



SUPPORTING DOCUMENT FOR 7.1.5

GREEN CAMPUS INITIATIVES



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1. Workshop on Sustainable Lifestyle

14th November, 2018, New Seminar Room

Whenever we discuss the current environmental problems the world faces today, one thing that stands out is the problem of huge pile of waste which is generated almost from everywhere. In India, a large part of the waste that goes to landfill is organic in nature. The organic waste can easily be managed on the point of generation itself without increasing the burden on landfills.

To understand it better, The Green Beans Society organised a workshop on sustainable lifestyle. The workshop was conducted by Sh TRN Rao, who has been associated Swarn Vasudha, an organisation working on making composting at home more feasible for more than five years now. Sh TRN Rao is a civil engineer by profession and an ardent environmentalist. During the workshop he gave demonstration of composting at home and how can we use that to make an organic kitchen garden. He also focussed on the problem of air pollution problem around Delhi and the kinds of plant we can have at our houses to reduce its impact.

The society also plans to have a workshop with him again in the next semester to learn about the finer details and to help develop a composting facility for the College Canteen.

2. HARIYALI PROJECT REPORT

Green Initiative By Garden Committee

The Hariyali Project was initiated by the Garden committee of the college. It was an endeavour to involve the students in the process of preparing beautiful potted plants which can be put on for sale to generate modest revenue and in the process educate them in the plantation and care of the plants. Under this project the committee organized its first sale of beautiful potted plants on 1st November 2021 during the Diwali season with the goal to celebrate an eco-friendly Diwali. The exhibition-cum-sale was inaugurated by our principal Prof.Kalpana Bhakuni. It was headed by Dr. Jyoti Dhawan (Convener, Garden Committee). Faculty members involved were Dr. Akanksha Mishra, Dr. Sushma Choudhary and Mrs. Parul Tomar. Lots of students from the Garden Committee as well as Green Beans Society, helped in organizing and coordinating the event keeping in mind the Covid protocol. Some of the plant saplings were multiplied from the college campus. The compost used was prepared by the Green Beans Society in January 2020 from the organic canteen waste.

The event received very positive response and had a great impact on students and members involved by enriching their knowledge of plants. The name tags were attached with all the plants and useful tips were given to the buyers on how to take due care of the plants.

The first event of Project Hariyali was a huge success and we look forward to collaborating with the Green Beans & Fine Arts Society in organizing many more such events.

Students' Team –Anusha, Megha, Pooja, Smira & many more.



ANNUAL REPORTS

OF

GREEN BEANS SOCIETY (ENVIRONMENT CLUB)

2017-21

2016-17

In the year 2016-17 Green Beans Society, the Environment Club of Kamala Nehru College, conducted various workshops, competitions, and events for the College students. On 22nd March 2016 the Society celebrated the International Day of Forests. Various inter-college competitions and cultural activities were performed to spread awareness about the diminishing forest resources.

The first cleanliness drive of the academic 2016-17 was held on 28th July 2016 and was conducted on every Thursday after that. The Society had its orientation for the first-year students on 8th August 2016, where they were welcomed and briefed about the aims and history of the Society. Through a video presentation, previous years' works of the Society were depicted.

On 14th August, Green Beans Society, in collaboration with Garden Committee planted a herbal patch near the bamboo rooms. Members of the Society planted different types of medicinal plants like lemon tree, *ajwain*, *tulsi*, *patharchatta* etc. which the Society received from a Delhi Government nursery. The Society conducted a paper quilling workshop on 15th September 2016 that witnessed enthusiastic participation of the college students.

In the month of August, the Society in collaboration with Ministry of Environment of NCT of Delhi conducted a **six weeks Add-On Certificate Course**. During this time span, eminent speakers delivered lectures on various aspects related to air pollution, drainage system, waste management, water pollution etc. At the end of the certificate course a field excursion trip to Asola Bhatti Wildlife Sanctuary, Delhi and Dam-Dama Lake, Haryana was organised on 1st October 2016 to familiarize students with wildlife habitat and the importance of conservation of natural water bodies.

On 3rd October 2016, the society observed the World Habitat Day by organizing various Inter-college events. Cash prizes along with the certificates were awarded to winners. Society's members played major role in planning, organizing, and execution of the competitions/activities which were all environment related. The Society conducted an anti-cracker campaign on 28th October 2016 in which the students' shouted slogans and made people aware of the hazards of burning crackers.



Green Beans Society 2017-18

Green Beans Society offers unique opportunity to be part of a community that is determined to impact the surroundings in a positive way. Green Beans is stimulating, cosmopolitan and very much part of real-world environment forum. Through the diverse initiatives the society impacts the growth and formulates the ideas of young minds in the direction of being more eco-friendly and responsible citizens. Each year the society conducts an orientation program for its new members. In the session 2017-18, orientation was held in the month of August, followed by an competition “Art and artifacts of nature” in which students were required to use their creative expressions and make cards, folders, bookmarks etc. using waste materials.

During the last week of September, the society members prepared the society board on the topic, “Retreating Antarctica” to raise awareness about the climate change. From the month of October, the society started its field project “Botanical audit” under Dr. Akanksha Mishra which aimed to familiarize the members about their surrounding and to prepare a catalogue of the trees, herbs and shrubs on campus. In the same month, society was approached by the WWF-India for their project. “echo” which is an inter-college environment societies’ panel to share experiences and learn from each other’s activities. During the discussion, the work done by our society was most applauded.

In the month of October, the society also undertook the anti-cracker campaign, which was also appreciated by the College community and covered by Delhi Times. Students had prepared a variety of posters and slogans for the same. As a mid – semester break activity “Best out of waste” competition was organized. The best creations were then put up for the exhibition during “Adrith” – the annual Diwali Mela of our college. A flash mob was also organized to spread the anti-cracker campaign, it observed a turnout of around 70 students and also witnessed the participation of non- GBS members as well.

