion on the environmental activities that different colleges have taken up. It was followed by a panel discussion on 26th of September where representatives from the Environment society of Ramjas College, Satyawati College, Shaheed Bhagat Singh College, Hindu College and Sri Guru Nanak Dev Khalsa College were also present and presented their work. However, the

work done by our society was applauded there, especially the JNU DRP Project, Energy and the Birds audit.

In October, before the festival of Deepawali an Anti-Cracker Campaign was organised on 12th October which was immensely successful and appreciated which was also covered by a local daily. Around 50 Students participated in it. Students were also required to make posters for the same. As amid-semester break activity another “Best out of Waste” competition was organised in the first week of October, 2017. The best creations were put on exhibition and sale during *Adrith*, the Diwali Mela of our college.

The Flash Mob on the theme of Anti Cracker Campaign saw on the spot turnout of around 60-70 students during the Diwali Mela. Non-GBS members also participated in the drive for awareness. As part of the cleanliness drive and creating awareness about waste management amongst students, two coloured bins were placed in College and students were informed through a small activity by listing the biodegradable and non-biodegradable items and pasting their lists on the respective bins.

On October 19, 2017 few students of the society visited the eco-friendly photo exhibition, Aravalli is capes, curated by noted photographer Mr. Aditya Arya which was based on the theme ‘Celebrating Aravalis and protecting the ridge’. It was aimed to build awareness about the Aravali and showcase the significance of the Aravallis and Delhi Ridge.

On 26th October 2017, The WWF India organized a meeting of the Environment societies of various colleges of Delhi University. From our College, Gurleen Kaur(Iyr), Latika Rathore (Iyr), Kendra Vijayvergiya (IIIyr) and Pratishta Choudhary (IIIyr) attended this meeting. It was a part of their ‘Project Echo’, which is aimed at reaching out to the youth and multiplying the impact of its environment-related programs. The program is based on a symbiotic relationship between WWF and college societies. WWF envisions an integrated youth program, to market its events better. College societies, on the other hand, wish to gain the necessary expertise and exposure to improve the activities in the college.

On October 28, few students attended the session titled ‘inconvenient truths: are we heading for an environmental disaster’ a panel discussion of environmentalist Sunita Narain, Perna Bindra and Pradip Krishnan hosted by Penguin Random House India.

On 4th November, the society organised a trip to Sultanpur Wildlife Sanctuary to acquaint students with the migratory birds and their habitat. The Society’s students (40) and faculty members went for the trip and familiarized themselves with the different variety of birds.

The society was awarded the World, Ecology, Environment and Development Award by the International Association of educators for World Peace during the 26th World Environment Congress on November 7, 2017.

The sampling for Botanical audit resumed after the semester examination in December. Students conducted the sampling of the trees, herbs, shrubs and variety of grass species by taking a small leaf sample in case of trees shrubs and herbs and one sample in case of grasses. The study would continue in the next semester to understand the seasonal variations and calculation of Biodiversity Index.

In the month of January 2018, three more audits were held accounting the floristic diversity of the college campus. Phase I of the botanical audit of the college campus was completed by the month of March the next phase of which will be continued in the next semester.

To pay homage to the father of the nation, Mahatma Gandhi, three societies of the college came together to organize 'Gandhi Vandan', an event reliving the memories of one of the most famous leaders of our freedom movement through his most famous bhajans, cleanliness drive and tree plantation drive. The Gandhi Study Circle, the NSS and the Green Beans Society joined hands in the endeavour on the 30th of January. We conducted a plantation drive in which 10 plants of Harshinghar were planted in the premises by the Principal ma'am, Dr. Kalapna Bhakuni, the teacher convenor Dr. Sarita Ghai and the students advisors Dr. Akansha mishra and Chetan Chauhan and few students.

In January 2018, two students of the society Kendra Vijayvergiya and Pratishta Choudhary undertook the research paper on "The Biodiversity Profile of Kamala Nehru Campus". This paper was presented in the 6th National Conference on Biodiversity and Climate Change in Maharaja Agrasen College of Delhi University held on 8th to 10th of February 2018. On 16th February 2018, Kendra and Sumedha Rao participated in the inter-college quiz competition on Environment conducted by Greenaccia – the environment Society of Jesus and Mary College and stood first in the same.

During Ullas a flash mob was organised to raise awareness regarding water conservation and the date of our annual fest Terra'18 was revealed. Creative team redesign the wallpaper on the theme 'Water conservation and related laws'.

Society also organized its online national level creative writing event Greenathon'18 which is conducted every alternative year, in first week of March.

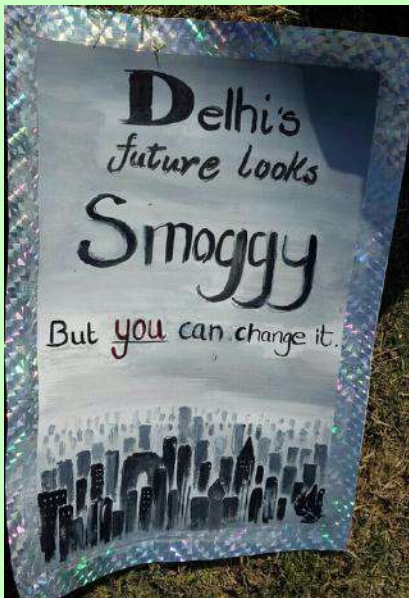
During the month of March, the society went under transformation and the twenty-one years of society was marked by unveiling of new logo on our annual fest Terra'18 which was held on March 23. The theme of the fest was water and it was covered also covered by online media houses like DU Express and DU Bulletin. The formal session was marked by the lecture on water harvesting by Ms. Jyoti Sharma, President, Forum For Organized Resource Conservation and Enhancement (FORCE). This was followed by the lecture of Ms. Aparna, Researcher, Chintan Foundation on E-Waste Management and Processing. The informal session began with the Slam Poetry Competition. This was followed by Debate Competition and Quiz. After which there was a skit performance on the theme of eco-feminism. The play was based the story "A flowering tree" written by A.K. Ramanujan. The event saw enthusiastic participation from the students of different colleges. Society also bid farewell to Dr. Chetan Chauhan (students' advisor) and the event concluded with a vote of thanks.

Further the society will be working on the calculation of water footprints in the upcoming session.

- Dr. Sarita Ghai

Teacher Convenor

Environ-Gallery



Poster making competition
Theme: Air pollution in Delhi.



The research team of JNU- DRP



A glimpse of paper quilling competition



Prof. N. Janardan Raju, faculty, School of Environmental Sciences, JNU, delivering the annual lecture at Terra'17



Glimpses of the celebrations of Terra'17



Society's wallpaper on the theme of "Retreating Antarctica"



Glimpses of Botanical Audit



Greenvengers with team WWF-India



Best out of waste stall by Green Beans Society at Adrith (Diwali Mela) 2017



Delhi Times added 5 new photos October 16, 2017 at Snapshots from the anti-cracker campaign carried out today by G1 Points. The Environment Society of Kamala Nehru College.



Anti-Cracker Campaign and flash mob



Visit to Sultanpur National Park



Mr. Aditya Arya explaining greenvengers and others about his photo-exhibition on significance of Aravallis



Green Beans Team organized the plantation drive in collaboration with Gandhi Study Circle for the event 'Gandhi Vandan'



