JANKI DEVI MEMORIAL COLLEGE

University of Delhi

Environmental Self Assessment Report 2018-19

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Introduction

Educational institutions have a vital role to play in societal and environmental reform. In the current deteriorating environmental scenario, it is crucial that these institutions lead by example and pave the way for future generations by harbouring and implementing environmentally friendly initiatives and technologies within their campus. Janki Devi Memorial College, University of Delhi, a premier institution for higher education in the capital, founded in 1959 by the famous Gandhian, Shri Brij Krishan Chandiwala in memory of his mother, Smt. Janki Devi, has been diligently fulfilling this responsibility for almost six decades. The concept of environmental consciousness permeates the core functions of this institution, and the Environmental Self-Assessment report is an honest attempt to analyse the college's environmental policies.

The Environmental Self-Assessment or the 'Green Audit' collates the environmentally friendly activities and initiatives being carried out in JDMC. The Department of Environmental Studies collaborated with AVANI - The Environmental Club of the College for the Green Audit. We are indebted to the administration staff (Mr. Avinash and Dr. Kaushal), Avani & Garden Committte members for providing us the relevant data and information respectively. The Green Audit report is divided into seven sections, each covering a different aspect of the college.

Physical Profile

The physical layout of the institution is a good indicator of the ideology of the organization. For an academic institution, the structure and design of the college campus can encourage positive thinking within the students and the faculty. Green spaces develop an environment which nurtures a connection with nature, and is often the only connection to greenery for students coming from densely populated parts of the city.

Surrounded by fragments of the Central Ridge parts of the Aravalli Hills and the bustling market of Karol Bagh and Rajendra Nagar, JDMC is on the overlap between natural and man-made ecosystems. Providing a learning environment to over 2000 students and a spacious work environment for teaching and non-teaching staff requires a robust and well planned infrastructure which optimally utilizes the physical space. Out of the total plot area of 43,108 sqm, the main college building is around 30%. Approximately 42% of the campus consists of green spaces. A new hostel aims to provide on campus accommodation to outstation students.

The college is disabled-friendly and provides all possible support to remove any hindrances for disabled students. Ramps on all floors and an elevator allow free movement of wheelchairs. The students are also sensitized on issues relating to disabilities in their peers. The physical profile of the campus is given in Table 1.

Figure 1: College Hostel

Table 1: Physical profile of college

S.No.	Description	Area (m^2)
1.	Plot area	43,109
2.	Playground area	10,442
3	Surface parking area	3,775
4.	Road area	4,407
5.	College building built-up area	8014
6.	Staff residence area	1,717
7.	Girls Hostel Building	2,066
8.	Administration office area	450
9.	Area under green and landscaping	18,203
10.	Existing covered area on ground	4,639
	A) College block	1,455
	B) Library block	1,011
	C) Canteen block	565
	D) Covered seating	475
	E) Stage	255
	F) Music room	120
	G) Home Science Lab	264
	H) Vocational Training Centre	493
11.	Existing covered area on first floor	2,737
12.	Existing covered area on second	638
13.	Net covered area on all floors	8,015

Water Profile

In terms of bio-geographical location, Delhi falls under the 'Semi-Arid' zone of India, which means availability of fresh water is always a matter of concern. According to the official 2011 census, the population of Delhi stood at 16.8 million, which has expanded further in the last eight years. As per the Delhi Jal Board data, the daily water consumption has risen to 1.1 trillion litres by 2005, a tenfold increase from 1976. One can safely say that it is probably higher as of now. Hence, the water profile of an institute is a vital cog in its environmentally friendly design.

Water bills were analyzed in order to understand the consumption pattern (in kl) of the college. The data is presented in the table below and shows a monthly/bi-monthly unit consumption of water. The water consumption is split between the academic block and the teaching staff quarters. The bills for Academic Block are generated approximately every 60 days, while the Teaching Staff Quarters bills are generated monthly. The primary use of water in campus is for drinking and sanitation. Janki Devi Memorial College has taken significant steps towards utilizing harvested rainwater for purposes on campus. The water consumption from Academic block meter has been shown in the table. It can be seen that there has been a rise in average monthly water consumption from average of 93 kl to 136 kl. Therefore, JDMC will now take to reduce the water consumption in future. Further, the second meter (i.e. teaching staff quarter) has not been working so the bill was generated on the basis of random meter readings and hence the data is approximate and cannot be compared. However, the average monthly water consumption of teaching staff quarters was 241 kl during 2018-2019 based on random readings.

