

A Project Proposal on

## **Plastic Waste Handling & Recycling Project for Protection of Local Environment**

Regd Office  
Door No: 26-142  
Hanumanthuwaka  
Dairy Farm Post  
Visakhapatnam- 530040

IYFS-Visakhapatnam  
MIG 154, Sector-4  
MVP Colony  
Visakhapatnam – 530017  
Ph: 8985377300

IYFS-Hyderabad  
FF 101, Comfort Landmark  
Bandari Layout, Road 9  
Nizampet, Qutbullapur  
Hyderabad – 500090

IYFS-Eluru  
6-149, Indira Colony  
Sanivarapupeta  
Eluru – 534003  
Phone: 8333864484

IYFS-Guntur  
Ponnekallu Village  
Tadikonda Md  
Guntur  
Ph: 9703489797

## Executive Summary

As per the PCB reports, India generates 16000 tonnes plastic waste a day and only 9000 tonnes are recycled. Plastic Pollution is a major factor in India. It badly impacts the oceans. The Society started an awareness campaign (P4) about the hazards created by disposable plastics on March 9, 2014. Initially, it was only an awareness campaign. As many lessons were learned over the four years and passion for reducing the pollution made us setting up a recycling unit. Now, the campaign is 'Plastic Free India.'

A comprehensive Plastic Scrap Reprocessing Project was prepared to beat the plastic pollution in the city. It is an economic business plan as well. The business plan showed that the facility would come into profit by October 2020. Unfortunately, no banker is willing to provide us a loan so the Society approaches some like-minded people for financial assistance for machinery and a used vehicle. Currently, about .5 tonne / week waste is being collected from all available sources and being sent through 'dusting process.'

In this light, India Youth For Society (IYFS) proposes a Recycling Project with the following three effects:

- 1) Awareness about the hazards created by discarded plastics; the team defines 'awareness' as behavioural change of plastics consumption (plastics consumption to be reduced).
- 2) Available Alternatives to the Disposable Plastics would be highlighted through various activities involving citizens and enforcement agencies. Cloth bags, paper bags, and steel items to be available and promoted.
- 3) Collection and Proper Handling of Plastic Waste, Recycling Process & Production of New plastic Items.

It is a service to the environment, public health and at the same time, it is revenue generate model. The unit shall create a source of livelihood initially for about 8- 12 women who are under poverty line and help rag-pickers. In addition to this, any number of Self-Help Group women can be a part of this project. IYFS is a committed organization for awareness about hazards by plastics waste and to educate residents, tourists and the stakeholders involved in urban bodies.

The Urban Local Body provided us space. The team could support itself with the basic machinery. Now the project organization seeks financial aid for Extrusion Machinery with wash-line. We felt that we could approach your good offices for support for this noble cause and we are hopeful that it could be supported partly or fully.

Yours Sincerely



Vice President, India Youth For Society

## Organization Profile

Name of the Organization	India Youth For Society [IYFS]
Regd No / Year	331 / 2011
Registered Location	India Youth For Society HIG 1-51 Sagar Nagar Visakhapatnam – 530045
Other Cities	Hyderabad, Eluru, Guntur & Lucknow
Phone Number	Phone: 9703489797
Email	<a href="mailto:support@plasticfreeindia.org">support@plasticfreeindia.org</a>
Website	<a href="http://www.plasticfreeindia.org">www.plasticfreeindia.org</a> <a href="http://www.sustainindia.org">www.sustainindia.org</a>
Contact Person	Appala Reddy Phone: 9703489797    yendreddi@gmail.com
Vision & Mission	India Youth For Society [IYFS] primarily works on protecting the environment by improving the civic sense. Its objectives include road safety, child rights, education, health and good governance, malnutrition and physical activities in Govt schools. Our team is educating and involving children & youth in various environmental awareness programs as well as personal development programs. Regular campaigns, literature, seminars, rallies are major activities of the mission. It is also to provide advocacy and field The Society achieves its objectives through working on Sustainable Development Goals.
Campaigns & Projects	<ol style="list-style-type: none"> <li>1. PFI - 'Plastic Free India.'</li> <li>2. SMART - Safety Means Alert on Road in Traffic</li> <li>3. MESSAGE - "Make Each School Student Aware of Green Environment (MESSAGE)</li> <li>4. HELP - Humanitarian Assistance for Education &amp; Livelihood Project</li> </ol>
Board	IYFS has grown from few nominal members to 66 active and efficient group members including volunteers. IYFS has four principal organs: Executive Committee, Patrons Group, Working Committee and Review Committee.
President	<a href="mailto:Sontyana2@gmail.com">Sontyana2@gmail.com</a> Phone: 9492239012
Secretary	<a href="mailto:Jagadish920@gmail.com">Jagadish920@gmail.com</a> Phone: 8985377300
PAN	AAAAI4602H
GST	37AAAAI4602H1D8
VAT	VPIN00837E
Income 12A Certificate	Yes
Income 80G Certificate	Yes
FCRA	Yes, Through LEAD INDIA
Savings Bank	HDFC Bank A/c No: 00501110000172 IFSC: HDFC0000050

## **ABBREVIATIONS AND ACRONYMS**

CBO	Community Based Organisation
CPCB	Central Pollution Control Board
APPCB	Andhra Pradesh Pollution Control Board
GDP	Gross Domestic Product
NGO	Non Governmental Organisation
PPP	Public Private Partnership
RWA	Resident Welfare Association
SWM	Solid Waste Management
ULB	Urban Local Body
IYFS	India Youth For Society
P4	Prevent Polythene Protect Planet
PWMHR	Plastic Waste Management & Handling Rules
MSW	Municipal Solid Waste
GVMC	Greater Visakhapatnam Municipal Corporation
MSWR	Municipal Solid Waste (Management & Handling) Rules, 2016
CMOH	Chief Medical Officer of Health
STP	Sewage Treatment Plant
PET	Polyethylene Terephthalate
LDPE	Low Density Poly Ethylene
PVC	Poly Vinyl Chloride
HDPE	High Density Poly Ethylene
PP	Polypropylene
PS	Polystyrene
TPD	Tonnes Per Day

Agglomerator	Machine for increasing the density of flakes of LDPE film.
Blow moulded	A short tube of melted plastic is extruded and trapped in a mould. Air is blown in to the centre of the plastic tube, so that the plastic takes up the shape of the mould cavity. Typically used to mould bottles, tanks and drums.
Chemical recycling	Plastic is converted back to its constituent chemicals.
Closed-loop recycling	Where plastic waste is recovered separately from other plastics and reprocessed to form new product, usually with some virgin polymer added. Useful, particularly for PVC, to keep it separate from general plastics recycling.
Compounded	Shredded plastics and additives mixed together prior to extruding.
Extruder	Single or twin-screw auger, which heats and forces molten plastic through a profile or die
Extrusion moulding	Plastics are melted and extruded through a die in a continuous process. (e.g.. used for making plastic rod or plastic film).
Force	Load applied to an object causing it to accelerate (Units N).
Formulation	Mix of polymer and chemicals, the latter added to alter the polymer's properties (e.g. hardness, UV stability, elasticity, strength, etc).
Granules	Extruded molten plastic chopped into short lengths to form free flowing granules. Same as pellets.
Ground plastic	As shredded plastic but usually to a smaller particle size.
Injection moulding	Molten plastic is injected into a mould via an injection screw, cooled, and then the object ejected. Used to make bottle crates, car bumpers, washing-up bowls.
Intrusion moulding	Like injection moulding but with a ventilated mould, which allows any steam or gasses generated to safely escape.
Mechanical recycling	A recycling process where waste plastics are shredded, and possibly melted and extruded, to produce plastic suitable for making in new products.
MRF	Materials recovery facility where recyclable materials are recovered from the waste stream.

Pellet	As for granule.
Pigment	Insoluble powder material which imparts colour to a polymer.
Plastics	Polymer with additives which alter the basic character of the polymer to suit the application.
Polymer	Organic material composed of long chain molecules made up of many monomer units.
Polyolefin	Family of polymers with carbon and hydrogen molecules only. Consists of LDPE, MDPE, HDPE, PE, PIB (Oppanol) and PP.
Recovery of plastic	Process where plastics are recovered from the waste stream.
Recycling of plastic	Process which includes some or all of recovery, cleaning, and reprocessing processes.
Reprocessing waste plastic	ofProcess where plastics are re-extruded into new products.
Shredded plastic	Plastic that has been mechanically shredded to produce small particles of plastic.
Source segregated	Where waste is separated into the plastics, paper, containers, compostable waste and residual waste, prior to putting out for collection.
Thermoplastic	Plastics which can be moulded and remoulded repeatedly when heated.
Thermoset	Plastics, which cannot be reprocessed through reheating, although they do soften. The polymer undergoes a chemical reaction during its initial processing that locks the monomer chains together.

## Table of Contents

<b>Pre Section</b>	<b>Executive Summary</b>  <b>Organization Profile</b>  <b>Abbreviations &amp; Acronyms</b>
<b>Section – I</b>	<b>Introduction: Plastic Menace at Overview</b> 1.1. Introduction 1.2. Problem with Waste Plastics 1.3. Challenges to City/ GVMC, Visakhapatnam
<b>Section-II</b>	<b>Project: New Life to Used Plastics</b> 2.1 Statement of Purpose 2.2 Mission: Economic Project & Environmental Service 2.3. Experience: Awareness Campaign to Recycle Unit
<b>Section-III</b>	<b>Sources: Throwaway to Recycling Unit</b> 3.1. Sources of Plastic Waste & Plastic Products 3.2. Disposable Plastics 3.3. Figure Description: Segregation to Granulation
<b>Section-IV</b>	<b>Business: Dusting to Chips &amp; Granules</b> 4.1. Proposed Business Activity 4.2. Reprocessing through Extrusion Process 4.3. Short Note on By-Products
<b>Section-V</b>	<b>Mechanism &amp; Unit Capacity</b> 5.1. Mechanism & Capacity & 5.2. Approvals 5.3. Budget
<b>Section – VI</b>	<b>Beneficiaries: Rag Picking to Professional Dignity</b> 6.1. Revenue to Organization 6.2. Direct Beneficiaries 6.3. Indirect Beneficiaries
<b>Section-VII</b>	<b>Market: Existing Orders &amp; Buyers of the Granules</b> 7.1. Products 7.2. In Building and Construction Industry 7.3. In Packaging Units / Plastics Manufactures 7.4. In Roads Construction  <b>Conclusion</b>
<b>Annexure</b>	<b>References of the Previous Work &amp; Acts</b> Positive Plastics Industries for our Plastic Recycled Material MoU with GVMC & Authorization Consent of Establishment by APPCB Profile of the Project Organization

## **1. Introduction: Plastic Menace at Overview**

### **1.1. Introduction**

Plastics are amazing and since its inception, plastic enabled countless advances in our industry and way of the life. Created to be light, durable, chemically resistant, non-reactive to outside influences, and easy to manufacture, plastic was a perfect building material for countless articles that are used not only by ordinary users in their daily affairs but also in aeronautics, construction industry, electronics, packaging, transportation, energy conservation, scientific components and other.

But there is a threat with ‘throwaway plastics’ (disposable plastics, single-use products, kick-off items etc). As per Ministry of Environment, India generates 16000 ton/day out of which only 9000 ton/day being collected and the remaining pollutes the soil, clogs drains, pollutes waters and kills the animals with its indigestive nature.

### **1.2. Problem with Plastic Waste**

It is known that “Discarded plastics pose a threat to human health and environment; due to its non-biodegradable nature, littering of plastics causes irreversible damage to the environment; plastic wastes hinder the natural aeration process of the surface water bodies, choke municipal sewer lines and storm water drains and clog the bar-screens of sewage treatment plants; they interfere with various



agricultural operations, prevent natural recharge of underground water and contribute to visual pollution. Consuming food wrapped in coloured plastic has adverse effects on health; municipalities routinely receive reports of death of cows and other animals from ingesting plastic bags.

#### **a) Environmental Degradation, Threat to Human Health & Animals**

Improper handling of solid waste and indiscriminate disposal in open spaces, road margins, tank beds, and etcetera, give rise to numerous potential risks to the environment and to human health. Direct health risks mainly concern those working in the field without using proper gloves, uniforms, and etcetera; a high percentage of waste workers and individuals who live near or on disposal sites are infected with gastrointestinal parasites, worms, and related organisms. For the public, the main risks to health are indirect and related to poor water, land, and air quality. In addition, infrequent collection of waste provides an attractive breeding ground for flies and rats.



### **b) Plastics Handling Challenges Across India: Landfill & Damage to Agriculture**

Throughout the country, Waste Management has become a challenge to Municipal Staff. Highest portion of the solid waste including plastics have been subjected to landfill. However, disposing of the waste to landfill is becoming undesirable due to (1) Legislative pressures (where waste to landfill must be reduced by 35% by 2020) (2) Rising Costs (3) The generation of explosive greenhouse gases (such as methane) (4) The poor biodegradability of commonly used packaging polymers. In light of these hazards, the improvement in federal regulations for land filling are carried out by normalizing the use of liners in the landfill bed, ground water testing for waste leaks, and post landfill closure care. However, since waste plastics have a high volume to weight ratio, appropriate landfill space is becoming both scare and expensive.

Rapid urbanisation, consumption patterns, and a growing population lead us jointly to landfills. Plastic wastes represent a considerable part of municipal wastes, while huge amounts of plastic waste arise as a by-product or faulty product in industry and agriculture.

### **1.3. Challenges to City/ GVMC, Visakhapatnam**

Despite the challenges, GVMC is doing well in collection but was not able to handle plastic 100% it properly. On the other hand, the plastics create marine debris. The following table is a rough estimation (not official but a rough calculation as per CPCB report)

Visakhapatnam City	As per 2011 Census	Nov 2017 As per a website
Population	20,91,811	25 Lakh Approximately
Area	681.96 sq.km	681.96 sq.km
Zones	4 + Municipality Idealistic	6 + 2 + 2 (Proposed)
MSW as per CPCB (490 grams by individual)	334 tonnes / day (as per 2012–13 Report)	30.17 tonnes / day (as per 2012–13 Report)
Plastic Waste as per IYFS (50 grams by an individual roughly)	10 – 18 tonnes / day approximately	19-23 tonnes/day (only domestic). Industrial-waste is not calculated here. About 50% is picked up by scrap vendors & rag pickers

## Section-II

### **Project: New Life to Used Plastics**

#### **2.1 Statement of Purpose**

The aim of the project is to give new life (recycle or reprocess) post-consumer mixed plastics waste into a new product. Initial objective is to make chips and granules through extrusion process.

#### **2.2. Mission: Economic Project & Environmental Service to Local Environment**

The Vision of the Project Organization is to handle 4 – 8 tonnes / day Municipal Plastic Scrap through mechanical recycling process (extrusion process). The goal of the project is to improve the local environment and offering continuous employment to individuals from socially and economically disadvantaged groups.

#### **Processing of New Life (Extrusion Processing)**

Here is the model that is proposed for reprocessing: Segregation at Source, Collection from doorstep, Segregation, Washing & