



‘95 Years’

Indraprastha College for Women

(University of Delhi)

Project *Nidaan*

No Waste Leaves the Campus

Centre for Earth Studies

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Centre for Earth Studies

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B.A. Program, ECA Societies
National Service Scheme
Garden Committee
Sports Committee
Science Society
Community Outreach

Malis, Safai karamcharis

and

Every member of the College Community

Project *Nidaan*

Solid Waste Management on the College Campus

1. The Background

Waste materials are substances that are no longer required by one or a group of individuals. Solid waste means garbage and refuse coming out of consumption and production activities. Municipal solid waste is a waste type consisting of everyday items that are discarded by the public. Unscientific disposal of solid waste leads to air, water, soil or solid waste pollution thereby causing damage to the environment and hazards to life. There are major health impacts of improper disposal of solid waste. Therefore, it is essential to have efficient waste management systems in order to control solid waste pollution in communities where waste generation is significantly large on a daily basis. Proper recycling of solid waste may also be perceived as a resource yielding recyclable value for the economy.

The National Capital Territory of Delhi generates approximately 9620 metric tonnes of solid waste every day (Delhi Pollution Control Committee, 2015). The existing landfill sites of Delhi located at *Bhalaswa*, *Ghazipur* and *Okhla* are overflowing and are operating at 3-4 times their planned capacity. Moreover, these sites have exceeded their expected life cycles. Although there have been some policies designed long ago, there has not been much work done in this area. Waste to energy plants were set up near the landfills and landscaping was done around the landfill sites. Waste to energy, in the absence of segregation of waste at source comes with its own concerns. Unfortunately, the practice of waste segregation is majorly absent among the people of Delhi in particular and the developing world in general. On the other hand, landscaping of the landfill does not prevent it from contaminating the surface and ground water. Delhi's solid waste continues to add to the environmental degradation of the city and the situation has become alarming. With high levels of pollution of several kinds, ranging from air and water pollution to unsegregated solid waste and unscientific disposal of waste, Delhi ranks high as an unlivable city in the world.

2. Objectives

2.1 The Sustainable Development Goals

The Sustainable Development Goals (United Nations Development Program, 2015) form a universal call to act towards attaining a good quality of life, protecting the planet and ensuring a sustainable common future for all by 2030. Goal 3 focuses on healthy life and well-being for all, thereby painting the canvass for a host of targeted areas of development. Goals 11 and 12 focus on the safe, resilient and sustainable living through sustainable consumption and production. Goals 13 through 15 call for necessary action to combat climate change as well as to conserve terrestrial, marine and forest ecosystems.

The above-mentioned goals have sustainable waste management embedded in them. While sustainable production and consumption imply reduction in waste generation, the safe and resilient safe life requires efficient management of waste through reuse and recycling. Unscientific disposal of waste causes threat to all forms of life in the biosphere. Thus, waste management and clean environment are necessary conditions for our common sustainable future. Waste management has been identified as a matter of immediate concern all over the world. Among all forms of solid waste, plastic waste has become the greatest menace. The United Nations announced ‘beat plastic pollution’ as the theme of the World Environment Day in 2018.

2.2 The Solid Waste Management Rules, 2016

As a necessary action towards solid waste management, the Government of India introduced the Solid Waste Management Rules, 2016. These rules provide procedures to be followed for segregation, collection, removal and disposal of solid waste.

- Operationalize segregation at source;
 - organic or bio-degradable waste (wet waste)
 - recyclable or non-bio-degradable waste (dry waste)
 - domestic hazardous waste, if any
- Every commercial/residential/institutional unit to maintain two types of dustbins with lid, namely, green for wet waste and blue for dry waste;

- Local authorities to strengthen systems of collection, transportation and processing of the segregated waste;
- Local authorities to train the collectors (formal and informal);
- Developing decentralized/ semi-decentralized systems for processing and disposal;
- Imposing user fees and penalties.

2.3 The College as a Sustainable Unit

Indraprastha College for Women is an academic institution with a large campus that comprises of academic area, sports area, hostels for students and residential area for teachers and non-teaching staff. It is an archetype of a self-sufficient social community with self-sustaining practices. Project *Nidaan*, the solid waste management program for campus is an initiative on campus that is visualized as an all-inclusive and participatory project for the entire college community. All members of the community are stakeholders and thus are perceived as contributors to the overall action plan. The ultimate aim of the project is to make a waste-neutral campus. Since the major part of waste management is associated with environmental behavior of people, the project aims to follow the fundamental approach of sensitization and awareness generation. The current practice of unorganized waste generation, collection and disposal does not allow effective segregation of waste at both source and sink (Appendix I). While the institution is committed to provide full infrastructural and logistical support, the role of the community lies in generating awareness and following sustainable practices.

The College will run the project through active participation of all members of the College community. It will function through the principle of participative waste management with the target that no waste will leave the campus. While some forms of waste will be recycled inhouse, some others will be channelized through partner organizations. Actions will establish sustainable practices for waste collection, segregation at source and scientific disposal with a commitment to work towards the stated Sustainable Development Goals. It will further extend to community outreach and fulfill an institutional social responsibility.

3. The Partner Organizations

Indraprastha College for Women has signed memorandum of understanding (MOU) with two organizations for scientific disposal of waste of various kinds.

- ‘*Chintan* Environmental Research and Action Group’ for plastic and e-waste recycling
- ‘Greenobin’ for waste paper recycling

3.1 Institutional Social Responsibility (ISR)

Chintan uses the earning from recycling the waste to run a program titled ‘No Child in Trash’ that aims to educate and improve the conditions of the children of the rag pickers. Indraprastha College extends its full support to *Chintan* and contributes towards an institutional social responsibility.

4. The Action Plan

Project *Nidaan*, the solid waste management action plan is a consolidated program aimed to reduce, reuse and recycle the waste generated on campus. The project is aimed to achieve the target that ‘no waste leaves the campus’. It rests on the leadership of the relevant components of the College and active participation of the entire community. While there are some waste management systems already in practice that will have to be streamlined for greater efficiency, there are some more to be introduced. The College will be divided into smaller working units to implement the waste management systems.

4.1 Core areas of waste management

- Plastic
- Paper
- E-waste
- Food/kitchen waste
- Garden waste
- Domestic hazardous waste

4.2 Mode of operation

- Reduction of waste through control over waste generation
- Recycling of waste through segregation at source and scientific disposal

4.3 Targeted locations

i. Canteen

- Pet cold drinks bottles to be replaced with glass bottles
- Sale of water in single use plastic bottles to be restricted
- Usage of disposable plastic or thermocol/styrofoam tableware (cup, plates and spoons) to be discontinued
- Usage of plastic straw to be restricted (except where it is attached with tetra pack)
- Use of paper napkins to be minimized
- Water/Tea/Coffee to be served in paper/ceramic/glass cups instead of plastic/thermocol
- Segregated waste to be disposed in color-coded dustbins

ii. Hostels

- Waste segregation in the residential floors and rooms
 - Segregation of waste at every possible source
 - Color coded dustbins to be installed in every floor
 - Specific locations of color-coded dustbins for the visually challenged
 - Red dustbins to be installed in the toilets
 - Incinerators for sanitary disposal
 - Proper use of waste paper baskets in rooms
- Waste segregation in the kitchen and mess
 - All disposable cutlery to be banned
 - Color coded dustbins to be installed in the mess, kitchen, cooking area and washing area
 - Food waste to be disposed along with wet waste
 - Use of biodegradable disposal bags instead of black polythene bags

iii. Academic Area

- Color-coded dustbins (green for wet and blue for dry waste) to be installed uniformly all over the campus
- Dustbins (in pairs of blue and green) to be installed only at one place in every floor of the academic blocks, department blocks and office area
- Red dustbins to be installed in the toilet blocks for disposal of sanitary and other medical waste
- Incinerators to be installed for scientific disposal of sanitary napkins
- Separate carts (colored blue and green) to be used for unloading of waste from the blue and green dustbins respectively
- Segregated wet/organic waste collected from the green dustbins to be transported and dumped into the compost pits and/or automatic composter
- Segregated non-biodegradable waste collected from the blue dustbins to be dumped in the plastic collection room
- Representatives of *Chintan* to be contacted for collection of the dry waste including plastic, glass, tetra pack, metal cans etc.
- Compost pits to clear off the accumulated pile of garbage immediately and to be continued in tandem with automatic composter
- Automatic composter machines to be installed
- Waste paper recycling to continue with Green-O-Bin
- Plastic and e-waste management with *Chintan* to continue as initiated
- Domestic hazardous wastes like tube lights, bulbs etc. are to be segregated for disposal through *Chintan*
- Food/kitchen waste management through *aaga* to continue
- Used marker pens to be collected centrally and refilled with ink for reuse in the classrooms

iv. Residential Area

- Separate dustbins to be used at home for waste segregation at source
- Polythene bags for waste disposal to be banned

- Segregated waste to be disposed in the green and blue dustbins installed in the residential area or elsewhere on campus
- Segregated waste to be transported to the demarcated collection centers
- Domestic hazardous waste to be segregated for disposal through *Chintan*

4.4 Operational Practices in College Events

- Water not to be served in single use plastic bottles
- Water dispensers and paper cups to be kept in the venue for large gatherings
- Water to be served in glass during small events
- Reusable plates to be used instead of disposable plates and cutlery
- Water/Tea/Coffee to be served in paper/ceramic/glass cups instead of plastic/thermocool
- Societies/departments/units to keep set of glass bottles and serving glasses

5. Community Participation

The solid waste management project includes all members of the College fraternity with the Centre for Earth Studies at the helm. Student volunteers under the mentorship of the faculty advisors/conveners/coordinators will work for the appropriate implementation of the waste management protocol. The student volunteers will spearhead the drive through various teams with duly specified targets, timelines and tasks. The major task force will comprise of the student volunteers who will be duly registered and empowered through identity badges. The *malis* and *safai karamcharis* are the most significant and integral part of the project. Teams of teachers, students and staff will all work together with necessary coordination. However, the fundamental principle of working is one of decentralized, delegated and shared responsibility. All tasks will be subject to periodic review and evaluation.

Table 1. Plan of Action

Operating Unit	Designated Task
Student Union	Awareness campaign and sensitization
B. A. Program	Awareness campaign and sensitization
ECA Societies	Campaign through cultural activities
Hostel Union	Waste management in hostels
Department of ENVS and National Service Scheme (NSS)	Periodic e-waste collection drives
Eco Club	Waste paper collection for recycling
Eco Club	Kitchen waste composting through <i>aaga</i>
Department of Geography	Monitoring waste reduction and segregation in canteen
Department of Geography	Social media campaign
Department of Geography	Sanitary waste disposal (incinerators)
Garden Committee and Department of ENVS	Organic composting (compost pits and automatic composters)
Sports Committee	Sports field and other sports facilities
Science Society	Refilling and reuse of marker pens
Resident Faculty	Segregation and proper disposal of domestic waste
Resident Non-teaching Staff	Segregation and proper disposal of domestic waste
Resident Non-teaching Staff	Maintenance of the <i>dhalao</i> area
Community Outreach	Training the volunteer team from among the children of the non-teaching staff

6. Manpower Requirement

- Students from all societies/committees/units
- Faculty advisors/coordinators/conveners for mentorship
- *Safai karamcharis* for waste collection, transportation and disposal
- *Malis* for natural composting and automatic composting
- Dedicated *malis* in charge of running the automatic composter
- Dedicated persons to supervise the running of the incinerators
- Caretakers for overall physical supervision of infrastructure and logistics
- Centre for Earth Studies for overall coordination

7. Budget Heads

- Purchase
 - Dustbins in required numbers
 - Labels for all dustbins
 - Transportation carts
 - Automatic composter
 - Incinerators
- Electricity bill as a running cost
- Printing of certificates, badges, posters and banners

8. Timeframe of the Project

Immediate action plan for the current semester (July- December, 2019)

- Installation of infrastructure and streamlining the logistics
- Intense action program for sensitization and awareness

Sustainable waste management will continue in the long run as per the practices established through the project.

9. Expected Outcomes

Project *Nidaan*, the Solid Waste Management action plan for Indraprastha College for Women is visualized as a comprehensive action plan for sustainable living in the campus of an educational institution. Widespread awareness and sensitization about waste management are the necessary conditions for creating a society that exhibits environmentally conscious behavior. The project has the potential to succeed in reducing the waste generation and in efficiently organizing scientific disposal of the waste for recycling through significant behavioral changes. The project aims at meeting the recent national agenda as well as achieving multiple of the global developmental goals.

10. Target Beneficiaries

The entire college community is expected to benefit out of the project. Students, teachers and staff form a large body who will have a safer and more resilient living condition. While the resident members will have a cleaner environment at their residential areas, the non-resident members are going to enjoy a cleaner environment at workplace. Moreover, it is expected that the benefits thus generated will extend to communities through the members who will spread awareness outside College and help forming the necessary habits. Thus, the sustainable waste management practices of Indraprastha College will go beyond the campus and create a larger environment for sustainable living.

11. Scope for Further Work

The project rests entirely on the active involvement of all members of the College community. The major thrust is on generating awareness, sensitization and bringing in changes in behavioral patterns. The project is expected to result in a significant reduction in the generation of solid waste and recycling of the waste.

Once the first phase of the project is carried out successfully with solid waste, it has the scope to be extended to waste water management in the campus in the second phase and make the campus truly waste-neutral.

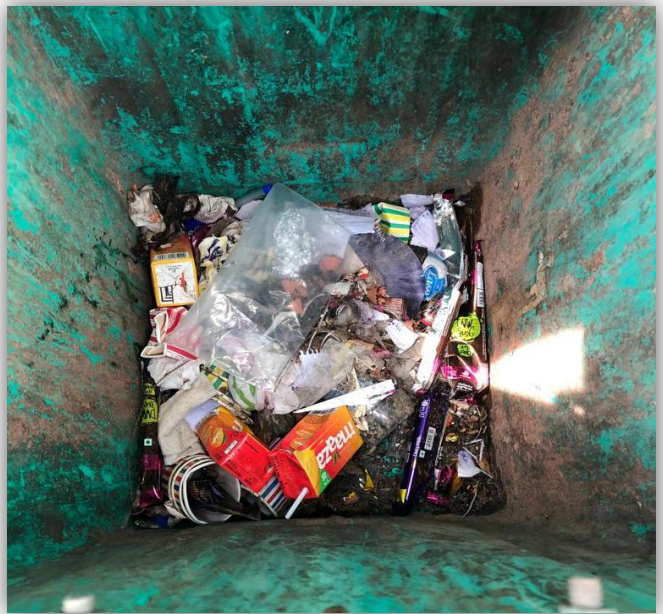
Appendix I: Improvement Targets



Littering and disposal of waste at non-designated sites



Disposal of non-biodegradable and other forms of waste in bins dedicated for paper collection



Improper disposal of non-biodegradable waste in green dustbins



Current practice of dumping unsegregated solid waste at a dumping site within the campus

Notes

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