Greenvengers presenting their research paper at the National Conference



The society was awarded by the International Association of educators

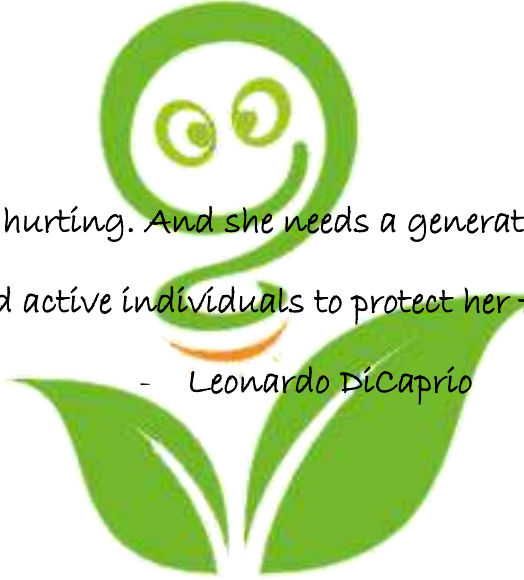


Flash mob organized to raise awareness regarding water conservation



Glimpses of Terra'18



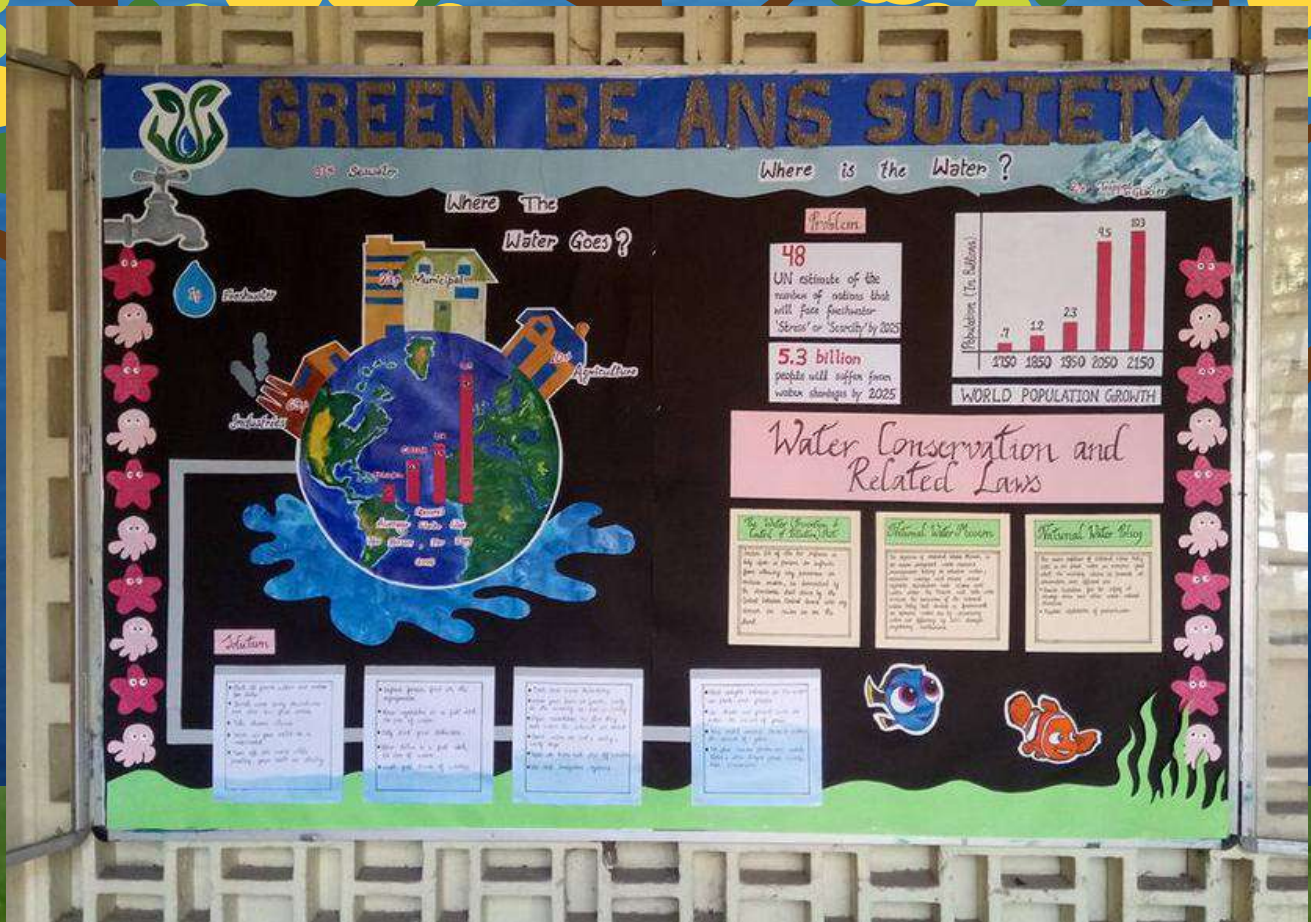


Mother earth is hurting. And she needs a generation of thoughtful,
caring and active individuals to protect her for the future.

- Leonardo DiCaprio

GREEN BEANS SOCIETY

KAMALA NEHRU COLLEGE



GREEN TALK