



# PLASTIC-FREE IGNFA



THE DETAILED STORY OF HOW WE  
TRANSFORMED OUR ACADEMY INTO  
A PLASTIC-FREE ZONE

CHOOSING PLANET OVER PLASTIC





## Omkar Singh

Director

Indira Gandhi National Forest Academy

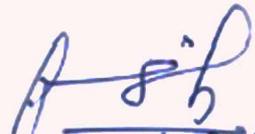


While Plastic is an indispensable material to the modern society, its overuse and accumulation have raised serious concerns for our Environment. Recognizing this, **World Environmental Day** organised by UNEP, rightly focused on this issue by making its 2018 annual theme - “**Beat Plastic Pollution**”.

The Government of India recognized plastic as the next priority task after the much needed **Swacch Bharat Abhiyan** for cleanliness and sanitation. On 2nd October 2019, the 150th Birth Anniversary of Mahatma Gandhi, our Prime Minister called for a Mass Movement against single-use plastic to eliminate this environmental menace by 2022.

Closer home, as the premier training academy for Indian Forest Service (IFS) probationers, IGNFA too has recognized the fight against plastic. In 2018, the Academy released an order banning specific single-use plastic usage inside the campus. In this context, I **congratulate 2018 Batch IFS Officer Trainees** on taking up this Initiative to make the campus truly Plastic-Free. The Initiative encompasses the aforesaid international principles, domestic policies and academy guidelines. It shall also uphold the mandate of IFS for protecting the environment comprehensively.

We are also happy to release this report on the **50th anniversary of ‘Earth Day’** whose theme ‘Climate Action’ resonates with SDG 13 i.e. to move towards low-carbon developmental pathways. Plastic has significant amounts of carbon footprint and environmental risks, which makes the plastic-free way of living climate-friendly.

  
17-4-2020  
(Omkar Singh)



## FOREWORD

### **Sushil Kumar Awasthi**

Additional Director

Indira Gandhi National Forest Academy



The devastating effects of 'Plastic waste' on our environment are well known. Plastic waste has occupied all possible spaces in our lives, polluting the surroundings and creating serious health hazards in the process. It is also believed to cost up to \$33,000 per ton in reduced environmental value, according to a study.

In order to reduce usage of single-use plastic, voluntary reduction strategies have been found the most effective way, as they allow the users to modify their consumption patterns, providing an opportunity for affordable and eco-friendly alternatives to replace the plastic.

'Plastic Free IGFA' is one such meaningful and welfare driven initiative launched by OTs of 2018-20 batch. This initiative facilitated distinct cleaner surroundings in IGFA to a great extent, contributing to a healthier environment. The underlying vision of the campaign is to actively contribute to the society and the communities in which we operate building a better and sustainable way of life, which is highly commendable.

The planks of the strategy of said initiative entailed conduct of a baseline survey to identify the problem areas through case studies, awareness drives carried out in and outside the campus highlighting the negative effects of single use plastics and linking it with hygiene and sanitation, provide a startling revelation to the readers.

The report starts with an overview of survey of consumption areas and an action plan for plastic waste management. The study further presents an account of location and event specific strategies along with suggesting a roadmap to reduce single-use plastic pollution in IGFA. Elaborating the management strategies to rope in the community in the campaign, the report successfully makes a case for devoting our attention and resources for a better IGFA.

The 2018-20 batch in general and the core team behind the campaign 'Plastic-Free IGFA', consisting of members namely, Anand Reddy, Justin Jones, Karthikeyani, Swetha Boddu, Thejhas Sekhar and Vignesh Appavu need to be warmly congratulated for this commendable effort.

I also wish the entire team a very best for the future to lead many such campaigns in your respective workplaces.

(Sushil Kumar Awasthi)



## FOREWORD

### **Nidhi Srivastava**

Additional professor

Indira Gandhi National Forest Academy



Plastic-culture is today's sad reality worldwide. With capacity and flexibility for diverse use plastic on one hand has contributed a lot in development in terms of luxury, infrastructure, space and medical science etc. but has also adversely affected our environment as unmanaged, non-biodegradable single-use waste.

Although, plastic pollution has become a major challenge for today's world as its impact on ecosystem is damaging and long lasting, but we can find solution by practicing 3Rs-'Reduce-Reuse-Recycle'. In this context, I welcome the initiative taken by IFS probationers of 2018 batch during their training at IGNFA, Dehradun. Most of them came forward voluntarily to contribute and made continuous efforts to reduce, reuse and recycle plastic.

Their effort encompassed all those activities which could have directly or indirectly reduced plastic pollution for eg. reducing single use plastic, reusing and recycling the plastic; associating FRI offices, residents, students, local community; coordinating with district administration and NGO partners etc. Their keen and consistent efforts on 'Plastic-Free IGNFA' has not only yielded fruitful and meaningful results within a year but has also created an awakening atmosphere amongst the FRI residents including Officers and staff to continue this new way of dealing plastic and to avoid unnecessary dependence on it.

I congratulate all the IFS probationers of 2018 batch for their contribution to this noble task specially our Core Team members namely Anand Reddy, Jones Justin, Karthikeyani, Swetha Boddu, Thejhas Sekhar and Vignesh Appavu. As their Course Director, I really support the probationers in their creative and constructive works.

I am sure that these bright and talented minds will display more positive and productive zeal at their workplace as role models. I also hope their efforts and initiative taken up during their training at IGNFA will help in furthering interest in strengthening this and similar initiative among our junior batches.

*Nidhi Srivastava*  
14/11/20

(Nidhi Srivastava)

## PREFACE

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### Plastic - Free IGNFA Team

The use and abuse of plastic is well-documented. We, a group of IFS 2018 Batch trainees, launched Plastic-Free IGNFA Initiative to prevent the abuse of plastic in IGNFA and transform the Academy into a plastic-free zone.

This report documents our methodology, our initiatives, the challenges faced and achievements. In essence, the report serves as a ready reference document for any organization to go plastic-free using institutional means.

Preliminary survey and initial observations in the Academy revealed that the misuse of single-use-plastic was ubiquitous and widespread, ranging from plastic-cutlery in Officers' Mess to PVC flex banners at various events. Also, the waste management was at rudimentary stage where there was no segregation of wastes leading to zero recycling potential, opening burning was a common practice, and poor storage capacity of wastes often led to human-animal conflict. This clearly caused the abuse of plastic. Our mantra against this disorder was simple: To put into practice the principles of Reduce-Reuse-Recycle.

As part of the Initiative, each location and event of the Academy was individually made plastic-free by identifying the usage of single-use-plastic and making efforts to either reduce or replace them with bio-degradable alternatives. For example, bulk procurement of groceries and replacement of plastic cutlery with biodegradable alternatives in IGNFA Mess has resulted in a reduction of 409 kgs (75%) of plastic waste generation per annum, the remaining 25% being recycled.

The waste management system of the Academy was revamped by providing a separate dustbin for collection of plastic wastes, renovating and extending the waste storage capacity, and most importantly partnering with NGO Waste Warriors to

periodically collect and recycle the segregated plastic wastes.

Attitudinal and behavioral change is an integral part of the Initiative. This report details on various measures taken in this regard, such as - cleanliness drives, awareness drives, awareness generation sessions for ground level staff, and collection drives. Such outdoor activities often involved local residents as well as officer trainees. Display of posters, distribution of t-shirts and caps, stickers, awarding cloth bags as prizes, etc. were some of the means adapted to cause the attitudinal change towards an eco-friendly lifestyle.

The report discusses on how we involved various external stakeholders such as Dehradun District Administration, Dehradun Municipal Corporation, NGO Waste Warriors, FRI students and FRI faculty, at various capacities.

Institutionalization of an Initiative is essential for its long-term survival. We endeavored to achieve this by two means: one, by formulating a Standard Operating Procedure (SOP) listing out the roles and responsibilities of Secretaries of various Clubs and Societies, and second, by establishing wooden signages reading "PLASTIC-FREE ZONE" at six different locations of the Academy.

The report includes five case studies discussing various realizations and dilemmas we encountered - the domino effect of the Initiative, the resilience power of nature, how usage of wooden signages led to storage and prevention of 524 kgs of CO<sub>2</sub>, how FRI Canal has become a mini-version of River Ganga and the dilemma of using a plastic dustbin in a plastic-free campaign.

By choosing planet over plastic, we make Earth a better place to live. And our initiative was a humble attempt in this direction. The Team looks upon the future batches of the Academy with great hope to carry forward the legacy.

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## ACKNOWLEDGEMENTS

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It is our sincerest duty to thank Shri Omkar Singh, IFS, Director, IGNFA without whose support the Initiative wouldn't have seen the light of the day. Our heartfelt gratitude to Shri Sushil Kumar Awasthi, IFS, Additional Director, IGNFA for his kind words of encouragement.

We feel blessed to have unwavering support and motivation of Ms Nidhi Srivastava, IFS, our Course Director, throughout the Initiative. The Team benefited vastly from her mentorship, acting as nodal point in processing file work, giving a free-hand with schedules and nudging us to be innovative.

The Team is thankful to entire faculty of IGNFA for their encouraging words. We are particularly indebted to both former and current Estate Officers Shri Uttam Kumar Sharma, IFS and Dr. K. Sasikumar, IFS for their help in renovating waste management system in Old Hostel and materializing wooden signboards respectively. We thank Dr S. P. Anandh Kumar, IFS, for his unconditional support in making sports events plastic-free. We thank Dr. S. Senthil Kumar for his idea of reusing PVC banners. We also thank Dr. B. Balaji and Dr P. Viswakannan for giving us moral support and motivation.

We would like to show our greatest appreciation to Shri S.A. Murugesan IAS, former District Magistrate, Dehradun, for his prompt response to the Initiative. Our Team has greatly benefited from the assistance of Sanitation Inspector from the Dehradun Municipal Corporation.

We thank Forest Research Institute faculty - Ms. Arti Chaudhary, IFS, Dr Sadhna Tripathi, Scientist G, Shri. D.P. Khali, Scientist F- who supported us in our endeavor. We are particularly

grateful to Shri S. R. Reddy, Asst. Silviculturist, and Dr. Shailendra Kumar, Scientist C, for their help in the preparation of wooden signboards.

The Team is thankful to graduate students of Forest Research Institute - Anchal Verma, Diksha Verma, Prastuti Saikia, Ganga Bista, Monika Giri, Rachana Yadav, Nani Sunya, Hasmtulla and Fashid VC – for their valuable time and participation in awareness drives.

We appreciate the constant feedback given by our friends and batchmates (IFS 2018). Our heartfelt thanks to all the Club Secretaries for their constant endeavor to abide by the principals of our Initiative.

We thank NGO Waste Warriors, particularly Sh Aman Grover and Sh Naveen Kumar, for the generous support and crucial contribution in overhauling waste management. We appreciate their remarkable gesture to recycle entire plastic waste from IGNFA for free. Special thanks to Ms Ankita Chamola for conducting an awareness session on waste management for ground-level staff of IGNFA.

We express our deepest appreciation to Shri Vivek from Ramky Group, Mess staff (Sh Paras Ram Saklani, Sh Mukesh Dhoundiyal and Sh Mukesh Rawat), Maintenance staff (Sh Ashish Nautiyal, Sh Rajendra Singh, Sh Satnam Singh and Sh Vijay Bidlan Kumar), Office staff (Sh Hari Ram and Sh Dinesh) and the entire housekeeping staff of IGNFA.

Our very special thanks to Sh Akhil Thampi, IFS 2018, for his back-cover sketch and Sh Abhimanyu, IFS 2019, for helping with the template design and giving an apt cover to this report imbining our spirit “Choosing Planet over Plastic”.

## EXECUTIVE SUMMARY

The definitive impact of plastics, on every aspect of human activity has been significant and substantive. From transforming food packaging industries in terms of extending shelf life and cutting costs to manufacturing of auto parts, due to their superior physical and chemical properties, their utility is here for everyone to see. However, the negative externalities of using this wonder material in an unrestrained manner are also becoming increasingly evident.

Toxic bio-accumulations, clogging of waste water drains, land degradation, increasing disease hazards are well-known adverse impacts of plastics, to name a few. Hence the plastic dependency, or even addiction, needs a comprehensive review by carefully weighing the environmental, economic and social consequences. A multipronged approach - though gradual but strongly driven by a sense of urgency - is needed.

Hasty actions dwelling on vilification of plastics or the stakeholders can be counterproductive. Instead measures focusing on access to viable alternatives, behavioural changes through IEC (Information, Education and Communication) along with robust, rational and sustained enforcement can create lasting impacts. In short, governmental facilitation and industrial innovation, along with societal responsibility is required.

### At Indira Gandhi National Forest Academy (IGNFA)

‘Charity begins at home’ is a well-known adage. IGNFA - which trains the Indian Forest Service (IFS) officers whose duties and responsibilities are defined around the conservation of our nation’s ecological integrity - needs to be at the forefront of minimising plastic dependency and choosing environmentally safe alternatives. As part of the initiative taken by the trainees of 2018 batch IFS, it was resolved on 2nd of April 2019 to make the academy plastic-free.

Once the ‘Plastic-free IGNFA initiative’ was set in motion the focus was on generating data through preliminary assessments and surveys to serve as a baseline. A systematic approach of detailing locations,

events and stakeholders was done to devise customized strategies.

### Key Findings

- Single-use plastics in the form of carry bags, cutlery (spoons, plates, straws etc.), packaging articles (food wrappers primarily) were significantly responsible for plastic pollution on the campus.
- Packaged water bottles were extensively used at various events (cultural, sports among others) and during tours. They compound the culture of use and throw, and also have large carbon footprint.
- Segregation of waste at source, into biodegradable and non-biodegradable, was not happening at various locations (hostels and mess).
- Online retailers extensively use plastics for packaging purposes. Though some retailers provided buy-back options they were very poorly availed.

### Initiatives

Reducing the single-use-plastic at various locations/events; reusing and recycling the plastic; roping in critical stakeholders like the FRI students, local communities, District Administration and NGO; we have left no stone unturned to make the Academy plastic-free.

### Location Specific Initiatives

Five locations - Officers’ Mess (Old & New), Hostels (Old & New), Staff Quarters (Faculty, Dhobi & Mess workers’), IGNFA Pavilion (including the Gyms) and Office – primarily constitute the IGNFA. At every location, a quick survey was carried out to understand the nature of plastic utilisation. Thereafter, the team brainstormed on aspects of replacing plastics with alternatives and reducing the quantum wherever possible.

We started with **Officers’ Mess (Old)**, where emphasis was laid on reducing the plastic wastes associated with milk & grocery procurement, waste segregation and provisioning of non-plastic cutlery. A single decision to procure milk in large packets (6 litres) instead of smaller ones (1/2 litres) reduced the

generation of plastic waste significantly, equivalent 40,135 milk packets in a functional year. Similarly, grocery products are procured in bulk quantities to reduce the quantum of plastic waste generation. Apart from replacing single-use-plastic cutlery with bio-degradable alternative, permanent cloth bags were procured to purchase grocery items doing away with polythene bags altogether. All the plastic wastes generated are collected and segregated to be sent for recycling. All these initiatives taken at the Old Mess were then carried forward to the **Officers' New Mess** management.

Moving to **Old Hostel**, probationers' rooms are provided with a separate dustbin for plastic wastes to inculcate the habit of waste segregation at source. It is replicated in the New Hostel with a cardboard made dustbin to be in line with our Initiative's principles. A cleanliness drive was organised among the probationers to not only clean the premises, but to spread the awareness regarding the waste management.