As a part of cleanliness drive and for creating awareness about waste management amongst students, listing of items under biodegradable and non-biodegradable was done and it was pasted on the green and blue bins respectively. The bins are placed around the College in strategic locations to achieve maximum utilization of the same. On 19th October a group of students visited the eco-friendly photo exhibition “Aravallisapes” which was held in the World Habitat Centre and displayed the significance of the Aravallis.

On 4th November, an excursion trip was organized to Sultanpur National Park to acquaint students with the migratory birds and their habitat. Green Beans was also awarded the “World, Ecology, Environment and Development Award” by the International Association of Educators for World Peace during the 26th World Environment Congress held on November 7, 2017.

The society started its new year by paying homage to the father of the nation, Mahatma Gandhi, by organizing, “Gandhi Vandan” on 30th January 2018 in association with Gandhi Study Circle and NSS, an event reliving the memories of one of the most famous leader of our freedom movement through his most famous bhajans, cleanliness drive and a tree plantation drive. We conducted a plantation drive in which 10 plants of *Harsingar* were planted in the premises by the principal ma’am, Dr. Kalpana Bhakuni, the teacher convenor, Dr. Sarita Ghai, advisors Dr. Akanksha Mishra, Dr. Chetan Chauhan and a few students.



In January 2018, two students of the society Kendra Vijayvergiya and Pratistha 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 from 8th to 10th of February 2018.

On 16th February 2018, Kendra Vijayvargiya and Sumedha Rao participated in an inter-college quiz competition on environment conducted by “Greenaccia” – the environment society of Jesus and Mary College and secured first position in the same. During “Ullas’18” the annual event of our college, a flash mob was organized to raise awareness about water conservation and to unveil the date of Terra’18 which was to be held in March.

The society also organized an online creative writing competition, “Greenathon’18” on the theme, “Plastipocalypse - Beating the Plastic Pollution”. Not only this, the Creative team redesigned the wallpaper on the theme, Water conservation and Related Laws” by the end of the month of February.

During the annual event of the society “Terra’18”, various significant speakers were invited to give public lectures. The formal session was marked by the lecture on, Water Harvesting” by Ms. Jyoti Sharma, President, Forum for Organised Resource Conservation and Enhancement (FORCE). 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 on the story “A flowering Tree” written by A.K. Ramanujan. The event was marked by enthusiastic participation from the students of different colleges. At the end, the society also bid farewell to Dr. Chetan Chauhan (students” advisor) and the event was concluded with a vote of thanks. The event was also covered by various online media houses.

On the World Environment Day, June 5, 2018, the teacher and student members of the Society attended a group talk on the theme "Environmental Protection and Energy Conservation" organised by Petroleum Conservation Research Association. There was avid participation from different colleges of Delhi University namely Deen Dayal Upadhyay College, Shyama Prasad Mukherjee College, Mata Sundari College, Hindu College, Dyal Singh College, JIMS Kalkaji and Miranda House. The programme began with a Key Note address by Director PCRA, Shri R K Ahuja. This was followed by a group discussion by the ECO Clubs on fuel saving and conservation opportunities in day-to-day life. The participants also shared the amazing work that they undertook in their college campuses. The Green Beans Society was appreciated for its efforts towards environmental protection and energy conservation.



Green Beans Society 2018-19

With the beginning of new academic session in July, we received a good number of applications from environmental enthusiasts to work for the society. On August 8, an Orientation Programme was conducted for the new members of the society.

On August 6, 2018 a campus count of Dragonflies was organised in association with WWF. The College was part of the WWF's celebration of India's Dragonfly Festival. The month-long celebrations, starting from 3rd August were aimed at creating awareness about dragonflies and their importance for humans. In order to conduct the Campus count, Ms. Geeta from BNHS, Ms. Nazneen, a dragonfly expert and Mr. Santosh were invited. Before conducting the campus count in the college fields, Ms. Geeta and Ms. Nazneen gave a presentation on dragonflies discussing about the morphology, life cycle and the ecological importance of dragonflies. A field survey was conducted after the presentation during which all the green areas of the campus were covered. This was done because dragonflies breed during the rains. But to spot them, a sunny day is ideal. On the basis of our count, only one species of dragonfly was found in the campus. The species found is known as Pantala. It is an orange colored, migratory species from South Africa. Pantala is the genus of dragonfly in the family Libellulidae, commonly called as the rain pool gliders. They are found almost worldwide.

On September 11, 2018 A Campus Count of Butterflies was organised by the Green Beans Society, as part of Delhi Butterfly Month. The month-long celebrations, starting from 1st September were aimed at creating awareness about butterflies and their importance for humans. In order to conduct the Campus count, Ms. Geeta from BNHS, Mr. Abhishiek Gulshan, founder of Ninox and Mr. Lakhan Kohli from BNHS were invited. Before conducting the campus count in the college fields, Ms. Geeta and Mr. Abhishiek gave a presentation on butterflies. After the informative presentation, it was time for on- field survey. All the green patches of the campus were covered. Best time to watch out for butterflies is before noon. Best months for butterfly watching in Delhi are March to November. Around eight to ten varieties of butterflies were found on the College campus.

On 10th October 2018 the Creative Team of Green Beans Society made our Board on the theme "Beat Plastic Pollution". On 2nd November an Anti-Cracker Campaign was organised which was immensely successful and appreciated. The best creations by our creative team members were then put up for exhibition and sale during "Shubhanjali", the Diwali Mela of our college.