Table 2: Water consumption in Kilolitres (kl)

Month	Academic Block	Month	Academic Block
Jul-17	178	Jul-18	495
Aug-17		Aug-18	
Sep-17	266	Sep-18	
Oct-17		Oct-18	20
Nov-17	234	Nov-18	
Dec-17		Dec-18	670
Jan-18	74	Jan-19	
Feb-18		Feb-19	
Mar-18	91	Mar-19	164
Apr-18		Apr-19	
May-18	179	May-19	144
Total (kl)	**1022**		**1493**
Average (kl)	**93**		**136**

Energy Profile

Several environmental problems can be traced back to non-renewable energy resources. Air pollution due to burning of fossil fuels, water and soil pollution due to coal mining and oil drilling, displacement of tribal communities, loss of forest land due to dams etc. are some of the impacts of extracting and utilizing non-renewable sources of energy. It is imperative that judicious consumption and conservation of energy should be at the heart of every institution's design and functioning.

Electricity bills of the college were accessed and the monthly unit consumption was compiled as below. The table indicates that the peak electricity consumption was in the summer months, with the highest consumption in the post monsoon period. The average monthly electricity consumption was 24,759 kWh for 2016-17 and 29,466 kWh for 2017-2018 and 31,281 kWh for 2018-19.The college will be taking steps to reduce its electricity consumption and shift towards renewable sources of energy.

Table 3: Electricity Consumption

Month	Electricity Consumption (kWh)	Month	Electricity Consumption (Kwh)
Jul-17	42112	Jul-18	34192
Aug-17	51552	Aug-18	43549
Sep-17	42185	Sep-18	48794
Oct-17	29072	Oct-18	35792
Nov-17	19024	Nov-18	21808
Dec-17	15312	Dec-18	24352
Jan-18	20080	Jan-19	22272
Feb-18	18656	Feb-19	18144
Mar-18	17072	Mar-19	25712
Apr-18	32128	Apr-19	35145
May-18	36935	May-19	34329
Average Monthly Electricity Consumption	**29466**		**31281**

Solid waste generation profile

Municipal solid waste consists of the non-hazardous waste material produced in the city limits. Commonly identified as 'garbage', it is the end point for most natural resources in the urban environment. Sanitary Landfills and Incineration are the two common methods employed by the government to dispose the waste material, both of which contribute to various forms of pollution. Thus, it is imperative to understand how much waste material JDMC produces, and how is it disposed.

The primary sources on campus included the student canteen and the garbage cans around campus. Garbage from the campus is collected on a daily basis in a rickshaw cart. Though it is difficult to weigh the garbage and estimate the mass, the volume of the garbage can be approximated with some degree of accuracy. The dimensions of the empty cart were measured to be 122 cm (Length), 82 cm (Breadth) and 79 cm (Depth). Upon loading the cart, the height of the garbage was approximately 89 cm. The volume of the fully loaded cart was calculated to be 0.89 m^3. The frequency of the collection was monitored for a period of seventeen weeks (Table 4).

Leftover food material and plastic was the main component of this waste. In addition to this waste, recyclable waste is sold to recycler. The details of rag sold during 2017 -2018 and 2018-2019 is provided in Table 5 and Table 6.

The college has taken steps to develop its compost through newly installed compost machine. JDMC has also incorporated 'segregation of waste at the source' by installing the blue and green dustbins at multiple places in the college for easy handling of the waste.