**Panditwari** is a commercial-cum-residential area adjacent to the Forest Research Institute. It forms the prime location for minor shopping needs for the Academy's faculty, probationers and workers. Except for a few aware shopkeepers, most of the retailers provide polythene bags to the customers. An awareness drive was organized in the area, where the Team along with FRI students went from shop to shop along the entire stretch (800 m) to enlighten the retailers, street vendors and eateries, on the hazards of plastic wastes, legal status of plastic ban in Dehradun, and the alternatives available to polythene bags. Later, Municipal authorities were roped in to enforce the ban through fines.

The experience gained through the above initiatives was used in the other locations of the Academy – Office and Staff Quarters

### Event Specific Initiatives

The Academy is a hub for numerous activities ranging from sports meets & cultural events to workshops & convocation. Study tours form a major part of IFS training curriculum. In order to transform the Academy into a plastic-free zone, it is important that these events be made plastic-free. Our team met

before every major event and discussed probable avenues of plastic usage, and came up with the solutions to reduce plastic footprint.

We started with **Annual Sports Meet**. The tradition of providing refreshments during the sports events in the form of single-use plastic bottles, plastic glasses, and plastic-coated plates was done away with. Bio-degradable alternatives are used as a replacement. The plastics that came along with sports gears as packaging material, were aggregated and sent to the producer in good condition for recycling. The cloth bibs procured by the Academy for inter-house events were in tune with the Initiative's principles. Awareness on the need for reducing plastic dependency was generated through posters.

The next event targeted was **Convocation 2019**. A new beginning was made by doing away with the usage of plastic wrapped bouquets. Instead, wooden basket and jute wrappings were used. Further, the procurement of metal water bottles by the Academy for chief guests on the stage permanently solved the problem of using single-use-plastic water bottles. However, there were few domains - Plastic banners, thermocol for stage decoration, plastic coverings on food and gift wrappers - where usage of plastic couldn't be curtailed in the short course of time. Nevertheless, efforts are made to reuse the plastic waste generated. For instance, the plastic banners are reused as Table Tennis barricades.

**Mensuration exercise at Kanasar** was taken up as an experimental tour to try various means to reduce the plastic footprint during touring. Disposable water bottles were identified as the major source of plastic footprint during touring. As a solution, hand-operated water pumps were provided in each vehicle along with the refillable 20-liter cans. Further, to prevent littering during the journey, gunny bags were provided in each vehicle to collect the plastic waste generated. A cleanliness drive was also organized in the camp premises.

### Community Participation

Community Participation is fundamental for any social change to happen and sustain itself. The team carried out several outdoor activities - cleanliness drives, collection drives and awareness

drives - involving various stakeholders. Residents of Forest Research Institute (FRI) campus were involved in cleanliness drives and were sensitized about waste segregation.

A dialogue on how to reduce open waste disposal and burning, between the residents, probationers; and waste collectors was initiated. T-shirts, stickers, cloth bags, caps with the logo of 'Plastic-free IGNFA Initiative' were made and distributed as a mode of communication and ownership.

#### **Partnership with Local Administration**

Dehradun District Administration was proactive in providing support for the Initiative. The Administration assisted the Team in cleaning up the garbage mounds at various locations of the Academy and played an important role in effectively implementing the single-use plastic ban in the Panditwari area.

#### **Partnership with NGO Waste Warriors**

Waste Warriors are pioneers in waste management in Dehradun. It has been assisting our Team right from the initial days by providing crucial inputs on alternatives to plastic to organizing an awareness generation session at the Academy for the ground level staff on various aspects of waste management. More importantly, the NGO has entered into a partnership with the Team to periodically collect and recycle the plastic wastes generated in the Academy at zero cost.

#### **Institutionalizing the Initiative:**

No initiative would prevail in the long-term unless we institutionalise it. We endeavour to achieve it through two means:

- a) **Standard Operating Procedure (SOP)** - For mainstreaming and building upon the initiatives by future batches of the Academy, an SOP was

formulated. Responsibilities and duties for the office bearers of various clubs and societies of the Academy were clearly assigned and communicated. A Plastic-free IGNFA Committee is to be established every year to foresee the implementation of various measures taken up as part of the Initiative and to come up with further innovative measures to reduce the plastic footprint of the Academy.

- b) **Permanent Wooden Sign Boards** – Signboards reading “PLASTIC-FREE ZONE” are being established at six locations within the Academy. Signboards carry the legacy of the current generations and remind the future generations of the responsibility they have in maintaining the Academy plastic-free. Choosing wood over steel for preparing signboards has prevented 524 kgs of CO<sub>2</sub> emissions. It also has the symbolic essence of promoting carbon locking and neutrality through sustainable wood harvesting and utilization, which is in tune with the Government of India’s ‘Wood is Good’ Campaign. The wood for the sign boards is sourced locally from a Camphor tree in FRI campus and most of the wood processing (sawing, seasoning & preservative treatment) was done using FRI facilities.

We initiated Plastic-Free IGNFA with an intention to make our Academy ‘plastic-free’. But before we realised, it has turned into a mass movement where probationers started refusing polythene bags, started using personal bottles to prevent purchase of disposable bottles, and more importantly they started understanding the 3Rs (Refuse, Reuse and Recycle) at a personal level. However, there is lot more to be done in reducing the plastic foot-print of the Academy, which the Plastic-free IGNFA Committee, as envisaged in Standard Operating Procedures (SOP), would be dealing with.

# Chapter 1

# SURVEY AND ANALYSIS



## CHAPTER 1

### SURVEY AND ANALYSIS

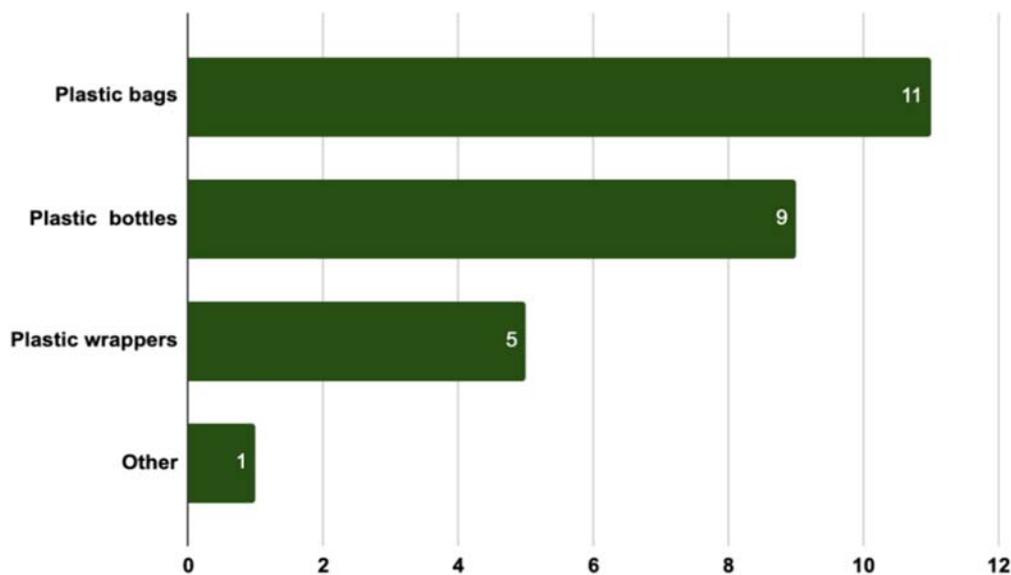
Peter Drucker, father of modern management thinking, once quoted “**What gets measured, gets managed**”. Hence, a survey was conducted to understand the ground-level situation and various perspectives on the issue of plastic waste management in the Academy. Diverse set of people - probationers, mess workers, cleaning staff, security staff, tourists and FRI students -working at various

locations of the Academy, were interviewed by our Team members.

Our survey questionnaire included a variety of questions including what kind of single-use-plastic is used; Reasons behind usage; Who should be responsible to tackle the plastic pollution etc

#### Insights and Analysis from The Survey

- I. Polythene carry-bags is the most frequently used form of single-use-plastic in the Academy premises, followed by water bottles and wrappers.

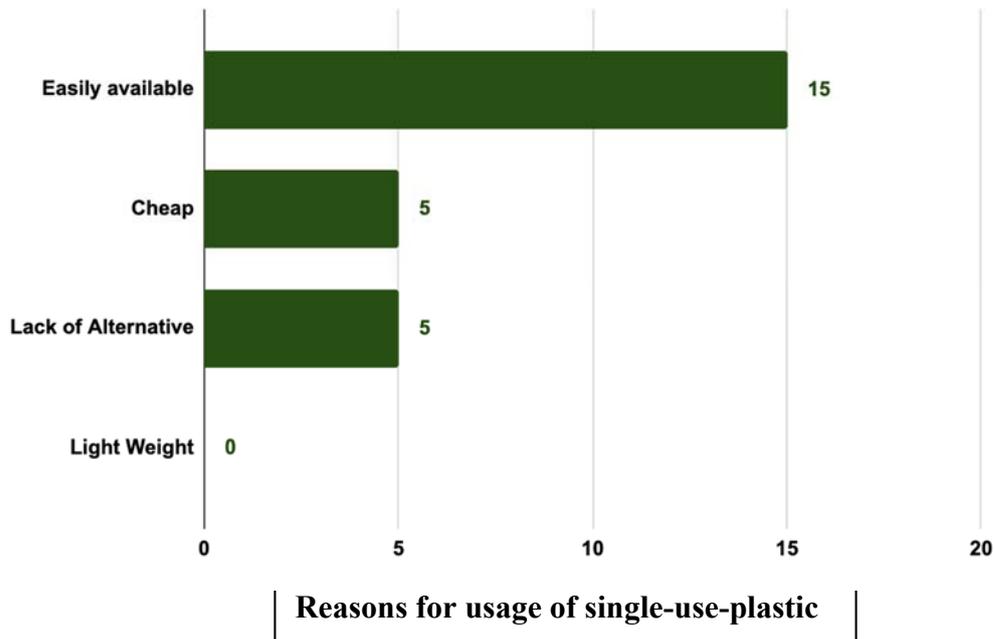


Most frequently used form of Single-Use-Plastic

#### PLASTIC FACTS

Plastic bags are used for an average of **12 minutes**, but a single plastic bag has a life expectancy of up to **1,000 years** <sup>[1]</sup>

II. Ease of availability is the single biggest reason for the prevalence of single-use-plastic

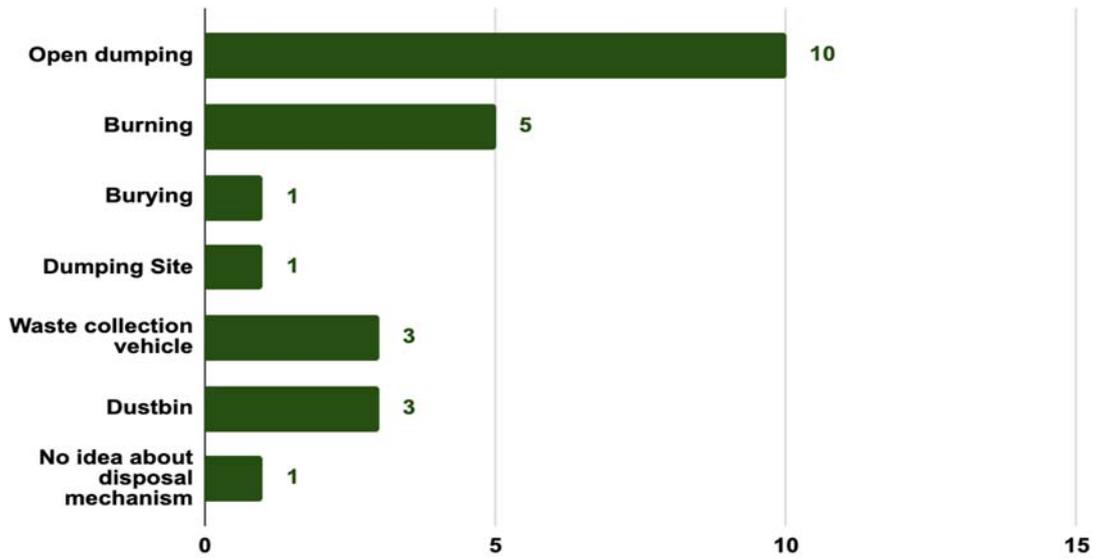


A common myna captured chewing on a polythene cover, inside the Academy premises

**PLASTIC FACTS**

Plastic debris affects at least **267 species** worldwide, including **86%** of all sea turtle species, **44%** of all seabird species, and **43%** of all marine mammal species [2]

### III. Open dumping and burning are the major modes of plastic waste disposal



Mode of plastic waste disposal

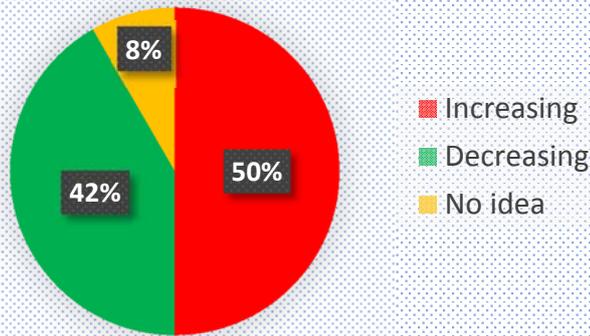


Open dumping and burning are the most common ways of plastic waste disposal

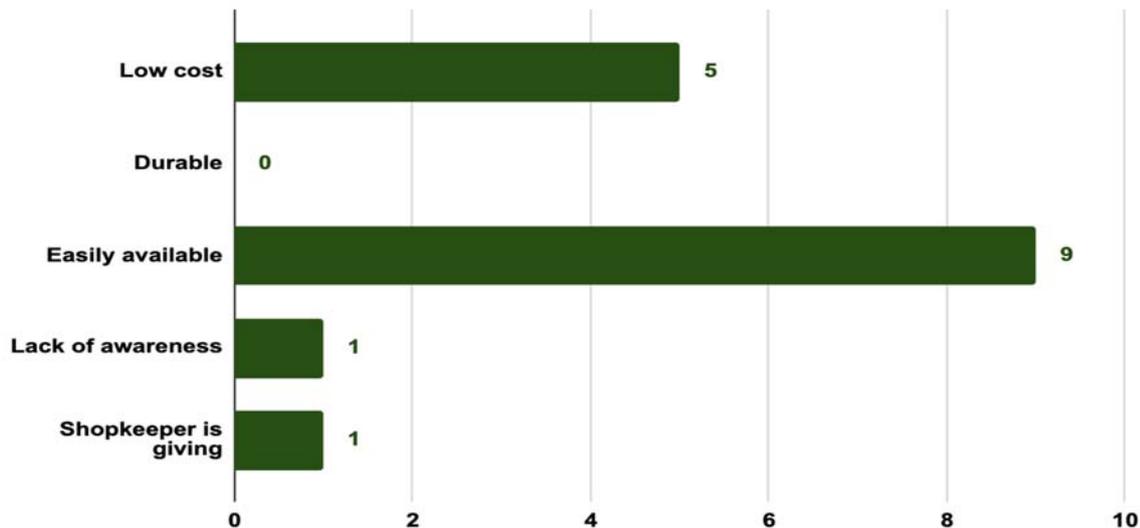
### IV. Awareness regarding the plastic pollution

- 100% of respondents agreed that plastic pollution causes problems.
- 50% of respondents said that there has been an increase in the use of plastic as against 41.7% saying that there has been a decrease. The rest were unable to comment.

**Usage Trend of Single-use Plastic in the Academy**



**V. Ease of availability and low cost are the major reasons for increase in usage of single-use-plastic**



**Reasons for increase in usage of single-use-plastic**

**PLASTIC NUMBERS [3]**

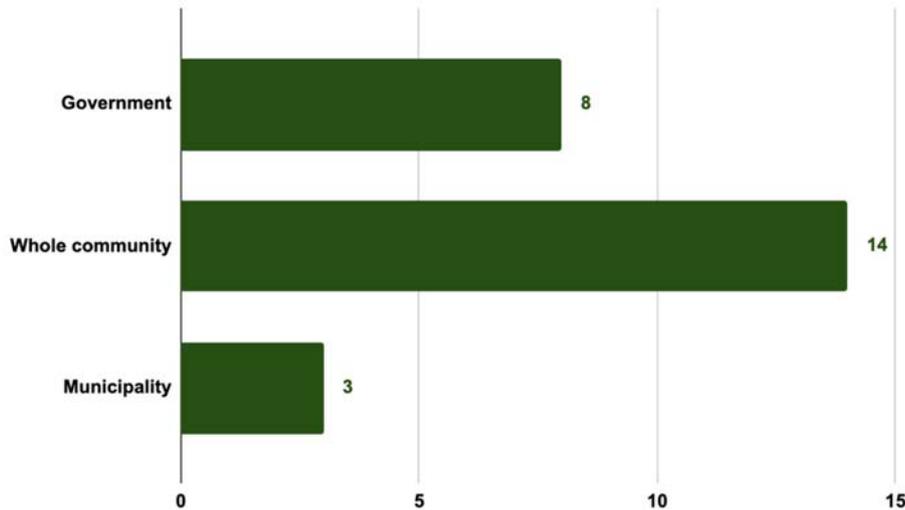
**1 trillion – number of plastic bags consumed worldwide every year**

**400 million – tonnes of plastic produced globally every year**

**1000 years – Time it takes to decompose plastic bags and Styrofoam containers**

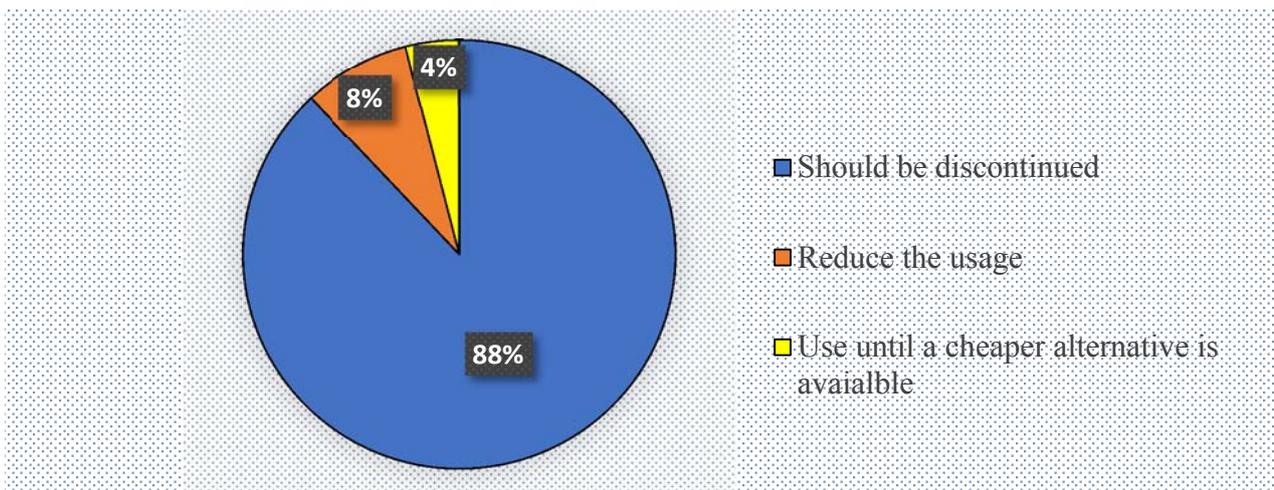
**\$13 billion - the annual economic damage plastics impart on the world marine ecosystem**

VI. Community has the primary responsibility in tackling the plastic waste pollution. The actions of the community are to be augmented by necessary government measures.



Responsibility of tackling plastic pollution

VII. On the future trend of plastic usage, 88% of respondents opined that it should be discontinued



Desirability of plastic usage

# Chapter 2

## **ACTION PLAN**



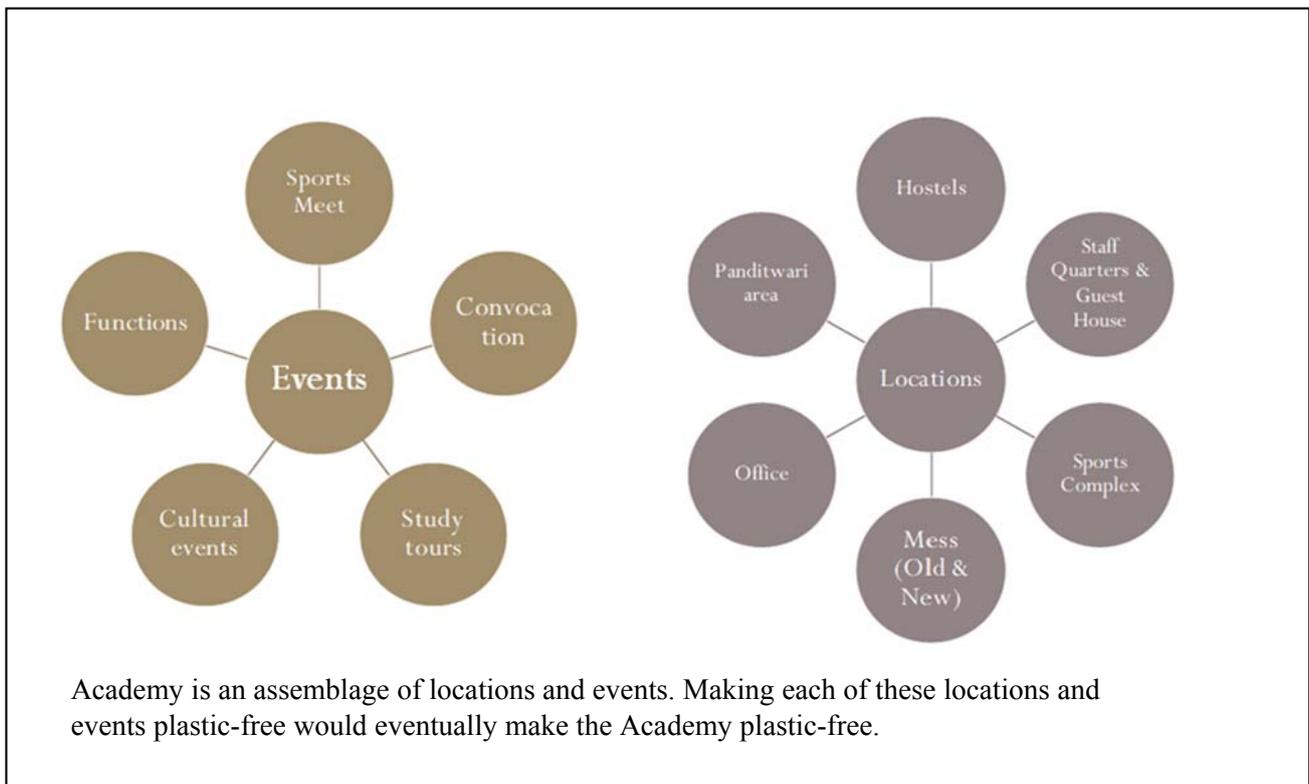
## CHAPTER 2

### **Action Plan**

The main aim of the Initiative is to eliminate the usage of single-use-plastic in the Academy and reduce plastic dependency. Emphasis is laid on reusing the plastics and converting the plastic waste into useful forms through recycling.

The usage of plastic is identified in day-to-day activities at various locations and during various events in the Academy. Each and every

location/event was taken up and the team brainstormed on possible avenues where single-use-plastic can be replaced with alternatives. After taking cognizance of the concerned faculty, the non-plastic alternatives were put in place. Also, the people concerned with the procurement and usage of the single-use plastic objects are appraised of the Initiative and possible alternatives to the single-use plastic.

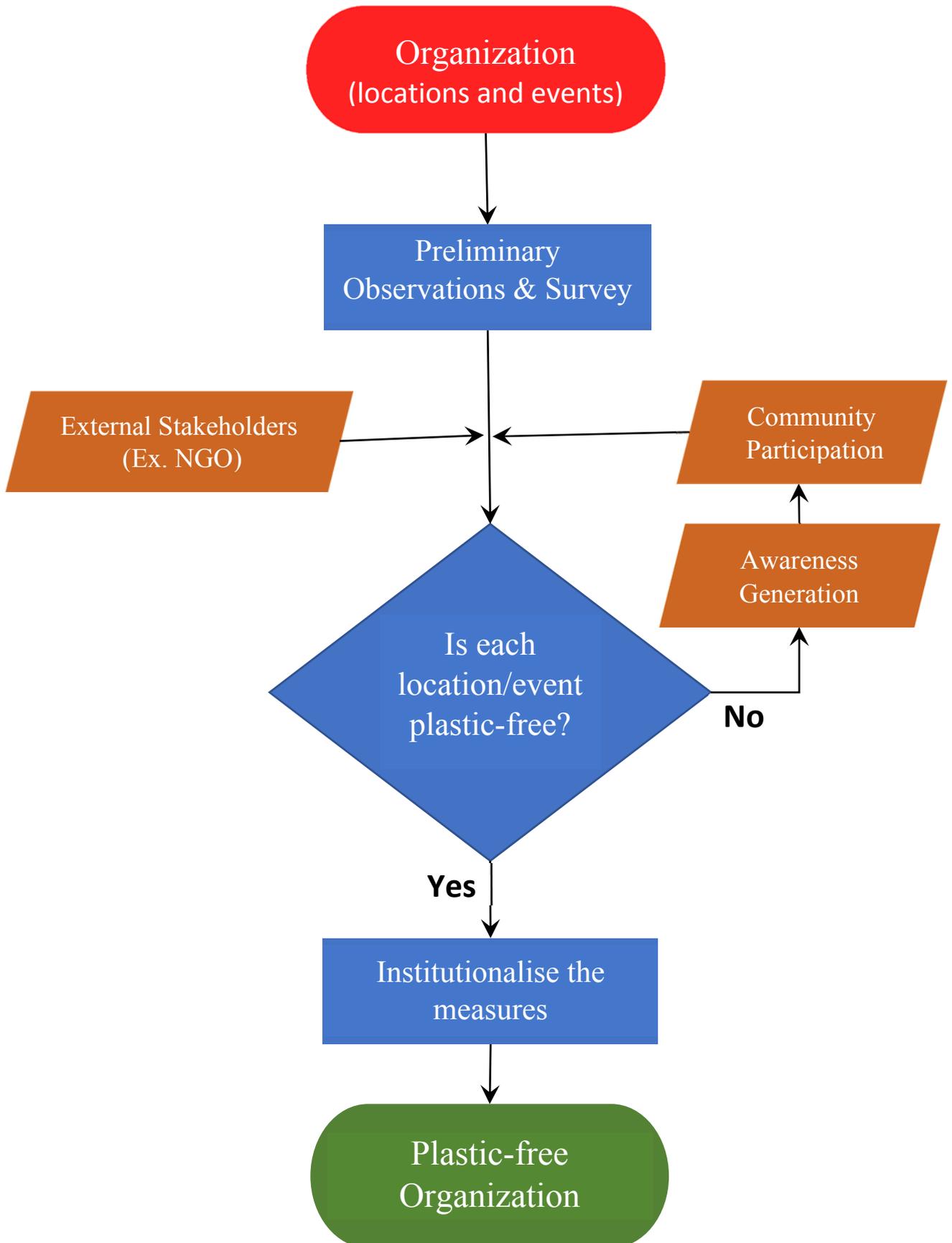


No people-centric initiative would stand long without appealing to the community and tuning their attitude and behaviour with the ideals of the Initiative. A series of awareness generation and public participation measures are also taken up as part of the Initiative in this regard.

### **PLASTIC FACTS**

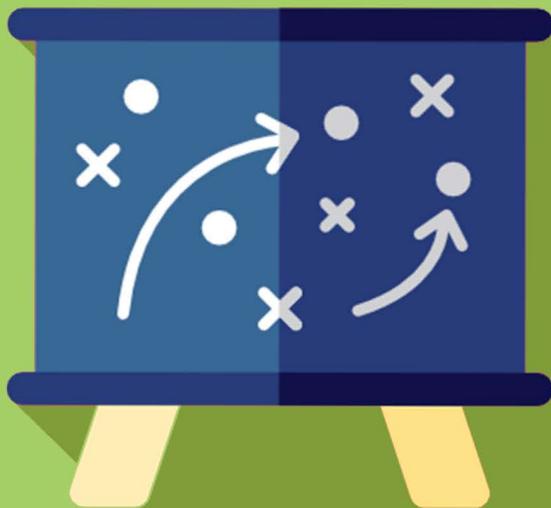
**India generates 26,000 tonnes of plastic wastes every day <sup>[4]</sup>**

## How to Make an Organization Plastic-Free?



## Chapter 3

# LOCATION SPECIFIC STRATEGIES

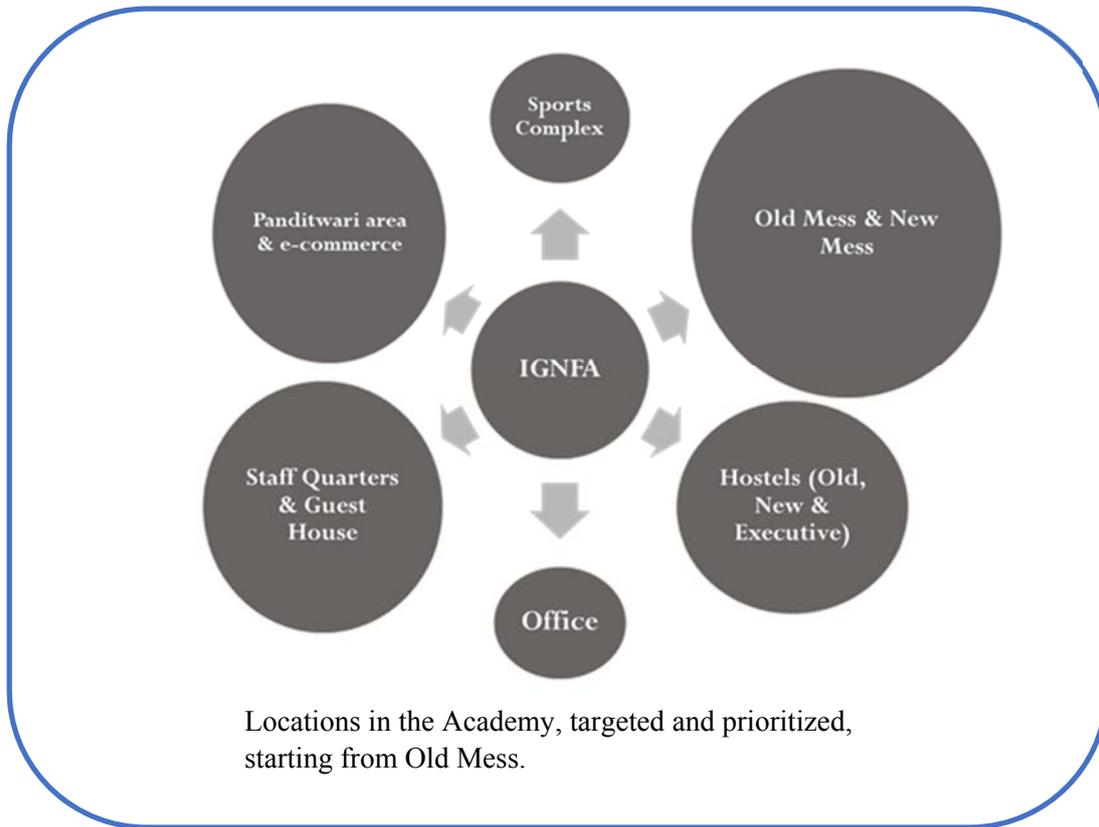


## CHAPTER 3

### Location Specific Strategies

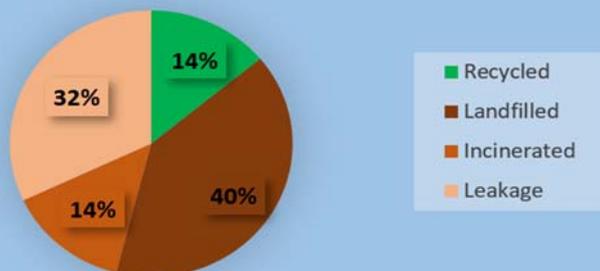
Based on the preliminary observations and the survey results, locations in the Academy are prioritized in terms of single-use-plastic usage and

the existing waste management system. Based on the quantum of waste, locations were chosen in the order of decreasing priority.



#### PLASTIC FACTS <sup>[3]</sup>

#### Global flow of plastic waste, 2015



### 3.1 Old Mess

Old Mess is the largest plastic waste generator among the above and needed constant attention to keep it plastic-free.

#### **Plastic Footprint of IGNFA Mess**

S.No	Event	Presumed Plastic items	Number of Days	Quantity	Weight per single plastic item (in gms)	Total weight (in gms)
1	Daily Routine	Polyethene Bag (15 kg)	365*	10	15	54,750
2	Daily Routine	Plate(small)	365	140**	5	255,500
3	Daily Routine	Spoons and forks	365	140	1.88	96,068
4	Daily Routine	Milk Packets	365	120	2.5	109,500
5	Daily Routine	Grocery packets	365	20	3	21,900
6	Official/ Unofficial Dinners	Cups(big)	8	90	3	2,160
7	Official/ Unofficial Dinners	Polythene Film to cover food	8	Lump sum	Lump sum	100
<b>Total</b>						<b>539,978</b>

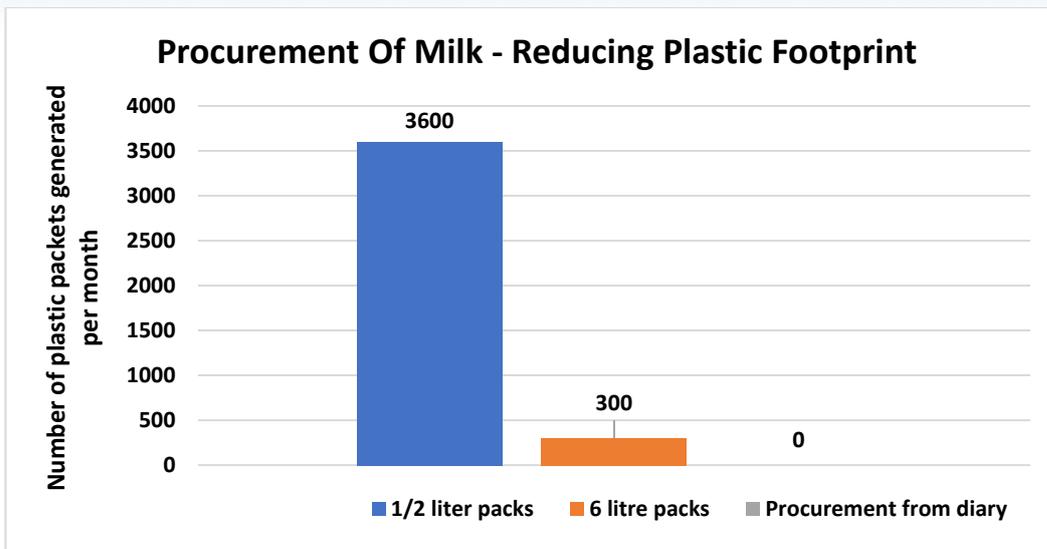
\*Either of the two messes (Old and New) function daily, on an average, hence 365 days;

\*\* Assuming 70 probationers in a batch

As per the above estimates, **IGNFA Mess generates 540 kgs of plastic per annum.** Following activities are taken up as part of the Initiative:

- a) Reducing the plastic waste generation due to procurement of milk packets and grocery items such as Maggi packets, salt, bread, etc.
- b) Finding alternatives to plastics cutlery, such as leaf plates, wooden spoons, paper cups, etc. without compromising on the hygiene.
- c) Plastic waste segregation.
- d) Recycling the plastic wastes collected.
- e) Awareness generation among mess workers.

Mess purchases were important reason for plastic waste generation. All the ingredients purchased were of retail packs (less quantity packages) resulting in more waste generation. For example, milk packs were half litre packs used in mess. We began to procure milk in larger packs of six litres and reduced the plastic packs from 120 to 10 per day, reducing plastic footprint by 19 gm daily or about 7 kgs of plastic (or 40,150 packets) per annum. Efforts are being made to procure milk directly from the dairy through milk cans, thereby completely eliminating the plastic waste associated with milk packets.



Next is the procurement of groceries in plastic bags. All the groceries, sourced from Panditwari, were brought in polythene bags. These were replaced by jute bags or cloth bags.

However, retail purchases such as salt, Maggi noodles, spices, etc are packed in plastic

packages and wherever possible, purchases were made in bulk quantity to reduce the quantum of plastic usage. For example, procuring a single 12-pack Maggi noodles case would replace 12 single pack procurements, as was the case before.

### REDUCING PLASTIC FOOTPRINT THROUGH GROCERY PROCUREMENT



**x 12 >**



Replacing 12 single packs of Maggi with a single 12-pack reduces plastic waste. Hence, procurement of grocery was being made in bulk.

For all the refreshments provided outside the dining hall, the prevailing practice was to use plastic spoons and plastic-coated plates, as they are easily available in the market. The plastic cutlery was replaced with biodegradable alternatives such as

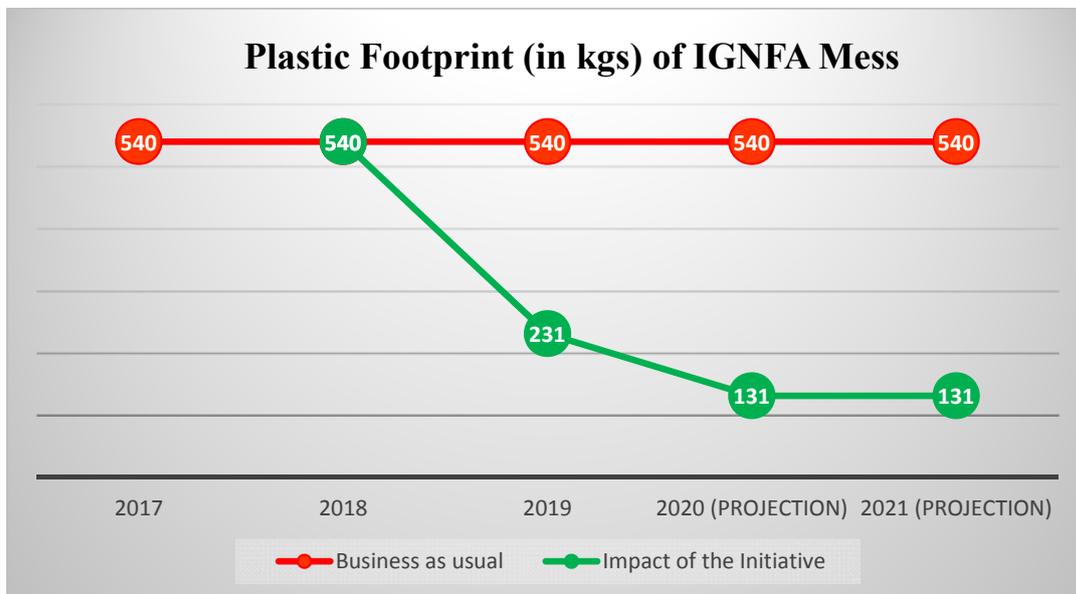
wooden spoons/forks, dry sal/palm leaf plates/bowls, and paper plates. Subsequently, in all the meetings and high-teas where refreshments are served, either metal cutlery or bio-degradable cutlery is used.



Plastic cutlery was replaced with bio-degradable alternatives. While the plate in the picture from New Hostel Mess is made from palm leaf, the bowls are prepared from sal leaves.

Apart from being eco-friendly, procurement of forest-based products (sal leaf collection) would enhance the livelihood opportunities for forest dependents, provide market for SHGs working on

forest products (sal leaf plate preparation) and usage of wooden products (wooden spoons) would be in line with the ‘Wood is Good’ Campaign of the Government of India.



The above picture depicts the impact of the Initiative in reducing plastic footprint of the IGNFA Mess. Except for the grocery packets and the large milk packets, all the single-use-plastic has been

replaced with bio-degradable alternatives, **causing reduction in plastic footprint to the extent of 409 kgs per annum.** This implies that about 75% of the 540 kgs plastic waste generated in IGNFA Mess is

prevented because of the measures taken as part of the initiative. The reason for higher plastic footprint in 2019 is that the Initiative commenced in April and the measures took time to materialise at the ground-level.

The plastic waste generated is segregated, collected and stored. The wet plastic waste associated with milk packets is washed and dried as the collection of plastic waste is not on daily basis.

Thereafter it is handed over to the NGO Waste Warriors for recycling.

Thus, the plastic footprint of the Old Mess was brought down drastically by refusing polythene bags for carrying grocery stock, bulk purchasing, replacing plastic cutlery with bio-degradable alternatives, empowering mess workers with awareness generation, segregating the plastic wastes and recycling them.

### **CASE STUDY 1: DOMINO EFFECT**



*Domino effect is a phenomenon where one event sets off a chain of similar events*

It is ensured that whenever a new activity is taken up under this Initiative, the ground-level staff, who are the actual implementers, are always involved. The ground-level staff having understood the essence of the Initiative needed no monitoring and in turn started influencing other people of the Academy and outsiders, explaining them the harms associated with plastic usage and the alternatives to plastic. This set in the Domino Effect in our Academy and with the associated authorities.

It was first evident in our Mensuration Exercise at Kanasar, Uttarakhand where our Mess workers accompanied us for the week-long stay. We were surprised to find no single-use plastic cutlery during the high tea offered by the local DFO. Later, on enquiry, we got to know that the mess workers informed the local authorities about our Initiative and requested them to avoid single-use plastic during the high tea.

Kanasar experience was just a beginning and soon almost all of the helping staff of the Academy came to know about the Initiative and were eager to do their part.

### **3.2 Old Hostel**

Charity begins at home and next location we targeted was the Old Hostel. We started looking for avenues with usage of single use plastics and efforts were made to reduce them accordingly.

Following measures were taken up as part of the Initiative:

1. **Provision of Second Dustbin:** Before Plastic-Free Initiative in Old Hostel, there was only one dustbin for both plastic and non-plastic waste in each room. All the wastes are dumped in one dustbin with no means of segregation. The unsegregated wastes have little value in terms of recycling and sent for landfill, which is ineffective and not an eco-friendly way of managing wastes.

As part of the Initiative, two dustbin system was introduced and the era of waste segregation has begun. The provision of second dustbin serves two

purposes: One, that it imbibes the ideal of ‘waste segregation at source’ among the probationers and two, that it enables better waste management.

2. **Renovating the Garbage Storage Structure:** The waste collected on daily basis by the cleaning staff was not managed properly. The waste is stored in open places which frequently attracted Rhesus macaques (*Macaca mulatta*), Gray langurs (*Semnopithecus*) and street dogs often leading to human-wildlife conflicts. Also, the wastes dispersed by the primates are often seen to be foraged by birds of FRI campus.

As part of the Initiative, the prevailing system of waste management is revamped by allocating a separate closed location for segregated plastic waste. The waste collected is being sent periodically to NGO Waste warriors for recycling.



**Renovated Garbage Storage Structure at Old Hostel**

#### **PLASTIC FACTS**

**ONE MILLION  
plastic bottles are  
bought EVERY  
MINUTE around the  
world <sup>[5]</sup>**

3. **Replacing Polythene Cover for Dry-Cleaned Clothes:** It was an existing practice that the dry-cleaned clothes of probationers are returned in polythene covers by the Dhobi (washerman or washerwoman) staff.

As part of the Initiative, the Dhobi staff were made aware of the ills of using plastic and encouraged to



use eco-friendly alternatives. Soon, one by one all the dhobis in the Academy started replacing the plastic cover with a bio-degradable alternative.

4. **Clearance of Garbage Mounds** - People staying in quarters inside the campus as well as people from outside dispose their puja material, most of which are plastic made like flower, plastic cover etc, in a small canal that runs near the Old Hostel. People consider it religiously right to dispose the things in a water body.

These plastic wastes get accumulated at certain choke points and block the water flow in the canal. One such choke point exists in front of the Old Hostel where the wastes accumulated in the canal are to be frequently removed by the cleaning staff. Student volunteers from Forest Research Institute along with our Initiative members also participated in removing the garbage choke.



**Garbage Mound in front of Old Hostel**

The accumulated wastes that was removed and mounted on the side of the stream over years started growing in size and took the shape of a mini-landfill site. As part of the Initiative, with the help

from district administration and municipal authorities, we removed the garbage mound using JCB vehicles.



**Clearance of garbage mounds**

However, we were only able to tend to the symptoms and a bigger task of addressing the root cause of appealing to the locals to not dump wastes into the stream is pending. And until the attitudinal change towards cleanliness is brought, no amount of cleanliness drives and clearance of garbage using JCBs can help keep the premises clean. The best

possible way is to discuss with the temple authorities regarding the problem and persuade them to change the perception of people. Also, provision of a common dustbin for puja material in the temple itself for disposing the puja material can reduce the dumping in the canal.

**GREEN GOOD DEEDS TO REDUCE PLASTIC POLLUTION <sup>[18]</sup>:**

1. Don't litter
2. Carry your water bottle
3. Always carry cloth or canvas bag for shopping
4. Don't buy more than you need
5. Always ensure reuse of plastic
6. Segregate waste at source
7. Never use open fires to dispose of wastes
8. Keep a garbage bag while travelling and dispose of the same when a bin is available

## CASE STUDY 2: THE CULTURE VS CLEANLINESS CONUNDRUM OF FRI CANAL

*India is known for its temperament to live in harmony and peace with its natural world. The Gods, festivals, sacred texts and mythologies all are deeply connected and engrossed with the nature. In fact, the liberating philosophies born here, focusing on the spiritual upliftment, removed of all worldly attachments or desires, is a direct outcome of these attitudes.*

The FRI Canal stands as a miniature example of what River Ganga is facing on a much larger scale. Devotion and the rituals coming in direct conflict with the need for cleanliness and conservation of ecosystems due to human interference. India is in dire need to find a way to balance the needs of religious rituals with the limits of nature. As the Government of India is bringing out strategies to combat pollution in River Ganga and rejuvenate its flow, we tried to understand the root cause of such problem in the canal and find a sustainable solution to it.

The canal which originates far off from the campus passes through a number of temples. One such temple is just a few kilometres outside the premises of the FRI campus (near Kaulaghar Gate). The devotees offering the pooja flowers and other pooja material along with the plastic bags seemed to be the major source of plastic near the canal. As the canal changed its face from a flow of clean water into a place of collected garbage, it encouraged more and more people to dump their household wastes in the canal.



Status of FRI Canal at a choke point in front of Old Hostel. One can make out the discarded pooja offerings along with other wastes in the picture.

This has turned into a vicious cycle where more wastes got dumped as more pooja offerings got collected in the canal. People offering puja at other religious sites inside the campus also took to dumping the pooja material in the canal. Soon enough this turned into a full-fledged waste disposal drain. This is evident from the statues and other items that gets accumulated in the Canal as days pass. When the water in the canal reaches its lowest, it often resulted in a stinking smell and the canal under the bridge in front of Old Hostel gets clogged.

**So how to tackle the seemingly impossible task of balancing the religious practices and their impact on the need for cleanliness?** As difficult the behavioural change might sound, the problem can be largely solved by a simple precautionary act by the devotees, just removing the plastic bags and offering only biodegradable substances into the canal would solve much of the problem.

But this needs persuasion and constant vigil in the initial days so as to initiate such changes and to sustainably carry forward the sensitivity towards the environment. So, a Mission Mode Project is needed to stop insensitive offering and disposal of wastes into the canal by active participative means and passive methods like restricting the flow of such plastic wastes thus offered at some specified choke points before they accumulate into a heap. Three-pronged approach has been devised to solve the problem

1. Persuasion of the temple priests to enlighten and educate the devotees to desist from dumping pooja material in the Canal.
2. Periodic cleaning of the canal.
3. Establishing temporary Sign Boards at vantage points.

(The future batches of IFS probationers can take up this mini-project as a challenge and an elective subject)

### CASE STUDY 3: THE RESILIENCE OF NATURE

Nature is amazing – it can even come back from the dead. Nature teaches us a lot about what it takes to survive in the world. If only we'd listen. As part of garbage cleaning plan around the FRI canal in front of Old Hostel, after getting the garbage mound removed, we thought of adding aesthetic value to the place by placing few potted plants in the area, so that people will not use the area for waste disposal further. But even before we could act, nature had its own mechanism to bring back the aesthetics of the place, and in a better way. After removing the plastic mound, as soil get exposed, greenery started growing, covering the place. Now the place is full of green lush and no one can trace it back to any waste mound.



Situation of FRI Canal on May 1st, 2019



After removal of garbage mound on May 24<sup>th</sup>, 2019



After Nature spelled its magic (August 24<sup>th</sup>,

*Nature is highly resilient. Given a helping hand, it can heal even the most terrible anthropogenic wounds perpetrated to the natural world.*

### 3.3 New Hostel

In continuation with the initiatives taken to make Old Hostel plastic-free and with the gained experience, plastic was replaced with non-plastic alternatives in the New Hostel premises. All programs organised in New hostel Auditorium were made plastic-free.

And efforts are being made to ensure that the items sold in the Souvenir Shop of the Hostel are given in cloth bags and paper bags.

Also, with the experience gained in the Old Hostel, a separate dustbin (biodegradable one, this time!) is provided to every room in the Hostel.



**Dual Dustbin System**

### Collection Drive

When a batch passes out from the Academy, most of the leftovers are usually discarded and sent to the landfill. Before the 2017 batch left the Academy, they were requested by our Team to spare their unused items which still have reusable life. Thereafter, the Plastic-Free IGNFA Team organized a collection drive at New Hostel immediately after the senior batch vacated their rooms.

The leftover items are collected and segregated into books, clothes, quilts, shoes, medicines, sports equipment etc. All the material, except the sports equipment, is handed over to the Hostel caretaker to be distributed among the cleaning staff and mess workers of IGNFA. The sports equipment is handed over to the Pavilion staff.

This collection drive enabled the reuse of several items which were otherwise directed towards the landfill.

### **CASE STUDY 4: A PLASTIC DUSTBIN FOR A PLASTIC-FREE INITIATIVE?**

For any waste management, segregation is the basic step. No waste is a waste when it is properly segregated as the separation helps in further reuse and recycling. And especially for the plastic waste, it's wise to segregate at the door step where the waste originates.

It started with the idea of two dustbin system. When, as part of the campaign, we placed an order for the second dustbin, it was a plastic one we received, wrapped head-to-toe in single-use plastic. It was a 'LOL moment' for our Team as we increased the plastic footprint of the Academy, although unknowingly. As the investment for plastic dustbins was already made, we decided not to return them.



Learning from our mistake, further purchase of dustbins was decided to be of non-plastic material. After experimenting with wood and paper bins, we stumbled upon cardboard boxes, which can be used as a dustbin for disposing plastic waste. The cardboard sheets were procured and transformed into plastic bins by involving mess workers and housekeeping staff.



### 3.4 Panditwari Area

Panditwari Market area is located right next to the Forest Research Institute (FRI) Campus. The market, as it was observed earlier, was a major source of single-use plastic primarily in the form of carry bags, into the FRI campus and IGNFA premises.

The size of the market and sheer number of customers it caters to, made the task a daunting one. However, our approach focussed on certain critical aspects of interactions within market:

1. Demand reduction through sensitisation of all stakeholder (IFS Probationers, FRI residents and students, retailers, road side vendors and eateries) with regard to the ban on single-use plastics that was in force in Dehradun since 1<sup>st</sup> August, 2018.
2. Enforcement of an FRI Order banning the entry of single-use polythene carry bags into the campus. This required a proper monitoring by security guards stationed at the campus entry gates.

3. Assistance was extended to the municipal authorities to ensure a rational, sustained and sensitive enforcement of punitive measure for use of plastic by the vendor and road side eateries.

#### **PLASTIC FACTS**

Every day  
approximately **8 million pieces** of  
plastic pollution find  
their way into our  
oceans [6]



Display of Initiative posters in the Panditwari area, as part of Awareness Drive

### 3.5 Sports Complex

Sports have an important role in the overall training of probationers at the Academy. As a forester we have to keep ourselves fit to meet the exigencies that

are commonplace in forests. Keeping the sports complex devoid of plastics was one of the subsequent challenges faced.



Most of the plastic came from the sports goods, prices, and the sportswear we get from outside. To tackle this, we collected the resultant plastic bags and roped in vendors to take it back wherever possible.

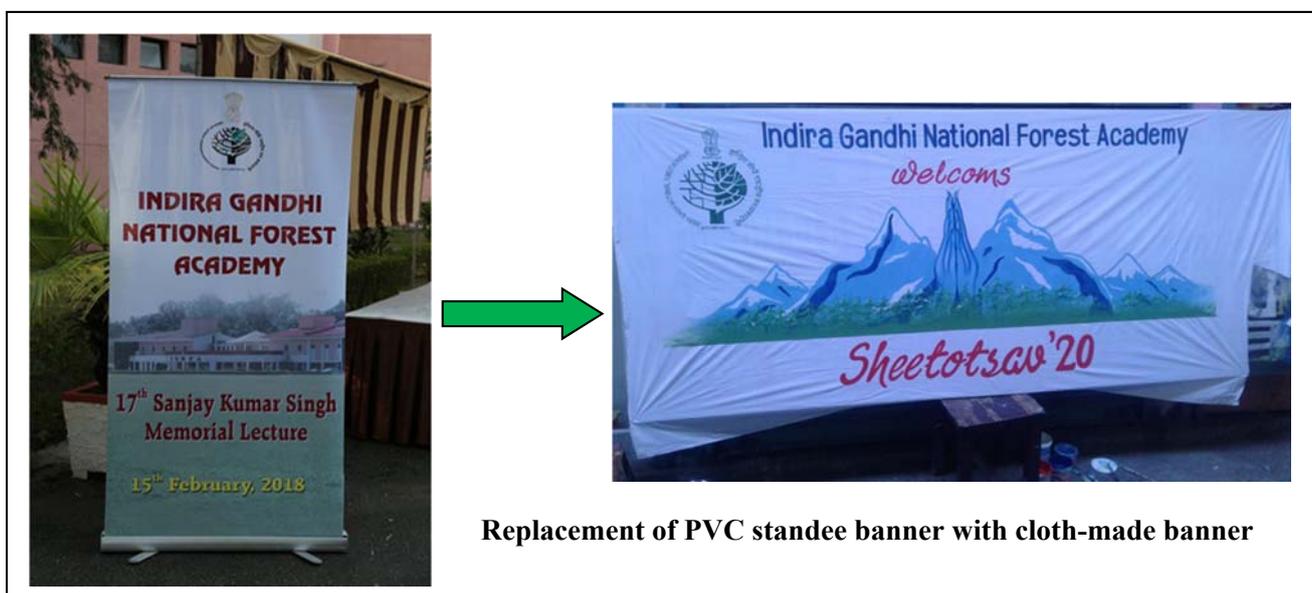
For example, T-shirts and yoga mat package covers were collected and sent back to the vendors. We made sure that any plastic waste that is generated out of the day to day activities is properly segregated in the plastic only dustbins placed in the Sports complex premises.

**PLASTIC FACTS**  
There is more microplastic in the ocean than there are stars in the Milky Way Galaxy <sup>[7]</sup>

### 3.6 Office

The main issues in the Office premises are the waste segregation and the culture of plastic banners usage. The culture of using plastic flex banners for any event is a common practice in the Academy. Though there is an Official Order abstaining the usage of Plastic banners in the Academy, it has been seldom put into practice. The ease of availability, high quality digital print, lower price and the option of preparing vertical standees certainly make plastic flex banners an attractive option. However, the plastic banners, which are

made up of PVC (Poly Vinly Chloride) are non-biodegradable and emit carcinogenic fumes on burning. Also, recycling of the flex banners is difficult as they are mixtures of PVS and additives. The cloth banner with painting is a perfect replacement for the plastic banners. It has been tried in certain events (Ex. Sheetotsav Cultural Event, 2020) and the response was positive. Hence, there is no reason to further continue with the plastic banners and all the future events should be made up of non-plastic alternatives.



As part of revamping the waste management system in the office premises, each room in the Office is provided with a separate dustbin for collecting plastic wastes.

The in-charge person for procurement of material for Office along with other working staff were appraised of the Initiative and appealed to replace plastic with bio-degradable alternatives. All the plastic waste collected is stored properly to be sent for recycling.

#### **PLASTIC FACTS**

100,000 marine mammals and turtles and 1 million sea birds are killed by marine plastic pollution annually <sup>[8]</sup>

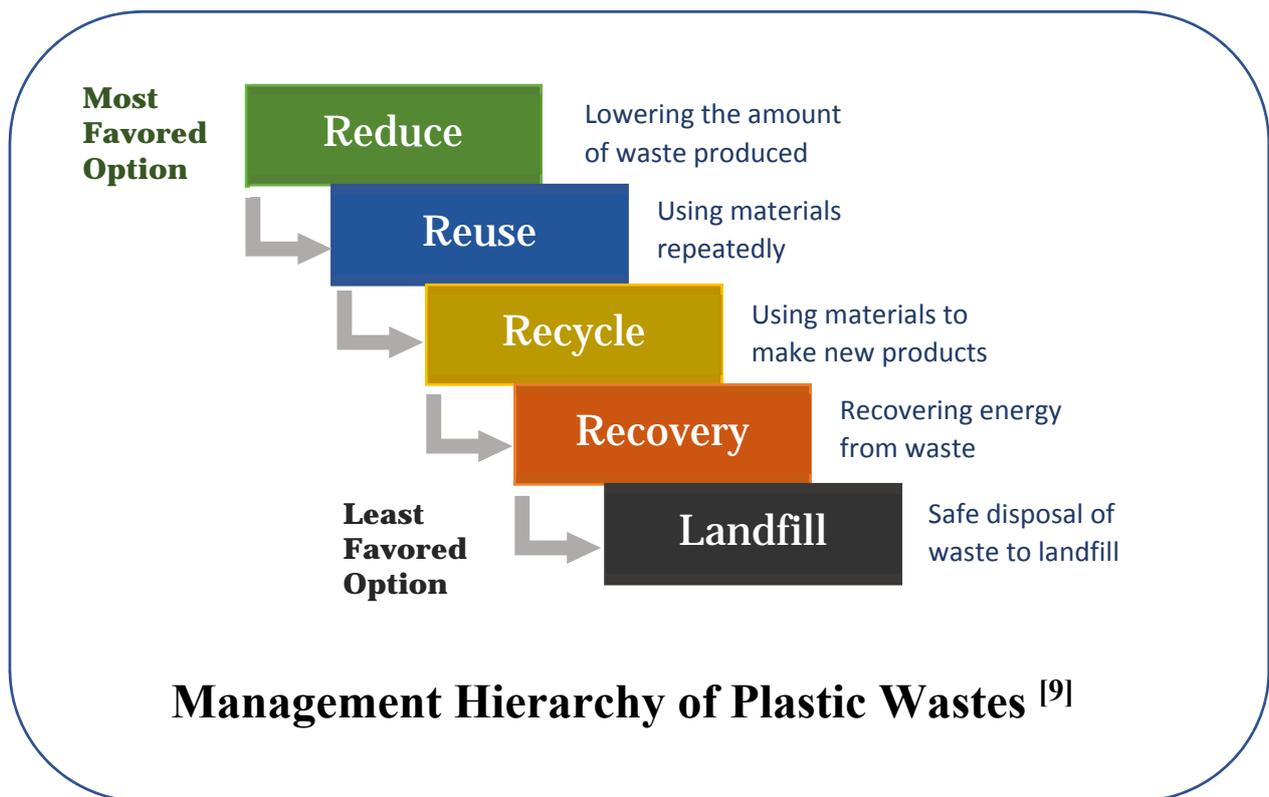
### 3.7 Staff Quarters

IGNFA staff reside predominantly in three locations - Faculty Quarters, Mess Quarters and Dhobi Quarters. While the Faculty Quarters is located outside the FRI campus, the remaining two are located within the FRI and in close vicinity to the Officer Trainees' Hostels.

The IGNFA faculty is made aware of the Initiative and its activities by involving or appraising them from time to time. Preliminary presentation about the Initiative, distribution of Initiative T-shirts and involvement in the cleanliness drive are few among them. Distribution of second dustbins,

collection of plastic wastes from the locality and establishing a signboard are the tasks pending at this locality.

Awareness generation sessions for the ground level staff and their involvement in various activities of the Initiative from the inception of the Initiative has tuned inclination of the non-teaching staff towards the plastic-free Initiative. Awareness Generation regarding plastic waste segregation, distribution of second dustbin and streamlining the plastic waste collection process are the works pending.



## Chapter 4

# EVENT SPECIFIC STRATEGIES



## CHAPTER 4

### **EVENT SPECIFIC STRATEGIES**

IGNFA is a hub for various curricular, co-curricular and extra-curricular activities – be it academic or cultural, sports or training modules, events in the Academy run throughout the year. As per our action plan, apart from locations, every event in the Academy should be transformed plastic-free. Hence, we targeted three events- Annual Sports Meet, Convocation and Mensuration Exercise (a field tour) - to understand the nature of single-plastic usage, the alternatives required to replace the plastic, and establish a plastic-free events regime.

We started with the Annual Sports Meet of 2019.

#### **4.1 Annual Sports Meet 2019**

Usage of single-use plastics in the form of water bottles, polythene covered bouquets, plastic glasses and plastic-coated plates for refreshments, plastic gift wrappers for gifts, were a common sighting during the sports events. With multiple sporting events to be conducted during the Sports Meet, we took proactive steps to not generate any plastic waste.



**Initiative poster displayed during the Annual Sports Meet as part of awareness generation**

All refreshments were served using biodegradable cutlery. The practice of mineral water bottle usage is done away to a great extent and water sourced from Officers' Mess in 20 Litre Jugs is made available through paper cups. And Academy's decision of procuring cloth bibs for athletic events

was well in tune with the principles of the Initiative. Being the first event under the Initiative, it served as the testing ground for various non-plastic alternatives and the experience gained has been put forth in the upcoming events such as Convocation.

**4.2 Convocation 2019**

Convocation defines the culmination of the academic life but more importantly it creates vivid memories of the same that remain with everyone for their lifetime. The IFS 2017 Batch Convocation was held on 30<sup>th</sup> April, 2019. It was presided over by Honorable Governor of the State of Uttarakhand. Dignitaries from the Union Ministry and State Government, senior officers of various sister academies (FRI, CASFOS, ICFRE), media personnel, parents of the probationers, among others, graced the occasion. This served as a critical platform for taking forward the message and setting example with regards Plastic-Free Initiative.

**Activities undertaken** as part of the Initiative include:

1. The plastic wrappings of the bouquets for the dignitaries were replaced with Jute and wood alternative.
2. ‘Plastic-free IGNFA initiative’ stickers and posters were displayed at strategic locations for maximum visibility so that the message is effectively communicated.



**Plastic wrappings for bouquets were replaced with bio-degradable alternatives**



<p><b>PLASTIC-FREE CONVOCATION 2019</b></p>		
 <p><b>A STEP TOWARDS BETTER TOMORROW</b></p>	<p>❖ 1,60,000 PLASTIC BAGS ARE USED GLOBALLY EVERY SECOND</p> <p>❖ IT TAKES 500-1000 YEARS FOR PLASTIC TO DEGRADE</p> <p>❖ OVER 1,00,000 MARINE MAMMALS AND 1 MILLION SEABIRDS DIE EVERY YEAR FROM INGESTION OR ENTANGLEMENT IN PLASTIC LITTER</p>	
	<p>- Plastic-Free IGNFA Initiative</p>	

**Awareness Generation during Convocation 2019**

In order to further reduce the plastic footprint in the future convocations, following observations and recommendations are made:

- a) Replacement of flex banners by cloth-based banners.
- b) Finding alternatives for thermocol used in displays on the dais.

- c) Multi-layered plastic gift wrappers and bags be replaced by paper or cloth-based materials.
- d) Ensuring catering services are plastic-free complaint.

‘Reuse’ is one of the main principles of the Initiative. The flex banners used for the Convocation have been reused for preparing the barricades for Table Tennis courts in the indoor stadium.



**Convocation banners being re-used as Table Tennis court barricades**

### **4.3 Mensuration Exercise at Kanasar**

Tour and field trips are integral to the curriculum in IGNFA. The duration of the tour varies from one day to over twenty days, necessitating the external sourcing of drinking water, which is mainly met through purchase of single-use plastic water bottles. Similarly, purchase of snacks etc. during the tour often results in generation of plastic waste which if not handled properly gets littered on the roadside.

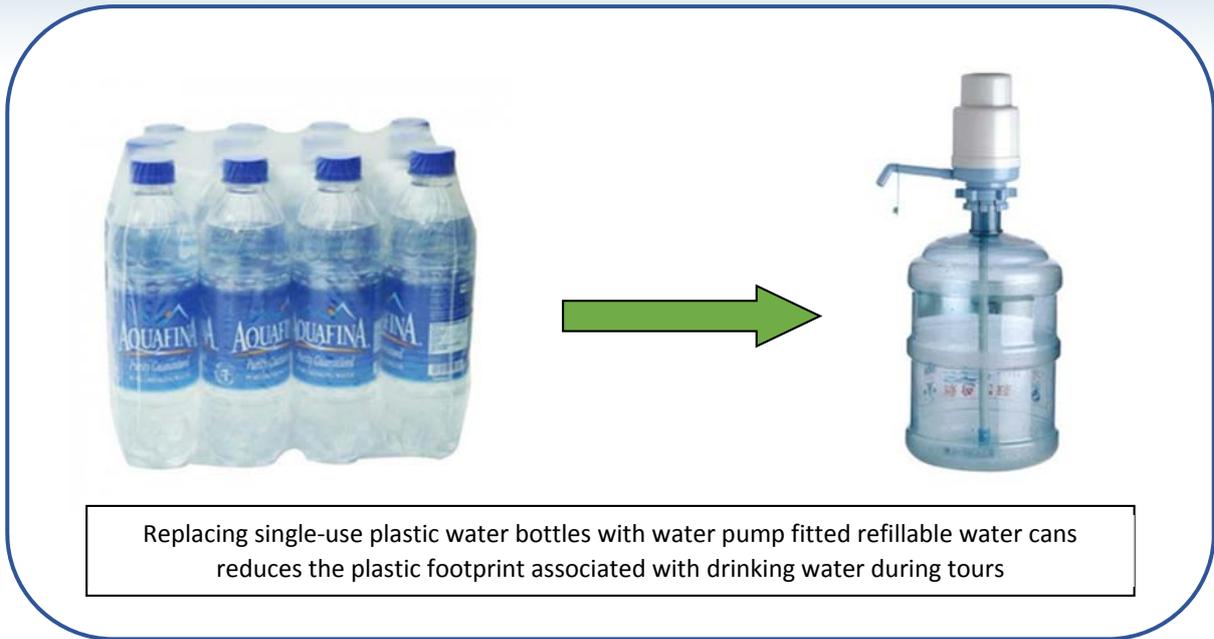
Mensuration Exercise at Kanasar was the first tour since the inception of the Initiative and we used it to test some pilot ideas:

#### **A. Waste Collection Bags:**

Waste collection bags were provided in each bus to collect plastic waste like chocolate wrappers, chips packets etc. separately. Same has been brought back to the academy to send for recycling.

#### **B. Drinking Water Pump:**

To reduce single-use plastic water bottles, water pumps are installed on each of the four buses. Appeal was made to all Office Trainees to carry their own water bottle to be refilled through the pump. This prevented use of about 500 plastic bottles.



**C. Responsible Tourism:**

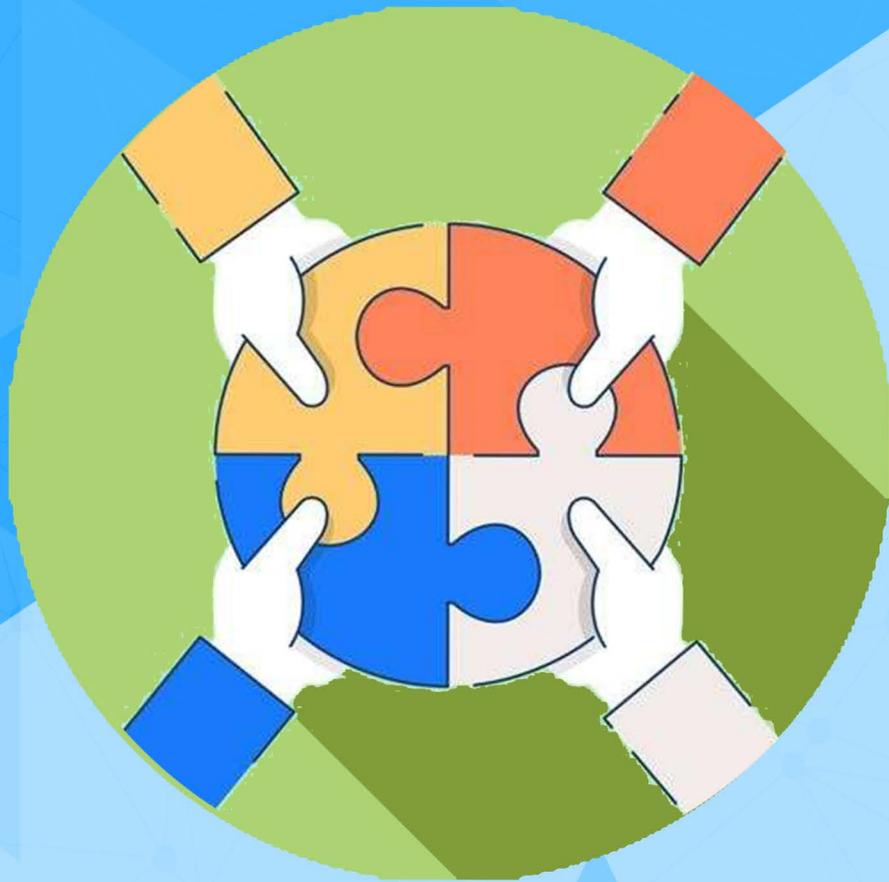
As the last measure to address any leftover plastic waste, a cleanliness drive was conducted in the early hours of the departure day in and around the camping area. It also created a sense of responsible tourism among the Officer Trainees.

Above measures can be scaled up to be made a **part of Eco-tourism**, especially in pristine areas, for the rest of the tours and field trips. The experience and wisdom gained through these three events is translated into Standard Operating Procedure, which can be used for other events conducted in the Academy.

**PLASTIC FACTS**  
In **2019** alone, the production and incineration of plastic will add more than **850 million metric tons of greenhouse gases** to the atmosphere<sup>[10]</sup>

## Chapter 5

# EXTERNAL STAKEHOLDERS



## CHAPTER 5

### External Stakeholders

As part of the Initiative, our team has interacted and partnered with various stakeholders who have played exceptional roles in not only motivating the Team but also by providing timely help and advice whenever required.

#### 5.1 Dehradun District Administration

The District Administration have played an important role towards the success of the Initiative. District Collector Sh. S.A. Murugesan, IAS encouraged the Team by assuring support during an interaction on 18<sup>th</sup> April, 2019.

He assigned a Health Inspector from the Municipality to look into the matters of cleanliness in and around the Academy premises. The Health Inspector was helpful in arranging the JCBs to clear the garbage mounds at various locations in the

Academy. Also, he played a pivotal role from the law enforcement side to implement the plastic carry bag ban in the Panditwari area.

#### **PLASTIC FACTS**

**More than 60 countries** have introduced bans and levies to curb single-use plastic waste <sup>[11]</sup>



Shopkeepers in Panditwari Area being fined by Municipality for non-compliance of plastic ban. The polythene bags were confiscated.

Also, the District Collector introduced us to the NGO Waste Warriors in Dehradun with which we

forged a partnership, the details of which are explained in the next section.

## 5.2 NGO Waste Warriors

Founded by Jodie Underhill and Taashi Pareek, Waste Warriors is a non-governmental organisation working in various aspects of waste management and related projects in Dehradun, Dharamshala, Corbett National Park, Goa, Himachal Pradesh and other parts of India.

On our visit to the Organization on 19<sup>th</sup> of April, 2019, Shri Aman Grover, and his team from

the NGO, appraised us on various aspects of waste management, different kinds of plastic wastes, their segregation and recycling potential.



The NGO provided us the necessary cleaning gear during our first cleanliness drive organized on 21<sup>st</sup> of April, 2019. But more importantly, we partnered with the Organisation for recycling the plastic wastes generated in our Academy at zero cost. The plastic wastes collected in our Academy are collected by the NGO every 15 days and are further segregated to be sent for various kinds of recycling. The first consignment of plastic wastes (about 40 kgs) generated at the Hostels and Mess is sent for the NGO on 19<sup>th</sup> of September, 2019. As simple as it looks, this is a landmark moment for the Academy as the plastic waste generated in the Hostel premises will no longer be openly burnt or littered or dumped in canal or piled in landfill. The collection of plastic wastes for recycling has been streamlined for New Hostel and Old Hostel. In future, New Hostel will act as the nodal point where all the plastic wastes generated at

various locations and during different events would be collected and stored, to be picked up by the NGO's waste collection vehicle.

### **PLASTIC FACTS**

60% of the plastic waste in the oceans comes from just 5 countries - China, Indonesia, Philippines, Vietnam and Sri Lanka <sup>[12]</sup>



Plastic wastes generated at IGNFA being collected by the NGO vehicle

On request, the NGO also conducted an awareness generation session for the ground level staff (sweepers, mess workers, dhobis, gardeners etc). Ms Ankita Chamola from Waste Warriors explained in vernacular language various aspects of waste management emphasizing on waste segregation with practical demonstrations. The session was interactive with participants raising queries on wet plastics, recycling of plastic, monkey

proof dustbins etc. Results from the session are quickly visible when the sweepers behaved confident and started requesting the erring Officer Trainees to segregate the wastes.

Overall, the NGO has given the necessary guidance, motivation and support for the Team to successfully execute the Initiative as planned.



NGO Team with the ground-level staff of IGNFA, after the awareness generation session

### **5.3 Forest Research Institute (FRI)**

Location of IGNFA within the FRI campus, vibrant youth and the enthusiastic administration from the FRI University made their participation integral to the Initiative.

#### **5.3.1 FRI Students**

For the success of a progressive idea, it is inevitable to involve and sensitize the young blood, guide their aspirations and channel the energy.

We joined hands with the like-minded from FRI campus – PhD scholars, MSc students and staff who were running a club with similar objective. We included them in our and guided them in their initiatives with documentation support. Most of the awareness campaigns and cleanliness drives have seen good participation by the young change makers.



FRI students participating in the Panditwari Awareness Drive

The dream of making the premium forest institute in the country plastic-free couldn't be realised without the students of the FRI. Roping them with our initiative therefore served two purposes. One, it provided them exposure to the art of organising events and working with the administration. Two, it laid the foundation of continued action after we leave the Academy.

#### **5.3.2 FRI Faculty**

FRI Faculty provided the necessary support in our endeavour to prepare the “Plastic-free Zone” signboards from the locally sourced wood. Divisional Forest Officer of FRI has been

instrumental in providing the wood, free of charge, sourced from a Camphor tree (*Cinnamomum camphora*) felled in the Campus. Using the services of the Forest Products Division of the University, the sawn timber planks are treated with the eco-friendly preservative ZiBOC (Copper Zinc Borate), which is developed at FRI. Thereafter, the wooden planks are seasoned for most of the time using the solar seasoning kiln, and electrical seasoning kiln for a brief period. The seasoned and treated wooden planks were then sent outside the campus for wood carving and polishing work.

PLASTIC-FREE  
IGNFA

प्रतिबन्धित क्षेत्र  
पोलिथीन बैग व प्लास्टिक बोतल  
**PROHIBITED AREA**  
POLYTHENE BAGS & PLASTIC BOTTLES

उत्तर रेलवे  
NORTHERN RAILWAY  
रेलवे परिसर में पोलिबैग का उपयोग निषेध है।  
**न्यूनतम जुर्माना ₹200**  
  
USE OF POLYBAGS IN THE  
RAILWAY PREMISES IS PROHIBITED  
**MINIMUM FINE ₹200**

KARNATAKA FOREST DEPARTMENT  
BANDIPURA TIGER RESERVE  
**PLASTIC FREE BANDIPUR**  
THROWING OF PLASTICS, POLYTHENE &  
OTHER LITTER IN THE TIGER RESERVE  
**IS PROHIBITED**

**PLASTIC FREE ZONE**  
  
PLASTIC  
A Step towards Cleanliness  
Tamil Nadu vide G.O. (Mil). No.84 Dated 25.06.2018

பிளாஸ்டிக் பயன்பாட்டினை தவிர்ப்போம்  
நீலகிரியை பசுமையாகவும், சுத்தமாகவும்  
வைப்போம் குப்பை போடுவதை தவிர்ப்பீர்  
மீறுபவரிடம் ரூ.500/- அபராதம் வசூலிக்கப்படும்.  
**PLASTIC FREE ZONE**  
SAY "NO" TO PLASTICS  
KEEP NILGIRIS GREEN & CLEAN.  
LITTERING IS AN OFFENCE  
Rs.500/= FINE FOR OFFENDERS.