On 2nd November, during *Shubhanjali*, the Diwali mela celebrations of College, an anti-cracker campaign was organised to increase awareness amongst students about the impacts of air pollution on health and environment and was highly appreciated. The best creations by our creative team members from the best-out-of-waste were also put up for exhibition and sale during *Shubhanjali*.

On 14th November, a workshop on sustainable lifestyle, minimizing waste generation at home was organised. The workshop was conducted by Sh TRN Rao, who has been associated Swarn Vasudha, an organisation working on making composting at home more feasible for more than five years now. Sh TRN Rao is a civil engineer by profession and an ardent environmentalist. During the workshop he gave demonstration of composting at home and how



can we use that to make an organic kitchen garden. He also focused on the problem of air pollution problem around Delhi and the kinds of plant we can have at our homes to reduce its impact.

On 6th February, 2019, the Society organised a workshop on Sustainable Lifestyle (part II) conducted by Sh. TRN Rao focussing on making small scale vertical gardens at home form the organic manure and managing waste at the point of generation. He also enlightened about the fact that how waste is a resource and we can use it for the greater well being of the household and society.

The annual event of the society, **Terra '19**, was organised on 27th March'2019. The theme of the fest was '**Celebrating the Connect**'. The formal session began with a presentation by **Dr. Priyanka Kulshreshtha** on Extended Producers' Responsibility (EPR). Dr. Priyanka presently working as Head, Research and Communication, Indian Pollution Control Association (IPCA). Her talk gave useful insights on the theme waste management. This was followed by a talk by **Ms. Jyoti Raghavan** from India, Green and Wild Initiative. She introduced the audience to the campaign that began after the death of a tigress called "Avni" in the forests of Yavatmal in Maharashtra. What started as a simple Facebook post, has turned into one of the biggest campaigns on deforestation and wildlife conservation. She talked about the need of designing development plans without compromising on the forest cover and our green heritage.

Several competitions that were organised included **Debator's Retreat**- the debate, **Slam Poetry Competition** and **Brain Chop**, the quiz competition. As a part of Terra'19, an online photography competition was also organised. All the events witnessed good participation from different colleges. A play on the theme "Celebrating the Connect" was presented by the society members to depict the changing human attitude towards environment that damaged nature. The play was followed by a small cultural program and distribution of prizes/certificates.

On the World Environment Day, 2019, teacher member of the society, Dr. Akanksha Mishra attended the annual Group talk organised by the PCRA.



Green Beans Society 2019-20

In the beginning of the new academic year 2019, the Society members took pledge to educate and inform fellow students and people about water conservation.

In a unique initiative of Green Beans Society, we calculated the water footprint (water consumption through different activities and commodities used in our daily lives) of a representative sample of Kamala Nehru College students (n=800). The survey was conducted from September 2019 to December 2019 using the water footprint calculator from waterfootprint.org. The average water footprint of the students lies between 400-1899 m³/ year. The variety and range of water consumption levels can be attributed to the levels and variety of food consumptions, use of industrial goods and domestic water consumption. The study was conducted to make students aware and help them reduce water consumption for a sustainable future. Based on the water footprint analysis of the students conducted in the months of September to December, 2019, they were informed about the ways and points where the water can be conserved.

On 1st November, 2019, the College's canteen waste composting unit was inaugurated, followed by a short training workshop for the canteen staff and students. The workshop was conducted by Sh. TRN Rao, who has been working on making composting at home feasible for more than five years now. Sh. TRN Rao is a civil engineer by training and a passionate environmentalist. During the workshop, he demonstrated the process of composting using the biodegradable waste from the college canteen. The procedure adopted for composting is a simple one, using cocopeat as the carbon base and a microbial solution to expedite the process of decomposition.

A speech competition was organised by the Society on the topic of "Burning of waste and how to tackle it" on 27th February, 2020. The competition was marked by strong arguments from students about the impacts it would have on environment. The weekly group discussion series on burning environmental issues like the great Pacific garbage patch, the unconventional water treatment methods, waste as a resource and reuse of plastic wastes etc. were regularly conducted and kept the students intrigued.

The spirits of students working passionately for environment could not be dampened even during the lockdown period starting from 15th of March'20. They took onto social media for the spread of knowledge. The Earth Hour was observed on 28th March, 2020 and encouraged others to be a part of it.

On Earth Day, 22nd April, a series of online competitions like, comic strip making, poetry and short story writing were organised. An online campaign of hash tags on contemporary environmental issues were organised on the World Biodiversity Day on 22nd May, 2020. On World Environment Day, June 5, 2020, we celebrated one Earth and kept no boundaries and made our social media platform open for all creativity through poems, short stories, slogans, posters etc.



Green Beans Society 2020-21

The Society observed the World Ozone Day, 16th September, 2020, by having a virtual panel discussion on Google Meet platform. The student and teacher members of the society participated in it. The World Ozone Day this year was special as it marked the completion of 35 years of Vienna Convention for the Protection of the Ozone Layer wherein there was global initiative for the reduction of emission of ozone depleting substances. Dr. Pratibha Bhalla, teacher convener of the society presided over the panel discussion, which aimed at promoting awareness among the students about the importance of the ozone layer in the stratosphere and the need for its protection by reducing the emission of ozone depleting substances. The student representatives of the society discussed various aspects of Ozone Protection. The information and pictures of the event were posted on Facebook and Instagram page of the society.

On 11th November, 2020, an intra society online quiz was organised. The theme of the quiz was contemporary environmental issues. The timing of the quiz was very apt as the festival of Diwali was approaching and air pollution situation in the National Capital of Delhi worsens with changing weather conditions. The Society plans to have many more of such outreach events in the coming year targeting the specific issues.