Table 4: No. Of carts of waste generated

Dates	Week	Quantity (Number of solid waste carts per week)	Number of solid waste carts per day
01-01-2019 to 06-01-2019	1	6	1.00
07-01-2019 to 13-01-2019	2	14	2.00
14-01-2019 to 20-01-2019	3	8	1.14
21-01-2019 to 27-01-2019	4	7	1.00
28-01-2019 to 03-02-2019	5	7.5	1.07
04-02-2019 to 10-02-2019	6	8	1.14
11-02-2019 to 17-02-2019	7	7	1.00
18-02-2019 to 24-02-2019	8	6.5	0.93
25-02-2019 to 03-03-2019	9	7	1.00
04-03-2019 to 10-03-2019	10	7	1.00
11-03-2019 to 17-03-2019	11	7	1.00
18-03-2019 to 24-03-2019	12	5	0.71
25-03-2019 to 31-03-2019	13	7	1.00
01-04-2019 to 07-04-2019	14	8	1.14
08-04-2019 to 14-04-2019	15	8	1.14
15-04-2019 to 21-04-2019	16	11	1.57
22-04-2019 to 29-04-2019	17	12	1.71
		Average no. of solid waste cart per day	1.15

Table 5: Waste sold to recyclers during 2017-2018

Date/Category of Waste	13-7-17	19-7-17	25-7-17	27-7-17	14-8-17	19-8-17	21-11-2017	Total
Paper (Kg)	193	317.82	90	80	49.8		1	732
Metal Canister (piece)	32							32
Metal (kg)	157		64		43	50	140	454
Plastic (kg)							10	10

Table 6: Waste sold to recyclers during 2018-2019

Date/Category of Waste	18-7-18	20-7-18	31-7-18	13-9-18	5-10-18	28-1-19	4-4-19	22-5-19	Total
Paper (Kg)					14		190		204
Iron (Kg)	270			363	68	78		70	849
Aluminium(Kg)				10		10			20
Plastic (kg)	7			25.7	15			10	58

Vegetation Profile

Green spaces are rare in a crowded city like Delhi, and for students and employees, a college campus can often be an oasis. The green cover also is a factor that attracts many students to this beautiful campus year after year. The department of Environmental Studies and AVANI – The Environmental Club initiated the Tree Census in order to understand and quantify the floral diversity of the campus. The project also aimed to educate the students about the different tree species that they encounter in their daily lives. The tree census was done by Mr. Akash Verma and Dr. Rajwant Kaur (former faculty members)in the year 2016-2017 with the help of students. The students referred to "Trees of Delhi-A Field Guide" by Pradip Krishnen for correct identification of Trees.

A total of 300 trees were found in the college campus, which included 45 unique species. Neem (Azadirachta Indica) was the most prolific tree species, followed by Champa (Plumeria rubra) and Ashok (Polyalthia longifolia). The campus also had some well-established Banyan trees (Ficus benghalensis), which are a keystone species as their fruits (figs) provide nutrition to a large variety of animals, including several bird species. A related observation was the invasion of Vilayati Kikar (Prosopis juliflora) from the periphery of the college. We identified 14 individuals which had established themselves in the area behind the new hostel construction. Adequate steps should be taken to remove these trees as they have a tendency to spread quickly and overpower the local vegetation.

Overall, the tree census yielded a wealth of knowledge about the floral diversity on the campus

Table 7: Tree Species Census

S.No.	Common Name	Scientific Name	Count
1	Amaltas	*Cassia fistula*	6
2	Arjun	*Terminalia* Arjuna	1
3	Ashok	*Pofyalthia longifolia*	18
4	Bakain	*Melia azedarach*	4
5	Banyan	*Ficus benghalensis*	5
6	Belpa	*Aegle marmelos*	3
7	Cabbage Palm	*Saba/ palmetto*	6
8	Champa	*Pfumeria rubra*	25
9	Chamrod	*Ehretia laevis*	3
10	Chir Pine	*Pinus roxburghii*	3
11	Christmas tree	*Araucaria cu/umnaris*	2
12	Cycas	*Cycas sp.*	17
13	Dhak	*Butea monosperma*	1
14	Fiddle leaf Fig	*Ficus lyrata*	1
15	Firangipani	*Plumeria obtusa*	4
16	Floss Silk Tree	*Ceiba spec1osa*	2
17	Harsingar	*Nyctanthes arbor-tristis*	2
18	Imli	*Tamarindus indica*	4
19	Indian Rubber Tree	*Ficus elastica*	3
20	Jaggery Palm	*Caryota urens*	1
21	Jamun	*Syzygium cumini*	3
22	Jarul	*Lagerstroe mi a speciosa*	5
23	Kadi Patta	*Murraya koenigii*	1
24	Kassod	*Senna siamea*	6
25	Katthal	*Artocarpus heterophyllus*	1
26	Lasara	*Cordiadichotoma*	1
27	Mahua	*Madhuca longifolia*	1

S.No.	Common Name	Scientific Name	Count
28	Mango	*Mangifera indica*	12
29	Maulsari	*Mimusopselengi*	6
30	Neem	*Azadirachta indica*	82
31	Oak	*Casuarina equisetifolia*	2
32	Orange species	*Trifoliate orange*	1
33	Peepal	*Ficus religiosa*	9
34	Royal Palm	*Roystonea regia*	8
35	Safeda	*Eucalyptis camaldu/ensis*	4
36	Saptaparni	*Alstonia scholaris*	3
37	Semal	*Bombax ceiba*	1
38	Shahtoot	*Morus alba*	6
39	Sheesham	*Dalbergiasissoo*	4
40	Silver Oak	*Grevillea robusta*	2
41	Siris	*Albizia lebbeck*	3
42	Sonjna	*Moringa oleifera*	2
43	Traveller's Palm	*Ravena/a madagascariensis*	2
44	Vilayati Kikar	*Prosopis juliflora*	14
45	Weeping Bottlebrush	*Callistemon viminalis*	8
46	Unidentified	—	2

Sustainable Activities

Janki Devi Memorial College prides itself on the numerous environmental initiatives, which have won the college many accolades. We believe that sustainable development must go beyond the classroom and the books, and permeate into the core functions of the institution. With this in mind, the College has initiated several programmes over the last two decades which reflect the environmentally friendly ideology of the institution.

Rain Water Harvesting Program

The Rain Water Harvesting Programme in JDMC came as part of an initiative taken by Ms. Aruna Ludra, a faculty member of the English department of the college. She donated Thirty Thousand Rupees to the college on her retirement and the project was implemented with the help of the Centre for Science and Environment (CSE) in June 2001. CSE continued to monitor ground water level up till 2008. The cost of entire Rain Water Harvesting system was Rs. 70,000. It won the college the Chief Minister's Institutional Rain Water Harvesting Award in 2007.

Rainwater Harvesting System

1. *Rooftop Water Harvesting*

The runoff from the terrace of the college building is channelled into three recharge wells located at three different locations, each measuring 1m x 1m x 2m. All the rooftop rainwater outlets, except that from the Tutorial Block, discharge into stormwater drains and then to the recharge structures. In the Tutorial Block, a network of pipes linked through chambers take the rainwater to the recharge wells. To facilitate groundwater recharge, all structures are provided with 15m deep borewells of 150mm diameter. Layer of bricks filled inside the recharge well ensures proper filtration of harvested water.

2. *Surface Runoff Water Harvesting*

The runoff from the unpaved area is intercepted at the main gate by a collection trench. From here the runoff eventually drains into an abandoned open well, which facilitates groundwater recharge.

The total rooftop and surface area for collection stands at 32,170 m^2. With the average annual rainfall in Delhi being 611 mm, the campus has the potential to harvest over 19,000 m^3 or 19,000,000 Litres of water annually. Current volume of rainwater harvested 6880 (m^3) or 68, 80,000 Litres. This represents about 35% of the total rainwater harvesting potential of the campus. JDMC utilizes the ground water through three borewells inside the campus to cater to the water requirements of the college.

Impact

The Janki Devi Memorial College is located in Delhi's Ridge area. The water level in the college premises was 35.8 m below ground level (bgl) in May 2002. After implementing the RWH system on the campus, water levels rose remarkably. The water level in September 2002 was 22.1m (bgl) while in May 2003 it was 25.0 m (bgl), a rise of 10.8 m even during the peak summer month. The water level in July 2003 was recorded at 35.9 m (bgl). The data was collected and analyzed by the project tram from Center for Science and Environment.

Renewable Energy

Solar energy is the most abundant, easy, and cost effective renewable energy to harvest. It is also the most important of the non-conventional sources of energy because it does not generate any carbon dioxide and contributes to the efforts against global warming and climate change.

On 13 May 2016, JDMC signed a Power Purchase Agreement (PPA) with Azure Solar Solutions Pvt. Limited for 25 years under the Renewable Energy Service Company (RESCO) Model of the Ministry of Renewable Energy. Azure Solar Solutions Pvt. Limited is engaged in the business of building and

operating solar power plants, including grid-connected rooftop power projects. Under the PPA, Azure Power installed the solar plant at JDMC, free of cost.

How does it work?

The College currently purchases electricity from two sources. The primary source is BSES which provides electricity through the main grid at a rate of Rs. 8.00 per unit of electricity consumed. The solar system generates electricity from the incident solar radiation falling on the PV modules and supplies it to the college at a rate of Rs. 3.20 per unit of electricity consumed.

A Net Energy Meter is used to keep track of the power generated from installed solar panel system. Any solar energy that is not used simultaneously with it production, goes back into the electrical grid through the meter. At night or on cloudy days when the system is not producing power to meet the building requirements, the college draws electricity directly from the grid. The Electricity Utility generates a bill for the 'net' consumption for any given billing period and provides a credit for any excess produced during a given period.

The solar plant installed operates on a solar photovoltaic system of 58.90 KW capacity. The plant is installed on the rooftop measuring approximately 14,402 square feet and has a shade free area of approximately 12,292 square feet. The setup includes 84 panels, two inverters that modulate the voltage, a portable weather monitoring station, and a data logger and transmitter. The data logger collects the necessary data from the system and wirelessly transmits it to the Azure Power Monitoring team.

Parameters for the Solar Panel System

#	Parameters	Value
1	System Size	58.9 kW
2	Expected Annual Energy Generation	As per Schedule IV
3	Module Type	Polycrystalline Modules
4	Inverter Type and Rating	String Inverters
5	Electrical Parameter for interconnection	Interconnection in existing LT panels at 3 phase, 415V, 50 Hz
6	Mounting type	Fixed structure
7	Surface Azimuth Angle	0 degree
8	Tilt Angle	10 degrees
9	Wind Resistance	150 Km/ Hr

Contribution to the college

The solar power plant came into operation in the month of December 2016, During 2018-2019, 16.24% of the energy demand of college is met by solar energy generation. Since the installation of solar panel, JDMC could see the difference in reduction of electricity bills as the electricity bought from the solar plant is priced at a much lower rate. We look forward to having the solar power plant generating at full capacity as summer approaches. The solar plant, coupled with power saving installations, will aim to fulfil the complete energy demand for the college in the coming years.

Table 8: Solar electricity generation and export (kWh)

Month	Solar Electricity Generation	Solar Export Units	Month	Solar Electricity Generation	Solar Export Units
Jul-17	5139	32	Jul-18	4532	64
Aug-17	4853	32	Aug-18	4365	32
Sep-17	5801	80	Sep-18	5942.6	16
Oct-17	5503	128	Oct-18	4134.8	0
Nov-17	3827	16	Nov-18	4541.4	0
Dec-17	4028	32	Dec-18	4012	0
Jan-18	4237	96	Jan-19	3572	48
Feb-18	5107	144	Feb-19	4714	80
Mar-18	6127	96	Mar-19	6594.8	32
Apr-18	4782.2	16	Apr-19	6173	48
May-18	5476.6	0	May-19	7299	64
Average monthly generation and export	4989	61		5080	35

The values of solar export of Month September, October, November and April 2019 were college's own reading rest are metered readings

Composting

Recently college has taken initiative in waste management. A composting machine model 24-25 and capacity 25-30 Kg per batch (fully automatic with inbuilt shredder has been installed on 26-02-2019 to decompose the organic waste of the campus.

Green Activities-AVANI

The Environment Club AVANI, at the JDMC was set up in 2004. The club began with simple ideas like on-the-spot painting competitions, slogan and poster making in an effort to encourage students' interest in the environment. The "green treasure hunt" which involved locating tree species on campus, continues to be a much-awaited annual event.

Avani, is the Environment Club of Janki Devi Memorial College, and consists of students from different departments who form its green brigade which is engaged in promoting eco-friendly options for a healthier and greener environment.

Figure 2: Avani activities

Convenors: Ms. Vandana Madan

Co-convenors: Dr. Abha Jain, Ms. Bhawna Pal, Ms. Anuradha Goel, Dr. Kanika Kakar, Ms. Pouriangthanliu, Ms. Ifrah Rehman and Dr. Nemika Relhan.

Avani organised a plethora of activities during 2018-19.

On January 10th, 2019 Avani successfully conducted the Create from Waste event. The event was well participated with 16 students from and outside Delhi University. The event also received participation from four members from the college faculty. The theme of the event was after Symphony, 2019, Go Catch a Rainbow. Ms. Rita Sinha, the ex-faculty from the English department was the judge for the event. Three prizes and a consolation were given to the participants for giving a form and explanation to five dry waste items from the waste displayed. The event reinforced the culture of recycling, which is an effective part of waste management and promoting clean and healthy environment.

As a part of its campaign against plastic waste team Avani set a stall during the Diwali Mela, Jyotsna on November 2nd, 2018 to sell handmade cloth bags. The stall was a part of Aao Bag Banao segment of Avani. The handmade cloth bags were well received by students and the teaching community in the college who purchased the same showing their commitment towards creating a plastic free environment.

On October 3rd, 2018 Avani held the annual intra-college event, The Green Treasure Hunt. There were 25 students from the first year who participated in the event. Ms. Sonali Rohilla and Rashmi Arora from B.A. (Programme) were given cash prizes for bagging first and second position in the event.

On September 22nd, 2018 the team Avani in collaboration with the NGO, the Smart Company organised a workshop, 'Environment and Alternatives to

Plastic' for students and faculty members of the college to spread the message of promoting plastic free environment. The workshop was well attended with around 75 student participants. They were addressed by Mr. Mohit Tiwari from the NGO regarding the benefits of using green bags manufactured by them as alternative to black plastic bin liners in order to solve the problem of accumulation of plastic waste. He also pointed out that the problem of disposal of wastes like sanitary napkins and diapers especially in public restrooms may be tackled well without putting the cleaning staff under duress and hardship by using smaller green bags, which there NGO manufactures.

Following the workshop, 'Environment and Alternatives to Plastic', the Smart Company at the behest of team Avani held an interactive session with the students from the Sociology Department of the college on September 22nd, 2018. The students actively participated and suggested the NGO that the green bags may have a more far reaching impact if sold with more gender sensitive brand name as 'smart citizens' instead of 'smart mom' and 'smart girl'.

On September 20th, 2018, Avani as a part of its 'Say No to Plastic Campaign' introduced green/biodegradable bags manufactured by the NGO, the Smart Company for waste disposal to its students and faculty members. These bags are look-alike of the conventional plastic bags but are eco-friendly as they get decomposed in six months. Dr. Shilpa Chaudhary from the Economics Department, JDMC became first member of the faculty to purchase a pack of 100 biodegradable bags from the NGO.

During the month of September, 2018 team Avani got extremely delighted to see their hard work put in tending the vegetable cultivation at the Ecozone to start yielding results. The vegetables grown were bitter gourd/karela, brinjal, ridged gourd/torai and chillis, which are sent to the JDMC hostel for use.

Avani in collaboration with the student members from the National Cadet Corps (NCC) and National Service Scheme (NSS) at JDMC participated in the Swachhata Pakhwada activity on September 14th , 2018. The event started with girls taking a pledge in the presence of the Principal Dr. Swati Pal to keep the college surroundings clean. This was followed by students forming groups and

engaging in cleanliness drive both inside and outside the college. The students were given poly-bags, masks and brooms for the purpose. The areas cleaned included auditorium, the area around the new basketball ground and the college gate.

On August 14th, 2018, Avani successfully completed its collection for the NGO, Goonj. The students and faculty members actively participated by donating for the endeavour. The items collected and delivered to the NGO consisted of old clothes, bed sheets, curtains, utensils, shoes, sanitary pads, medicines, candles and ration.

Avani successfully held the monsoon plantation drive in association with the Garden Committee, University of Delhi and Mission Vriksha on August 20th, 2018. The Principal of the College, Dr. Swati Pal took the lead in the tree plantation drive, emphasising the significance of the greener and cleaner environment. She, along with the students and faculty members enthusiastically planted trees brought by the volunteers from the NGO, Vriksha throughout the drive way and other areas of the college.

Avani along with the Garden Committee at JDMC celebrated the World Envrionment Day on June 5th, 2018. As a part of the celebration a tree plantation drive was organised. The Principal of the College, Dr. Swati Pal along with members from the teaching and non teaching staff planted trees both in the college campus and outside, along the drive way. The focus was on greening the campus for a healthier and cleaner environment.

On April 22nd, 2018 the team Avani made around 80 bags as a part of the programme Aao Bag Banao and distributed these to people inside as well as outside the college. The Aao Bag Banao was initiated by Avani in March 2018 as a venture with the Earth Day Network in taking forward the crusade against plastic pollution and creation of greener cities. The programme entailed making bags of old used clothes. Both students and teaching fraternity at JDMC actively participated in the programme by donating cloth and making bags out of it at the behest of Avani.

On March 6, 2019 Avani conducted a successful inter college debate

competition Green Matters on the topic "Building dams on rivers is more important than regional cooperation and environmental sustainability". Associate Professors from the Department of Environmental Studies, University of Delhi, Dr. Gyan Prakash Sharma and Dr. Swati Diwaker graced the event with their presence and helped us pick our winners.

Figure 3: Aao Bag Banao

Garden Committee

The college gardens are campus treasures full of tall trees, colourful flower beds and a variety of plants that adds to the beauty and peaceful ambience of the college.

Our gardens include Main (front) garden, herbal garden, rose garden with exclusive display of rockery and a green cliff at entrance with name of the college written on it.

During 2018-19, to begin with, the flower beds in entrance (front) garden were re-shaped and new varieties of flowers were added to them. The college boundary walls were decorated with new flowers. 24 new plants (including bay leaves, cinnamon, miswak, parsley, oregano etc.) were added to the herbal garden, which already houses 150 varieties of herbal species. This year students also joined the club as members and participated with full zeal and zest. The members visited noted public gardens to gather new and innovative ideas for developing our gardens better. To top it all, college garden committee secured 3rd position, under 2 categories, in the University Flower Show, 2019.

The herbal plants, numbered trees of college and potted plants can be easily identified during garden tour with their popular (common) names and scientific (Botanical) names.

The overall impression of open green spaces surrounded by trees and shrubs in garden creates a clean and green college environment.

Figure 4: Environmental Day Celebration

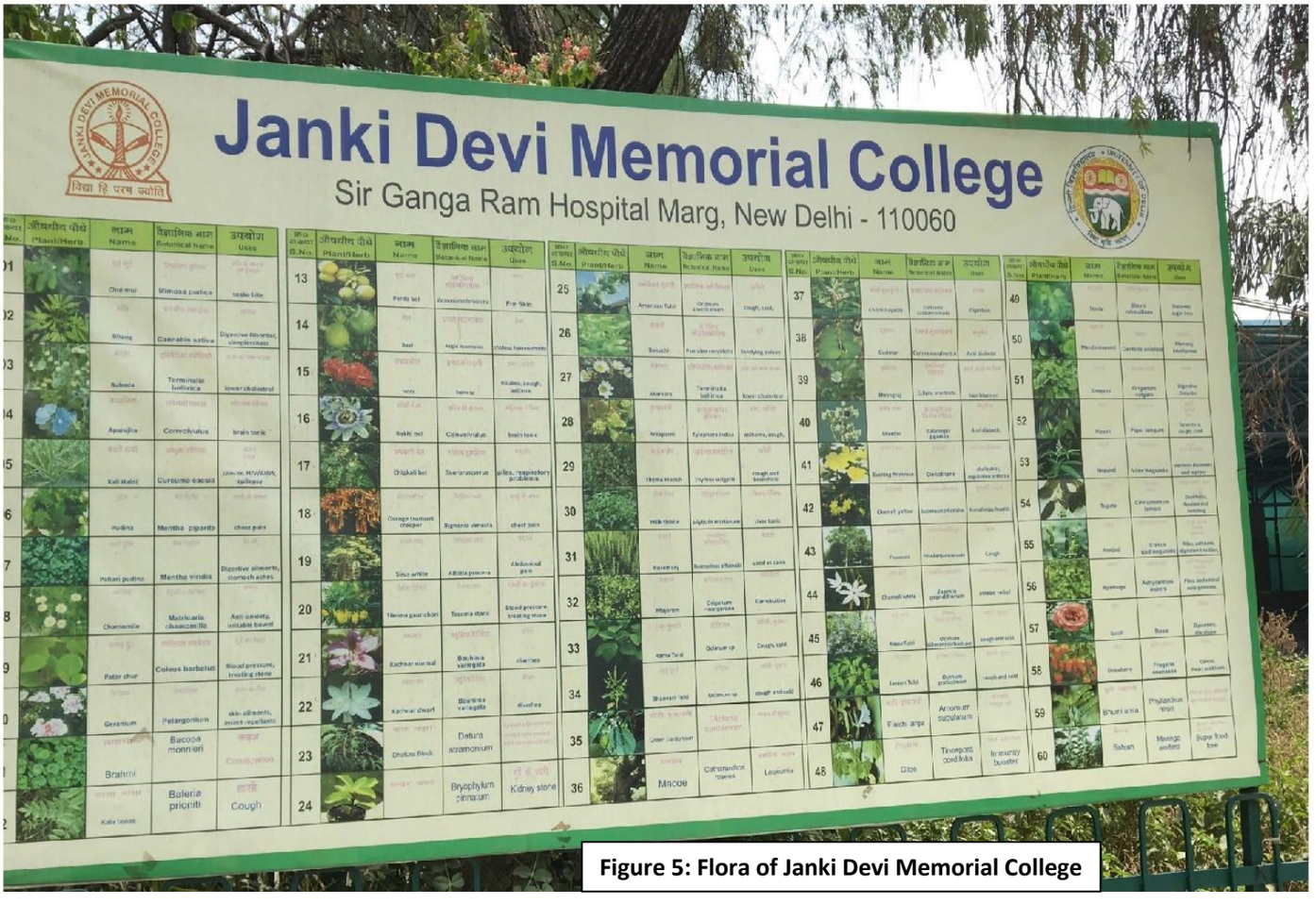

Figure 5: Flora of Janki Devi Memorial College

Environmental Education

The Department of Environmental Studies at Janki Devi Memorial College takes extra effort to provide a wholesome educational experience for the students. The Ability Enhancement Compulsory Course (AECC) in Environmental Studies was initiated in 2015 and the Department of Environmental Studies teaches Environmental Science to approximately 400-500 students in each semester. Apart from classroom teaching, the students are taken out of the campus on environmental field trips.

At the start of the 2018-19, field visits began in October for the first semester students to the Aravalli and Yamuna Biodiversity Park as part of the AECC Environmental Studies curriculum. Despite the October heat, the students relished the outdoor experience and were able to relate the theoretical classroom knowledge to natural ecosystems. Students of the second semester had their excursion in March -April 2019. The department organized sixteen visits between the two parks in order to accommodate all the students over the course of two semesters.

Figure 6: Educational visit at Aravalli Biodiversity Park

Conclusion

The Environmental Self-Assessment was a landmark project in the sixty-year history of Janki Devi Memorial College. In a constant effort to keep up with the changing times, it is important to understand where one stands in the present. In the environmental scenario, an institution has a duty not only towards itself, but also to the students and society to evolve with the shifting tides and to contribute towards a greener and cleaner future. Of the many tools available to assess the impact of one's activity on the environment, a Green Audit is indispensable.

Janki Devi Memorial College is an environmentally and ecologically responsible institution and carrying out many activities to improve the environment such as rain water harvesting and solar energy generation. College has further taken an initiative to improve its environmental performance by recently establishing the compositing unit. Not only is this, students and faculty members are actively working towards environmental awareness through various activities of Environmental Club Avani.

This project would not have been possible without the support of the Principal, Dr. Swati Pal, the administrative staff, faculty members and the students. It is their assistance and collaboration that has taken this Green Audit to fruition.