गोवा अन्तरराष्ट्रीय हवाई अड्डा  
GOA INTERNATIONAL AIRPORT

**SAY  
NO TO  
PLASTIC  
ITEMS**

Throwing of Plastic/garbage in  
Reserve Forest is strictly prohibited.  
**Penalty ₹ 500/-**

Signages discouraging plastic usage – captured at different locations during IFS Study Tours

## Chapter 6

# AWARENESS GENERATION



## CHAPTER 6

### Awareness Generation

Behavioural change is the only way to achieve a sustained solution to any social problem. And the attitudinal-cum-behavioural change needed for achieving a plastic-free environment can be facilitated by various means of awareness generation. Few methods that were tried as part of the Initiative are discussed below:

#### 6.1 FRI Staff Quarters' Cleanliness Drive

FRI campus is one of the most beautiful in our country, its green cover and species diversity is

unmatched by most. But all is not well. Our Team identified several dump yards and plastic waste mounds across the campus. We analysed sources of one such dump yard near the southern boundary and recognized nearby FRI staff quarters as an important stakeholder here. With the help of few FRI students, we mobilized our Team to organize a cleanliness campaign involving FRI Quarter residents to subsequently find solutions to the impending community waste disposal problems.



During the cleanliness drive organised on 21st April, 2019, our team along with the locals cleaned-up the premises removing 270 kilograms of plastic waste in one day. Appropriate protective gear was borrowed from Waste Warriors NGO. A meeting was facilitated between the locals; and the solid waste management representatives (Ramky Group) responsible for the waste collection. The grievances of the locals were discussed and possible solutions were put forward. A long-term ownership emerged from the community and they formed a WhatsApp group to take it forward by frequent monitoring of waste management practices.

The following decisions were made at the end of the discussions:

- A fee be levied on the salaries of FRI residents for effective waste collection and management Collection to be made on door-to-door basis, unlike prevailing practice of open garbage dumps
- Roping in the resident welfare associations (RWA) to build a waste free campus.

## **6.2 Panditwari Awareness Drive**

Panditwari is a bustling commercial hub located near the southern gate of the FRI campus. Despite the plastic ban in Dehradun city, one finds here wide use of polythene carry bags (single-use plastic) which spill over to FRI campus and IGNFA premises. As disincentivizing polythene bags is the way forward here, two pronged strategy of tackling from demand and supply sides is adopted.

On the demand front, Customer is the King. If she refuses polythene carry bags, then suppliers have no option but to toe the line. So, behavioural change is necessary to inculcate the habit of carrying cloth bags to provisional stores. To this end, our Team along with few volunteers from FRI organized an Awareness Drive in Panditwari area that involved putting up posters on the status of plastic ban and telling about alternatives to polythene bags.



**Awareness Drive in Panditwari Area**

On the supply side, Awareness Drive involved creating awareness among shopkeepers and street vendors to move to non-plastic alternatives to polythene bags like cloth or paper bags.

Though there was initial resistance towards adopting costlier alternatives, in about a month's time the change was visible as some shopkeepers started non-plastic bags for packing and plastic infestation in the area is now perceptibly less.

### 6.3 Sensitising the Ground-level staff of IGNFA

In any organisation, ground-level staff are the foot soldiers of waste management. Similarly, cleaning staff, gardeners, mess workers, care takers etc are the face of cleanliness and hygiene in IGNFA. However, it was observed that there were gaps in their understanding of waste management. So a session on awareness generation was organized for them in partnership with the NGO Waste Warriors. Ms Ankita Chamola and her team provided useful and interesting insights into waste segregation, its importance and necessary precautions. She also motivated the Safai Karamcharis (cleaning staff) to take pride in their work by reminding them of the importance of their service to the nation. This event created awareness and impact in those residents of the academy who shall take forward the movement as probationers pass out after every 12 months.

#### **PLASTIC FACTS**

A Prediction – By 2050, 99% of sea birds will have ingested plastic and over 600 marine species are harmed by marine litter [3]



### 6.4 Means of Awareness Generation

We devised, designed and made use of **T-shirts, caps, stickers, posters, cloth bags, signboards, logo, etc.** for spreading the message of a plastic-free environment on a broader scale.



#### Logo of the Initiative

A **logo** that reflects the essence of Initiative was designed. A red line crossing the polythene

carry bag with a sapling on top signifies that the environment thrives with the reduction in abuse of plastic. A faded image of the IGNA Academic building is symbolic of the Initiative's goal to make the Academy plastic-free.

When we make a promise in public forum, it adds more onus on us to walk the talk. Putting this integrity principle to work, we would start academy events by making "**posters**" beforehand announcing that it would be organized plastic-free. It resulted in added accountability and subsequent course correction by learning from mistakes.

Posters designed and used as part of the Initiative

Similarly, any major replacement or addition done as part of the Initiative is marked with a **sticker**. These small signages have played a significant role in boosting the morale of the Team and motivating others to work towards a better environment.

**PLASTIC FACTS**

90% of plastic polluting our oceans is carried by just 10 rivers <sup>[7]</sup>



Stickers designed for the Initiative



Stickers being used for the Initiative

Any initiative to bring people together must provide some incentive to make it socially attractive. So, to

build cohesiveness among the members of the Team, we designed and distributed **T-shirts** (on payment basis) printed with plastic-free slogan and logo.



### **T-shirt Design**

(Front Image is inspired from UNEP's Clean Seas Campaign)



### **Team sporting the T-shirt**

Also, as a measure of Awareness Generation, the culture of presenting gifts including metallic mementos, plastic wrapped flower bouquet

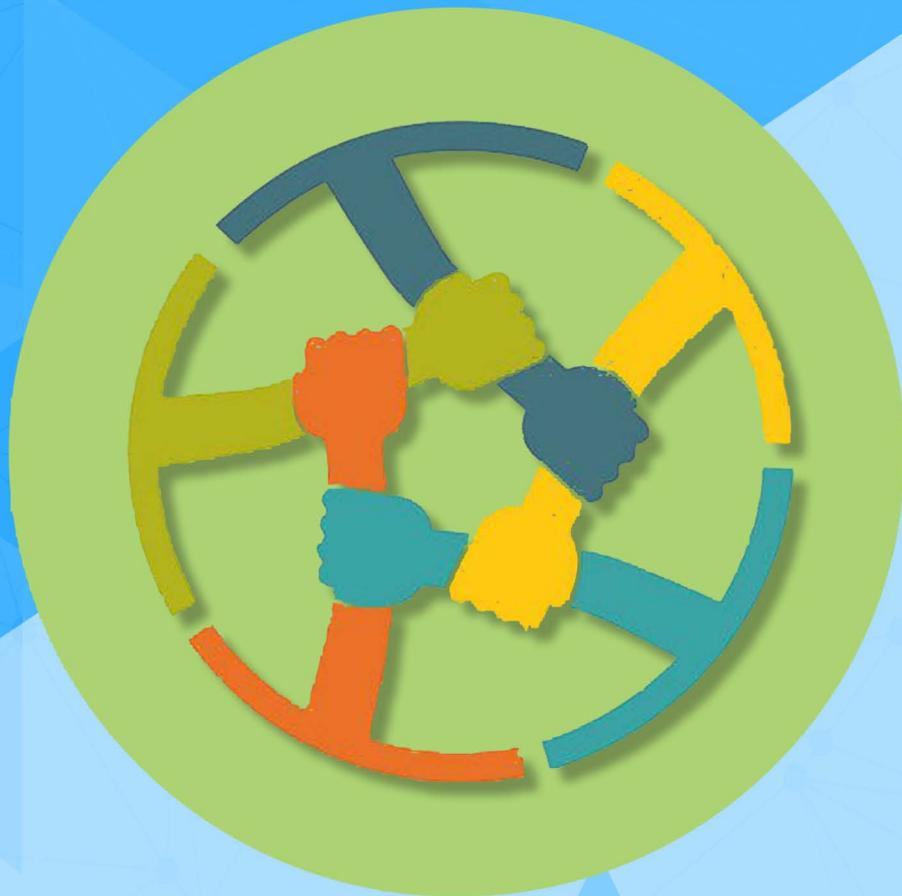
etc. is being done away with. Instead, **indoor plants and key chain cloth bags** are being presented to the guests and prize winners.



### **Replacement of plastic-wrapped gifts with eco-friendly alternatives**

## Chapter 7

# COMMUNITY PARTICIPATION



## CHAPTER 7

### Community Participation

Community Participation is the steel frame of any people-oriented campaign. It enhances the participants' understanding regarding the campaign, makes them responsible and empowers them to hold decision makers accountable.

Understanding this, our team involved multiple stakeholders of the Initiative right from the beginning. Event specific Community Participation is emphasized in the listed below:

#### 1. Cleanliness Drive at FRI Quarters (21<sup>st</sup> April, 2019)

- a. Residents from the FRI Quarters were involved in the academy cleanliness drive
- b. Garbage generators, garbage collectors (Ramky Group) and Dehradun Municipality staff were brought on a single platform to sort out the issues in local waste management



#### 2. Awareness Drive at Panditwari (27<sup>th</sup> April, 2019)

- a. Awareness Generation drive on harmful impacts of plastic waste is organized covering all the shops and street vendors in Panditwari
- b. Legal status of ban on plastic usage is explained, various alternatives available for plastic carry bags were shown



#### 3. Awareness Generation Session for Ground-level staff of IGNFA (12<sup>th</sup> September, 2019)

- a. Organized the session on waste management in partnership with NGO Waste Warriors.
- b. Segregation and appropriate storage of waste was demonstrated.



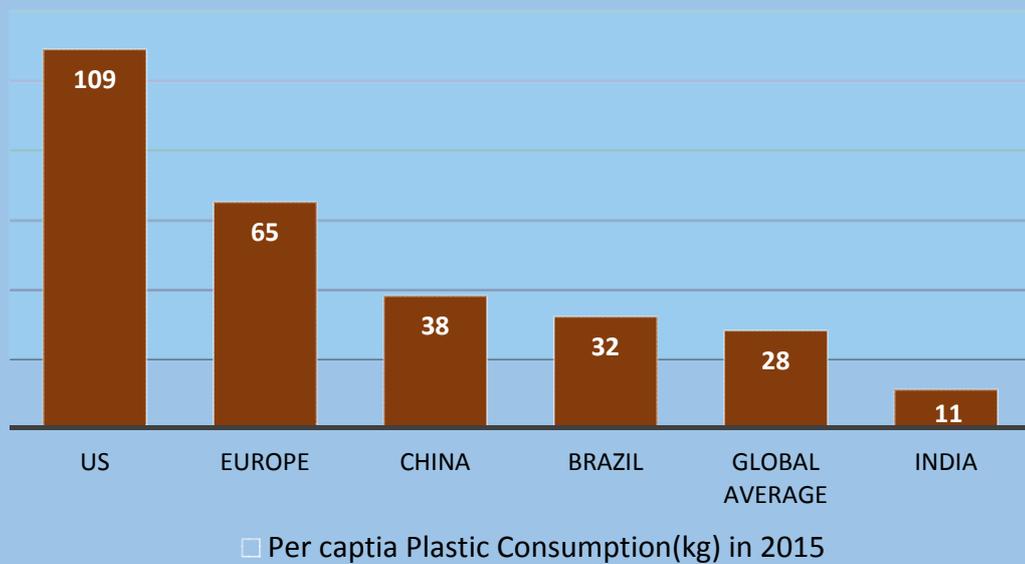
#### 4. Preparation of Non-plastic Dustbins

- a. Newspapers, hard-paper, cardboard, etc. were experimented with for New Hostel dustbins
- b. Housekeeping staff were involved in preparation of the bins so as to create among them a sense of belongingness towards the initiative.



Housekeeping staff preparing the biodegradable dustbins

### PLASTIC FACTS [13]



## Chapter 8

# INSTITUTIONALISING THE INITIATIVE



## CHAPTER 8

### Institutionalising the Initiative

No good initiative would prevail in the long-term unless we institutionalise it. We planned to achieve it by two means:

#### 8.1 Standard Operating Procedure (SOP)

An SOP was formulated using the experiences gained through implementation of various measures to transform the locations/events in the Academy and overall Academy into a Plastic-free zone. The SOP not only mainstreams the Initiative, but also provides a platform for the future batches of the Academy to build upon and improvise.

The SOP clearly list out the specific guidelines for each location and event. Also, an officer bearer (secretaries of Officers' Club or Group Leaders/Associate Group Leaders for tours) is assigned to ensure that these guidelines are adhered to. This sets in an accountability mechanism to ensure that the progress made as part of the Initiative doesn't slide down over years.

In order to have an overall coordination and monitoring, a Plastic-Free IGNEFA Committee is proposed under the SOP. The Committee shall be renewed every year with the Course Director of the Senior IFS Trainee batch to act as the Chairperson and the Secretary of Nature Club to act as the Vice-chairperson.

The Committee shall meet every month to monitor the progress and status of the measures taken under the Initiative and should also endeavour to come up with such practical measures to further reduce the plastic footprint of the Academy.

(kindly go through the SOP (Annexure A) for a detailed understanding on the assignment of roles and responsibilities to maintain the status of Plastic-free Academy)

#### 8.2 Permanent Wooden Signboards

Signboards carry the legacy of the current generations. They remind the future generations of the responsibility they have in maintaining the Academy plastic-free.

Choosing wood over steel for preparing signboards has a symbolic essence of promoting carbon locking and neutrality through sustainable wood harvesting and utilization, which is in tune with the Government of India's 'Wood is Good' Campaign.

The wood for the sign boards is sourced locally from a Camphor tree in FRI campus and most of the wood processing (sawing, seasoning & preservative treatment) is done using FRI facilities, as explained in the Section 5.3.2.



Signboards reading “Plastic-free Zone” are being established at six strategic locations of the Academy, as shown in the map below:



The first signboard was set up in the Executive Hostel- Old Mess Complex. The remaining five boards are in the process of getting established.

**PLASTIC FACTS**

On an average, every human being eats 100 microplastics per meal or 70,000 bits per year <sup>[17]</sup>

**CASE STUDY 5:  
CARBON STORAGE &  
ECONOMIC VALUATION  
OF WOODEN SIGNBOARDS**

The wooden signboard, along with its stand, weighs 30 kgs.

30 kgs of timber is equivalent to 13.5 kgs of carbon or 49.51 kgs of CO<sub>2</sub> storage. For six signboards, the CO<sub>2</sub> stored is equivalent to 297 kgs.

Also, usage of wood prevented steel to an extent of 20 kgs per signboard. And every kg of steel production<sup>[13]</sup> emits 1.85 kgs of CO<sub>2</sub>.

According to Social Cost of CO<sub>2</sub> Emissions estimations<sup>[14]</sup>, India’s carbon emission cost was estimated to be \$86 per tonne of CO<sub>2</sub>. It means the Indian economy will lose \$86 or ₹ 6054<sup>[15]</sup> by emitting each additional tonne of CO<sub>2</sub>.



Consequently, the wooden signboards, having stored 297 kgs of CO<sub>2</sub>, and prevented 227 kgs of CO<sub>2</sub> emissions, **provide an ecosystem service of economic value ₹ 3172.**

## Conclusion

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Usage of plastic is not avoidable, at least in the near future. But it is the abuse of plastic in terms of single-use-plastics, throwaway culture and improper waste management that is harming the environment. Our Initiative that commenced on 2<sup>nd</sup> of April ,2019, is a bold step to make our Academy plastic-free i.e. to reduce the misuse of plastic.

To change the age-old system is a time-taking process and requires enabling atmosphere with constant vigilance. Having targeted each event and location of the Academy individually, it is important that the experience gained is documented. In this regard, SOP (Annexure –A) and this Report act as ready reference for the future batches to maintain the Academy plastic-free.

Few issues still remain unaddressed, such as the FRI Canal clogging, extending the initiative to staff quarters, establishing a link with e-commerce websites to deliver the

packages in non-plastic alternatives, and eventually extending the Initiative to the entire FRI.

The IGNFA Plastic-free Committee, as detailed out in the SOP, would spearhead the Initiative and take up the required measures to reduce the plastic footprint of the Academy. The Committee may devise appropriate mechanism to punish/ fine the erring clubs/individuals/ families and establish a fund under the Officers' Club to finance the eco-friendly initiatives. The Committee is also empowered to amend the SOP, with consensus, to suit the needs of the time.

Small acts change the world. And we believe this Initiative is a step in the right direction to live harmoniously with nature and more importantly to give hope that the current environmental challenges can be tackled in a systematic way within the institutional set-up.



# TEAM

## CORE TEAM



**ANAND REDDY Y (MH)**



**JONES JUSTIN (WB)**



**KARTHIKEYANI K (TN)**



**SWETHA BODDU (MH)**



**THEJHAS SEKHAR (CG)**



**VIGNESH APPAVU G (AP)**

## MEMBERS



**ROHITH GOPIDI (TS)**



**RISHIBHA SINGH N (MP)**



**HIMANSHU P (MP)**



**BHARAT CH (BR)**



**TEJASWINI P (AGMUT)**



**TEJAS JAISWAL (JH)**



**ABHINAV GOPAL (RJ)**



**VEJAYANTHAM (MP)**



**MADHUMITHA S (MH)**



**JYOTI KOTAL (OD)**



**PRAJESH K JENA (JH)**

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**ANNEXURE -A**

**Standard Operating Procedure (SOP)**

**Plastic-Free IGNFA Initiative**

This SOP is framed as part of the Plastic-Free IGNFA Initiative **to maintain the Academy Plastic-Free in all its future endeavours**. It provides specific guidelines to maintain the Plastic-Free status during major events and at various locations within IGNFA.

A **Plastic-Free IGNFA Committee** will be constituted every year and the Committee shall have the overall responsibility in smooth implementation of the SOP while individual responsibility is assigned at specific event/location. All the Secretaries involve shall actively pursue innovative/best practices wherever possible.

The constitution of the Committee is as follows:

Chairman: Course Director (ex-officio)

Vice-Chairman: Secretary, Nature Club (ex-officio)

Members: One Officer-Trainee from senior batch and one officer-Trainee from Junior batch, to be selected on voluntary basis

Ex-office Members: General Secretary, Sports Secretary, Mess Secretary (Finance) or Mess Secretary (Procurement) & Cultural Secretary

**Polluter Pays** principle shall be applied in funding cost of recycling/safe disposal of the plastic waste generated. It shall be the duty of the Secretary, Nature Club to monitor the same.

LOCATION/EVENT	RESPONSIBILITY AND GUIDELINES
<b>OFFICE</b>	<p><b><u>Responsibility: General Secretary</u></b></p> <ol style="list-style-type: none"> <li>1. Bottles, plates, spoons and forks shall not be of plastic.</li> <li>2. Procured items inter alia furniture, stationary, electronic equipment shall not contain Single-use plastic.               <ol style="list-style-type: none"> <li>a. If unavoidable, plastic shall be collected, segregated, stored and be returned to the vendor.</li> </ol> </li> <li>3. Stationary procurement shall be in non-plastic packaging with preference to bulk procurement.</li> <li>4. High tea and other such events shall be plastic-free.</li> <li>5. Library activities, inter alia procurement of books, journals shall be plastic-free.</li> <li>6. Officer Trainees shall be instructed to use plastic-free project files</li> <li>7. Plastic waste generated in the premises shall be collected, stored and sent for recycling</li> </ol>

<p><b>HOSTEL</b></p>	<p><b><u>Responsibility: Lounge Secretary</u></b></p> <ol style="list-style-type: none"> <li>1. Dry-cleaned laundry shall be wrapped in non-plastic alternatives.</li> <li>2. Jute bags shall be provided in each room for laundry; expenditure shall be charged on mess bill.</li> <li>3. It shall be ensured that PET-made and other recyclable bottles shall be recycled.</li> <li>4. Every room shall have two-bin system with appropriate efforts to segregate waste at source.</li> <li>5. E-commerce packages shall be collected, stored and returned to the vendor.</li> <li>6. Plastic waste generated in the premises shall be collected, stored and sent for recycling.</li> <li>7. Hostel will form the nodal point for collection of all the plastic wastes generated at various events and locations before handing over for recycling.</li> </ol>
<p><b>CULTURAL EVENTS</b></p>	<p><b><u>Responsibility - Cultural Secretary</u></b></p> <ol style="list-style-type: none"> <li>1. Procurement: Rental dresses, Camphor, rangoli powder, candles etc for cultural events shall be procured in bulk and stored safely by the Cultural Secretary.</li> <li>2. Stage Decoration: Thermocol and other plastic decorative items shall not be used.</li> <li>3. Refreshments: Mess secretary shall ensure use of ecofriendly plates and spoons, transparent butter paper for wrapping and metal water bottles stage for guests.</li> <li>4. Mementos: Bouquets and mementos presented to chief guests shall be devoid of plastics.</li> <li>5. Banners: Flex banners are legally banned in our campus. Cloth flex shall be preferable to plastic flex and can be later reused, for instance, as table cloth, indoor games court barrier, etc.</li> </ol>
<p><b>TOURS</b></p>	<p><b><u>Responsibility: Group Leader and Associate Group Leader</u></b></p> <ol style="list-style-type: none"> <li>1. Officer Trainees should carry their personal water bottle along.</li> <li>2. Water cans along with water dispensers should be provided in the vehicle.</li> <li>3. Hosts should be informed prior to arrange for non-plastic alternatives during high teas, meetings, etc.</li> <li>4. Mementos should be wrapped in non-plastic alternatives.</li> <li>5. Officer Trainees should be encouraged to go for non-packaged snacks such as local fruits.</li> </ol> <p>Officer Trainees should be encouraged to bring along bottles, rather than sachets, for shampoos, shaving foam, and other such toiletries.</p>

**Responsibility - Mess Secretary (Procurement) & Mess Secretary (Finance)**

**Location specific SOP**

1. The practice of procuring milk through large packets of 6 liters shall be continued and bettered.
2. Unavoidable plastic-packaged commodities shall be procured in bulk to reduce waste, say Maggi in at least 840g packets.
3. Efforts shall be put in to ensure complete plastic-free procurement in future.
4. Large gunny/cloth bags shall be maintained for multiple grocery procurement.
5. Practice of using non-plastic coated paper cups shall be adhered to.
6. Attempt shall be made to procure bakery items such as bread in butter paper.

**Event specific SOP**

**MESS**

1. Crockery during all kinds of dinners, parties, cultural events and get-together events shall be plastic-free.
2. Preference shall be given to Academy earthen crockery / China in mix with biodegradable alternatives (Standards mentioned in the Note).
3. Polythene film to cover food in Buffet shall be replaced by Aluminum foil or mesh meal cover.
4. Plastic straws shall be completely disallowed.
5. Beverages shall be procured in bigger sizes, served in biodegradable cups and caps shall be sent for recycling.

Note:

1. Disposable plates (small and large) shall be made of banana stem/ Areca leaf/ Palm Leaf with thickness more than 2 mm
2. Bowls shall be preferably made of banana stems
3. Spoons and Forks shall be of thickness not less than 2mm
4. All disposable items aforesaid should be manually screened for any fungal depositions. Hygiene Standards shall not be compromised.

<p><b>SPORTS</b></p>	<p><b><u>Responsibility: Sports Secretary</u></b></p> <p>Regular Sports</p> <ol style="list-style-type: none"> <li>1. Enough water bottles shall be arranged near every sports facility to avoid need for disposable cups.</li> <li>2. Procurement of sports equipment shall be done without plastic packaging</li> <li>3. Ensure Plastic Shuttles and TT balls are disposed of properly.</li> <li>4. Procurement of tracks, polos for juniors shall have no use of plastic.</li> </ol> <p>Sports Meets</p> <ol style="list-style-type: none"> <li>1. Sports kit and T-shirts from the vendor shall be bought without plastic covers.</li> <li>2. Unavoidable generation of the plastic covers thus generated out of such a purchase shall be collected from the probationers. The collected covers shall be sent back to the vendors for reuse.</li> <li>3. The journeys to the sports meet should be pre planned in accordance with the water requirements. 25 liter cans with water dispensers can be carried along and used using probationer’s private bottles by refilling whenever necessary. This will send a clear signal that, we as officers, are taking the issue of plastics seriously and this will bring changes among our peers and other lower staff.</li> </ol>
<p><b>CONVOCATION</b></p>	<p><b><u>Responsibility: General Secretary</u></b></p> <ol style="list-style-type: none"> <li>1. Banners shall be made from non-plastic alternatives.</li> <li>2. Flower bouquets shall be wrapped in either paper or jute.</li> <li>3. Water bottles on the stage shall be of metal or glass.</li> <li>4. Plates, cups, spoons and forks shall not be of plastic - caterer should be instructed prior in this regard.</li> <li>5. Covers on food items shall not be of plastic film.</li> <li>6. Tape shall not be used for fixing carpets. Instead alternatives such as pushpins shall be explored.</li> <li>7. Non-thermocool alternatives shall be used for stage decoration.</li> <li>8. Plastic waste generated in the premises shall be collected, stored and sent for recycling.</li> </ol>

**ANNEXURE B**

**Plastic Footprint Reference Chart**

S.No	Plastic Image	Plastic Item	Weight
1		PET Bottle	1 L= 20 gms 0.5 L= 10 gms 0.3 L= 7 gms
2		Spoon	1.88 gms/ 1 piece
3		Fork	1.3 gms/ 1 piece
4		Plate(small)/ bowl	10 gms/ piece
5		Thermocol	100 gms / 1 sq m
6		Gift wrappers	4 gms/ sheet

7		PVC Flex Banners	300 gms (lump sum)
8		Milk packets – 500 ml	2.5 gms/ packet
9		Milk packets – 6 L	27.5 gms/ packet
10		Grocery bags(15 kg)	15 gms/ bag
11		Poly film	Lump sum
12		Cups	Tea cup- 2 gm/piece Juice cup- 3 gm/ piece
13		Laundry Cover	5 gms / 1 piece

**ANNEXURE C**

**Expenditure**

S.No	Item	Service	Seller/ Service provider	Per item price (incl. taxes)	No. of items	Total price
1	Wooden Signboards	Engraving and laser etching	Gurjas Global	₹ 6500	6	₹ 39,000*
2	Wooden signboards	Stand and establishment	Sh Rakesh Kumar	₹ 5400	6	₹ 32,400*
3	Transportation of signboards		Sh Moni Gaur	NA		₹ 1400
4	Wooden stands for Table Tennis barricades		Sh Rakesh Kumar	₹ 1150	6	₹ 6900
5	Cardboard Dustbins (12x10x8 inch)		Amazon.in	₹ 25	68	₹ 1700
6	Poster printouts		IGNFA Office	₹ 10	38	₹ 380
7	Stickers		Sunworld	₹ 1	300	₹ 300
8	Caps		Taneja Travels	₹ 100	20	₹ 2000
9	Travel expenses		Ola and uber	NA		₹ 773
10	Cotton pouch bags		Narayani Creative & Handicrafts	₹ 110	18	₹ 1980
11	Water pumps		Paltan bazar	₹ 240	4	₹ 960
12	Logo design		Robinson	NA		₹ 1000
13	Cleanup equipment (on rent)		NGO Waste Warriors	NA		₹ 546
14	Gloves for cleanup equipment		Paltan bazar	NA		₹ 330
15	Bamboo indoor plants		Mohan Lal & Sons	₹ 290	5	₹ 1450
16	Rubber gloves		Mohan Lal & Sons	₹ 90	20	₹ 1800
17	Packing paper bags		Mohan Lal & Sons	₹ 5	16	₹ 80
18	Wall clock – memento		IGNFA Souvenir Shop	₹ 399	1	₹ 399
				<b>TOTAL</b>		<b>₹ 93,398*</b>

\* Projected expenditure, as only one signboard is established until

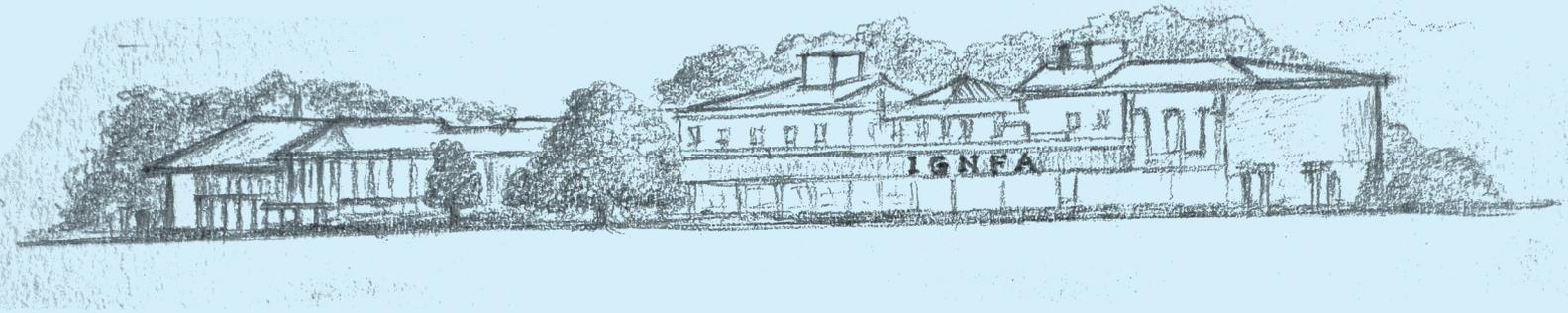
**ANNEXURE - D**

**Project Related Contact List**

S.No	Name	Designation/ Office	Contact her/him for	Contact details
1	Sh Anand Reddy Yellu	IFS 2018	Project details, Report and SOP	# 9818187962
2	Sh Abhimanyu	IFS 2019	Cover page and template design	# 8800532068
3	Sh Robinson	freelancer	Logo design	# 9952520903
4	Dr Shailendra Kumar	Scientist C, FRI	Wood Processing	# 9837086111
5	Ms Ankita Chamola	NGO Waste Warriors, Dehradun	Periodic collection of plastic wastes from IGNFA for recycling	# 8077238383
6	Sh Aman Grover	NGO Waste Warriors, Dehradun	Renting cleanup equipment – gloves, bags, etc.	# 9810965324
7	Ms Kavitha	Narayani Creative & Handicrafts, Chennai	Cotton pouch bags	# 9962052514
8	Sh Ravi Choudhary	Sunworld, Dehradun	Sticker labels	# 9837000060
9	Sh Jasvinder Singh	Gurjas Global, Dehradun	Wooden signboards – etching and engraving	# 9997017168
10	Sh Lokesh	Vats Sports, Meerut	Designer T-shirt	# 9358404225
11	Sh Vijay Bidlan Kumar	Care Taker, IGNFA Old Hostel	Project implementation in Old Hostel	# 8171041291
12	Sh Rajendra Singh	Care Taker, IGNFA New Hostel	Project implementation in New Hostel	# 9690912478
13	Sh Ashish Nautiyal	In-charge, procurements, IGNFA	Procurement for events	# 9997141402
14	Sh Rakesh Kumar	Rakesh Furniture Workshop	Carpentry work	# 9012280193
15	Sh Vivek	Ramky Group	Daily waste collection	# 9084861299



एक कदम स्वच्छता की ओर



“Small acts change the world”