On 20 January 2021, Green Beans Society of Kamala Nehru College launched a campaign on “Say no to single-use plastic”. An interactive discussion with the students was held with Dr. Soma Sengupta, teacher member, Green Beans Society. Her area of interest is social marketing and Green Marketing. Dr Soma discussed the adverse effects of plastics and measures to reduce the use of plastic bags in India and said that the main reason for the plastic use not declining is that people are not ready to shift its use. Focusing upon social marketing, she introduced 5Ps (product, planning, pricing, physical distribution, public partnership, purse strings and promotion) that would be helpful in introduction of alternatives to plastic bags. The participants find the campaign very informative and interactive.

On 27 January 2021 i.e., Wednesday, Green Beans Society of Kamala Nehru College organised a lecture on “Towards the circular economy, reducing plastic waste & recycling. **Ms. Shubhra Puri** was invited as guest speaker. She is the founder of Gurgaon first, social enterprise dedicated to give voice to stakeholders of Gurgaon through workshops, roundtables, and handbook. An MBA, she started her career as a business journalist with The Economic Times in 1995 and later worked as Editor-content for Power Line and India Infrastructure Publishing (Pvt) Ltd based in New Delhi where she was involved with research and writing on developmental policy and regulatory issues concerning the infrastructure sector. The teacher member of the society, Dr Akanksha Mishra addressed the speaker. Apart from that, 70 members of the society attended the lecture. Ms. Puri addressed many important questions like “what is waste and what happens to it”; and discussed the centralised and decentralized waste management. She also added that India is 5th largest e-waste generator. Towards the end, she focused on behavioural changes that are needed to reduce the plastic use. The participants found the lecture very informative and they interacted with the speaker in the question-answer session. Dr. Soma Sengupta concluded the session by giving a vote of thanks to our guest speaker Ms Shubhra Puri.

Following the session, the Society conducted an online survey for the behaviour and preferences of the people towards the use and replacement of single-use plastics. The survey was conducted amongst the students and their family members across gender and age groups.

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Due to pandemic situation, the students are in their respective hometowns, hence we were able to collect data from different cities. The survey showed that the people are willing to switch to a more sustainable alternative, provided there is one available. A detailed report of the project is published in the annual magazine, Green Talk. On the basis of research outcome, we are designing a strategy to reduce use of single-use plastics in the College and the neighbouring societies.

On the World Environment Day, 5th June, 2021, the Society organised an online poster competition on the theme of “Ecosystem Restoration” in coherence with the theme given by United Nations. The two best entries were given certificates and the all the posters were shared on the Society’s social media handles on Facebook and Instagram.



3. SINGLE-USE-PLASTICS

Report on survey by Green Beans Society for reduction in use of Single-Use-Plastics

Introduction

In today's world, the single-use-plastics are one of the most used materials and is also a cause of grave concern. The plastics have found a way to travel in our environment and penetrated every corner of our planet. Plastic waste is filling up landfills, clogging drains, piling filth in rivers and oceans, and generates pollution through open burning. To make things worse, bottles, bags, and other plastic junk gradually break into smaller pieces known as micro plastics, although invisible to the naked eye but small enough to enter the food chain as well.

Single-use plastics are goods that are primarily made from petrochemicals and are meant to be disposed of right after use. They are most commonly used for packaging and service ware, such as bottles, wrappers, straws, and bags. Structurally, most of the single use plastics are made of LDPE (Low Density Poly Ethylene), HDPE (High Density Polyethylene), PET (Polyethylene Terephthalate), PE (Polyethylene), PP (Polypropylene), PS (Polystyrene) and EPS (Expanded Polystyrene).

Polyethylene was first created in 1898 but it was not until the mid-1950s that a high-density polyethylene was invented which was the "breakthrough" that enabled the production of cheap, yet strong plastic bags. Since the 1950s, the production of plastic has outpaced that of almost every other material. And today, we produce 300 million tons of plastic each year worldwide, half of which is for single-use items. That's nearly equivalent to the weight of the entire human population. (NRDC, 2020)

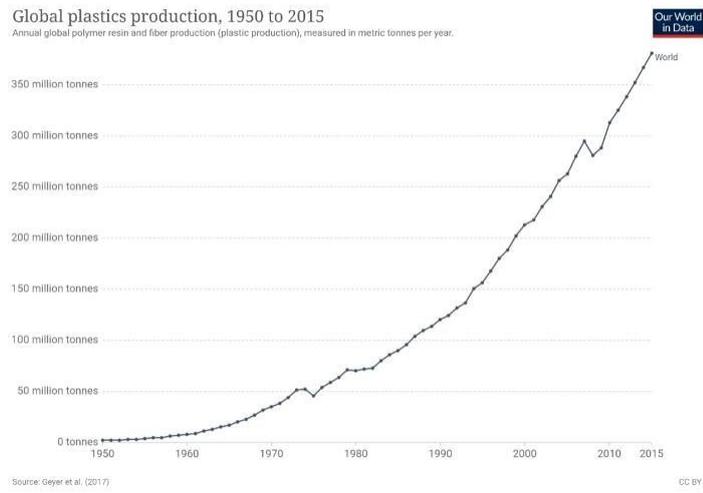
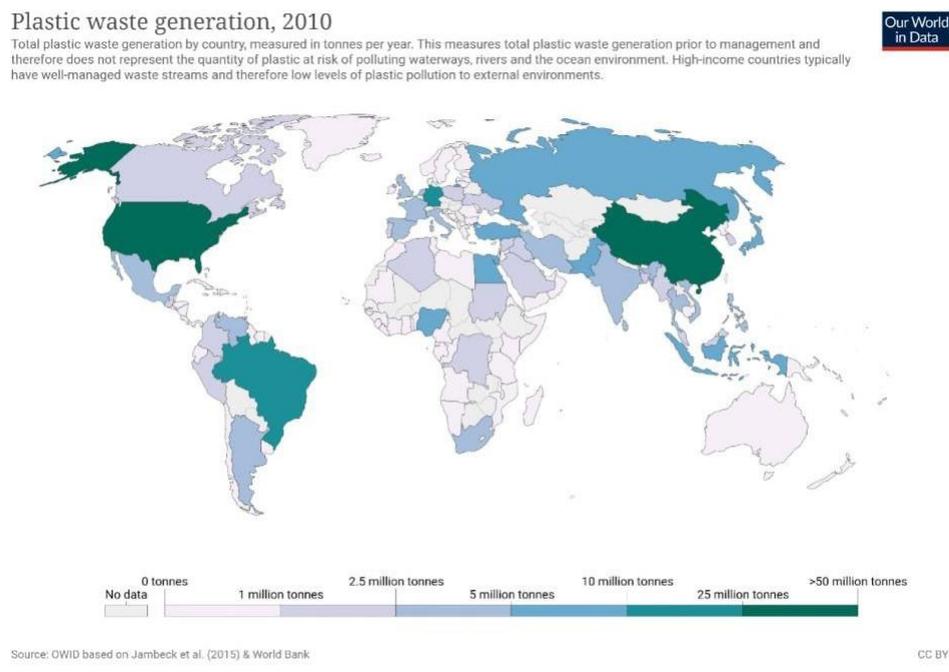


Figure 1 The global production of plastics from 1950 to 2015.

Source: Geyer et al. 2017.

According to Greenpeace, the non-governmental organisation working across the world, only 9% of plastic waste generated globally, gets recycled. Even in developed countries, the recycling rate for plastics collected by households is often far less than 50%, with very little of that converted back into packaging. Most “recycled” packaging waste is down cycled into lower value or unrecyclable products, meaning that the process is only delaying the plastic’s inevitable journey to the landfill.



Map 1 Shows the amount of plastic waste generated across the world.

Source: OWID based on Jambeck et al. (2015) and World Bank

The majority of this pollution comes from countries lacking infrastructure to properly manage



waste, particularly in Asia. With the largest population, China produces the largest quantity of plastic at nearly 60 million tonnes followed by United States at 38 million, Germany at 14.5 million and Brazil at 12 million tonnes (Ritchie and Roser, 2018).

The Central Pollution Control Board's (CPCB) report Implementation of Plastic Waste Management Rules (2018-19) puts the total annual plastic waste generation in India at a humungous 3.3 million metric tonnes per year i.e., a national average of 8 grams per capita per day. The Plastic Waste Management Act (2016) was passed by Parliament with the ultimate aim of reducing plastic waste generation in the country and eliminating single use plastic completely by 2022. But as India enters 2021, this target seems unrealistic.

As a response to this growing problem Green Beans Society of Kamala Nehru College has taken an initiative to study the priority use of plastic among different groups of people around the country.

Research Methodology

The data collection for analysing the behaviour of people towards use of single use plastic and their level of awareness was carried through the questionnaire method of data collection. A questionnaire is a research instrument consisting of a series of questions for the purpose of gathering information from the respondents. The following questions were included in the questionnaire (complete questionnaire is available in annexure below):

- 1) City of Residence
- 2) Gender
- 3) Age Group
- 4) What is the most common single use plastic do you use?
- 5) Would you like to skip the use single use plastic if other option is available?
- 6) Do you think regulations imposed by the government help reduce the use of plastics?
- 7) Are you aware about the Plastic Waste Management Rules, 2016?
- 8) According to you, which single plastic use can be conveniently avoided?
- 9) What factor can motivate you the most for the use of eco-friendly alternatives?
- 10) What factors prevent you from using use eco-friendly alternatives?
- 11) In your opinion what should be done to make eco-friendly alternatives more popular?

The survey was conducted on February to March, 2021. A Pan-India survey was done where responses came from different tiers of cities such as Indore, Delhi, Guwahati, Imphal, Jammu and Kashmir, Bangalore, Nainital, Alwar, Leh etc. Each member of the society had to



distribute the questionnaire among at least 7 participants and a comprehensive sample size of 1100 was collected.

As a response to this growing problem Green Beans Society of Kamala Nehru College has taken an initiative to study the priority use of plastic among different groups of people around the country.

Results and Discussion

Among our 1500 response, the survey received the highest input from females i.e., 75% and recorded 25% male respondents.

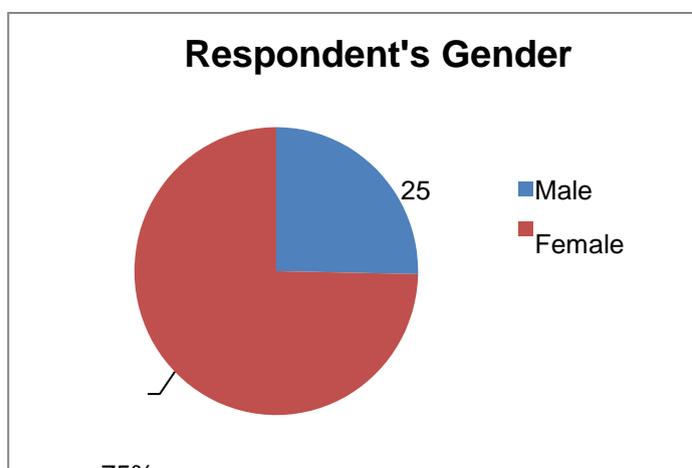
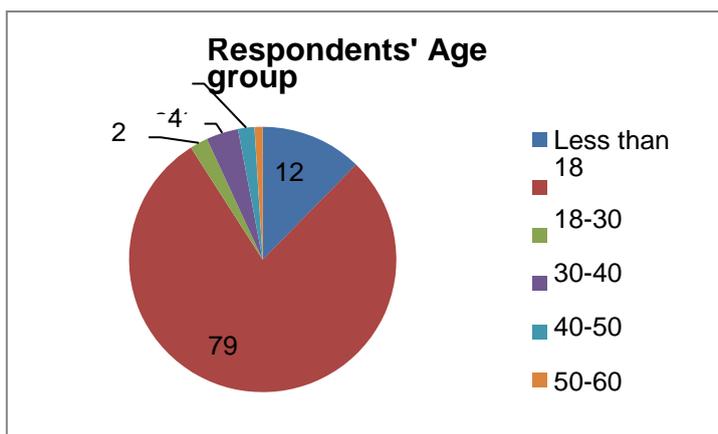


Figure 2: Graph showing the distribution of gender of the respondents

The major share of age group of this survey is from 18-30 years old people consisting of 79.3%. The second highest share are from below 18 years which consist of 12.3%, the third highest share are from 40-50 years old people and second last are from 50-60 years old people. And our last age group which has the lowest share in the age group is from the age group of 30-40 years old.



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Figure 3: Graph showing the distribution of age group of the respondents.



Out of three the major categories of single use plastic i.e. - Water Bottles, Plastic Carry Bags, Packaging Material, the usage of plastic carry bags are the most (38%).

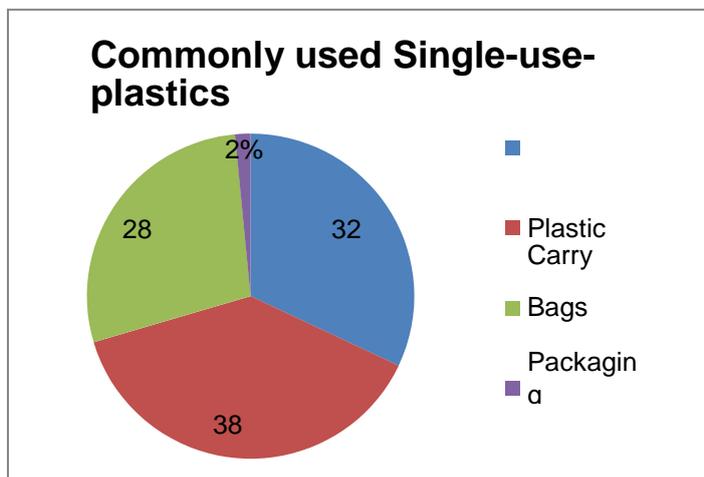


Figure 4: Graph showing the commonly used single-use plastics usage pattern among respondents.

Almost every person uses plastic carry bag on a daily basis. They are used for containing and transporting goods such as foods, produce, powders, ice, magazines, chemicals, and waste. According to the survey results, the second most common single use plastic used by respondents is water bottles (32%) (Figure 4).

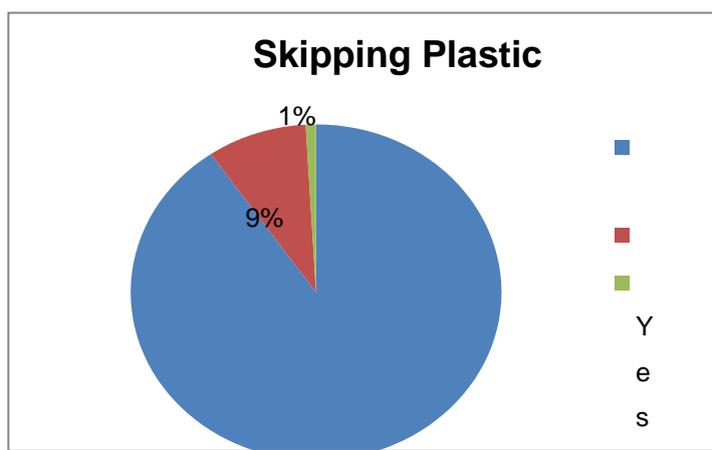


Figure 5: Graph showing the preferences of respondents to switch to alternatives of plastics.

It can be interpreted from the survey that majority of people are not in favour of single use of plastic and have agreed to go for some alternative, if available. The proportion of respondents who feel for using alternative is 90.4% and only a small proportion (8.7%) of respondents may think for the same (Figure 5). Only 0.9% of respondents denies to the usage of some



other alternative and will go with Single use plastic. On this note, we must not forget that the sample conducted was amongst students, who have ample knowledge of environmental threats and factors degrading environment, it does not portray how society will react to this change and its acceptance.



Figure 6: Graph showing the awareness level of plastic waste management rules among respondents.

It was also recorded and was interesting to know that 54% of our respondents were not aware of the Plastic Waste Management Rules, 2016 given by the India government (Figure 6).

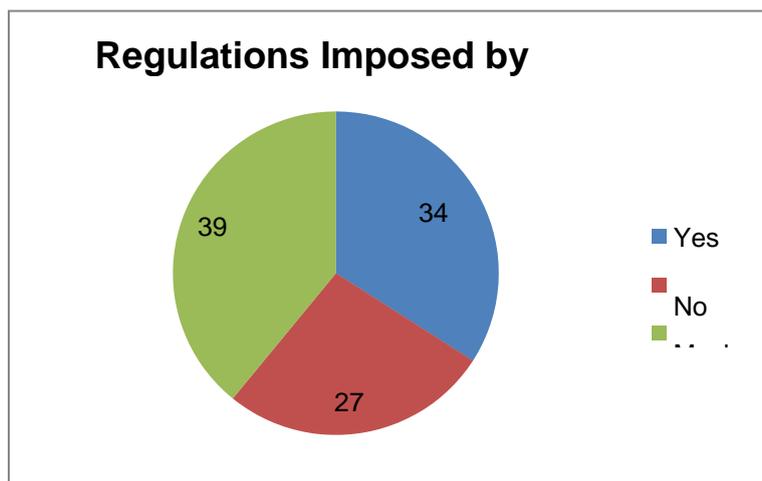


Figure 7: Graph showing the perception of respondents if strict regulations are imposed by the government.

Majority of the respondents were not sure if strict regulations imposed by the government will help reduce plastic use whereas 34% thought, it will (Figure 7). This is a matter of concern as it indicates lack in the ground action that should have been taken by the



government due to which results are not visible, leaving people under uncertainty. But proper steps taken by the government will ensure a significant change.

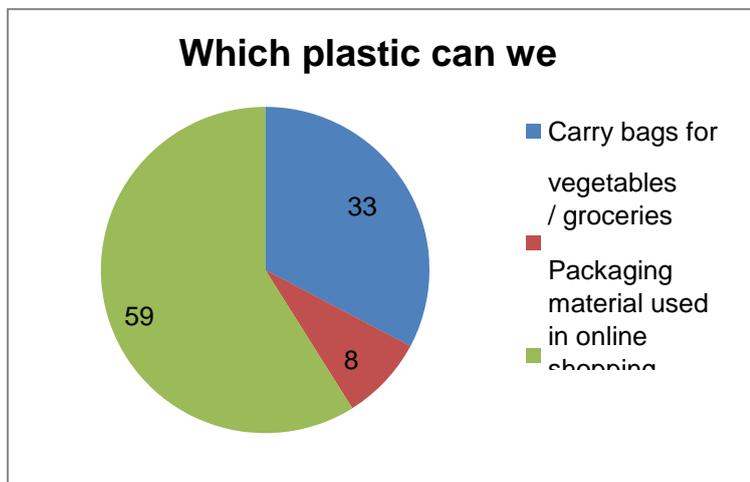


Figure 8: Graph showing the perception of respondents about avoidable single-use-plastics.

People are of the opinion that carrying their own bags for groceries and vegetables can be significantly used so as to avoid the use of single-use plastics with 77.9% of people supporting this. 19.8% of people are of the opinion that single use plastic packaging material in online shopping can be conveniently avoided. Some people also have the opinion that both should be avoided. Rest 2.3% people have diverse opinions on Single use Plastics that can be easily avoided. Some of them are: food storing plastic bags, plastic straws, condoms etc.

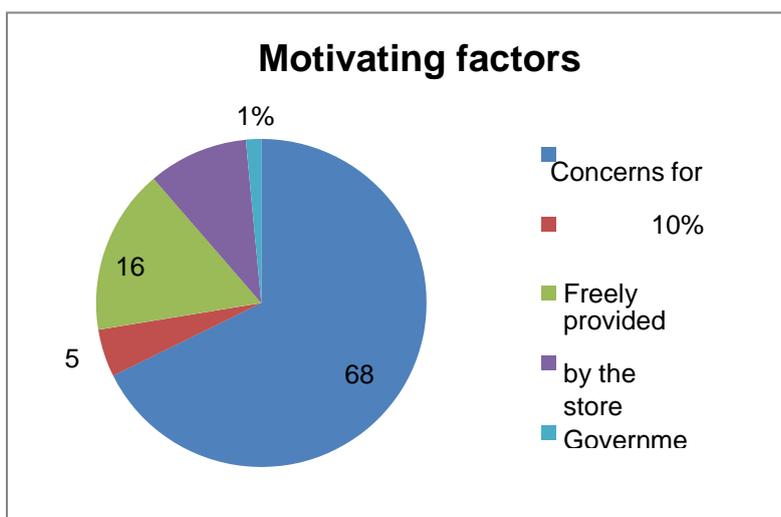


Figure 9: Graph showing the factors that can motivate users to use environment friendly alternatives.

In the survey conducted 13, out of every 20 people are concerned about environment and find it a good enough reason to be eco-friendly. Whereas, 3 of every 20 people demand free eco-friendly bags to be provided by stores, and 2 of every 20 wish for proper government



regulation such as fines and strict ban on production of plastic bags. Though, one of every 20 believes there is lack of awareness and information should be spread through advertisement.

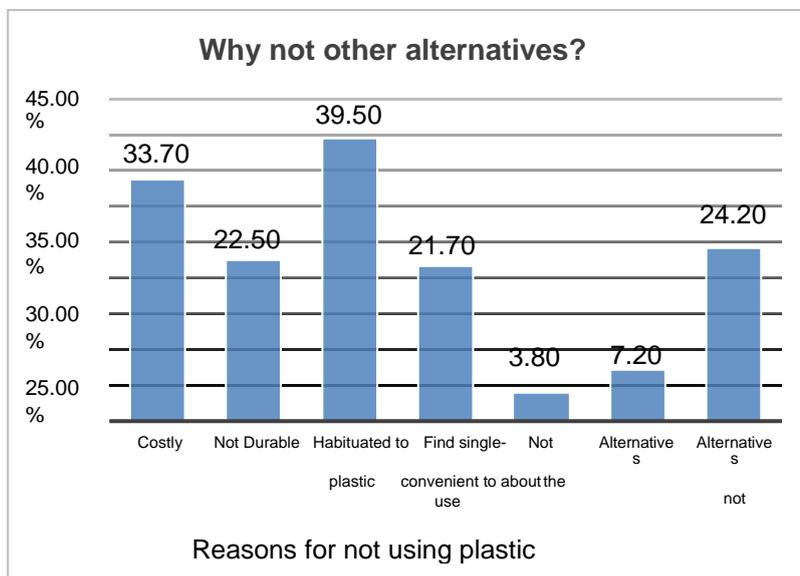


Figure 10 Graph showing factors that are deterrent to use alternatives to plastics

There are some factors that prevent us from using eco-friendly alternatives and forcing us to rely on single-use plastics.

With reference to the survey the most important factor that prevents people from using eco-friendly alternatives is the habit of using single-use plastics. The second demotivating factor is the cost of eco-friendly alternatives that attract people towards single-use plastics. Out of 1059 responses 256 believe that alternatives are not suitable for the products, 237 believe that alternatives are not durable and 230 believe that alternatives aren't convenient to use. Whereas, hardly any of the respondents believe that alternatives don't look smart.

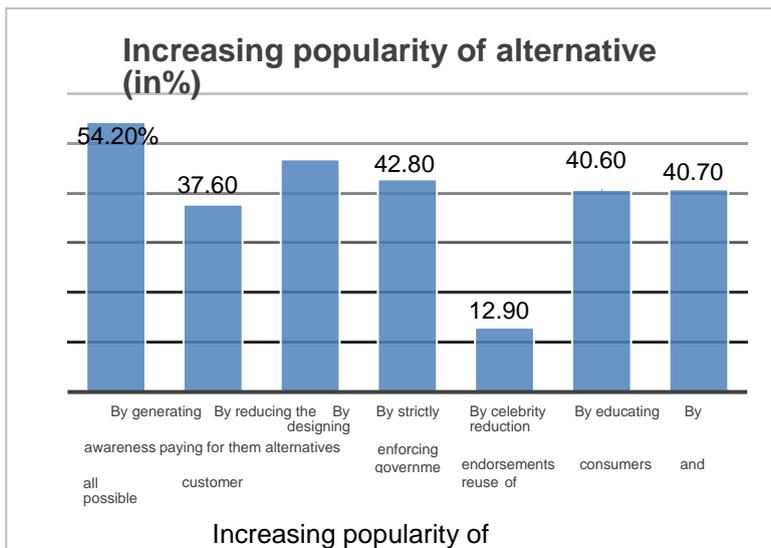


Figure 11: Graph showing ways and means to make alternatives to plastics more popular.

In order to reduce the use of single use plastic and making eco- friendly alternatives more popular, there are a large number of alternatives. Majority of the respondents, i.e., around 54.3% feel that we can generate more awareness about them in all possible mediums. The next most popular method among the respondents (46.8%) was by designing eco-friendly alternatives. A lot of respondents also think that we can achieve the goal by educating consumers about the benefits of eco-friendly alternatives. Reduction and use of single use plastic is also a good option to make eco-friendly alternatives popular. However, very few respondents think that celebrity endorsement could be good way of achieving the above goal.

Conclusion

Plastics, in any form are a necessary evil. There have been many inventions in the human history that were made possible only because of plastics and at the same time this also remains a fact that the first plastic that was ever made on earth is still lying somewhere, contaminating the environment. Single-use plastics have certainly proved to be beneficial in terms of saving money and natural resources, but the scale of generation and environmental concerns have surpassed its benefits. In the survey conducted by the Green Beans Society, we found that there is a lot of scope of promotion of alternatives and the restrictions imposed by the government. There is willingness in the users to switch to more environment friendly products, provided the alternatives are conveniently available at a cheaper rate. The need of the hour is to be more considerate towards environment and take one step at a time towards conservation.



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Annexure

Questionnaire

GREEN BEANS SOCIETY: Survey to study "single use plastics" usage pattern

This form is strictly for understanding the single use plastics usage behaviour pattern among different groups of people. The email IDs and any other data related to individual would be kept strictly confidential.

- 1) Email ID
- 2) Name
- 3) City of residence
- 4) Gender
 - a) Male
 - b) Female
- 5) Age Group
 - a) Less than 18 years(60y)
 - b) 18-30 years
 - c) 30-40 years
 - d) 40-50 years
 - e) 50-60 years
 - f) More than 60 years (>60y)
- 6) What is the most common single use plastic do you use?
 - a) Water Bottles
 - b) Plastic carry bags
 - c) Packaging material
 - d) Other
- 7) Would you like to skip the use single use plastic if other option is available?
 - a) Yes
 - b) No
 - c) Maybe
- 8) Do you think regulations imposed by the government help reduce the use of plastics?
 - a) Yes
 - b) No
 - c) Maybe



- 9) Are you aware about the Plastic Waste Management Rules, 2016?
- Yes
 - No
- 10) According to you, which single plastic use can be conveniently avoided?
- Carry bags for vegetables/ groceries
 - Packaging material used in online shopping.
 - Other
- 11) What factor can motivate you the most for the use of eco-friendly alternatives?
- Concern for environment
 - Advertisements
 - Freely provided by the store brand
 - Government orders Other:
- 12) What factors prevent you from using use eco-friendly alternatives?
- Costly
 - Not durable
 - Habituated to single-use plastics
 - Find single-use plastics convenient to use
 - Not concerned about the environment
 - Alternatives don't look smart
 - Alternatives not suitable for the product.
- 13) In your opinion what should be done to make eco-friendly alternatives more popular?
- By generating more awareness about them in all possible mediums.
 - By reducing the burden of paying for them on the customers
 - By designing eco-friendly alternatives
 - By strictly enforcing government orders
 - By celebrity endorsements
 - By educating consumers about benefits eco-friendly alternatives
 - By reduction and reuse of single use plastics.

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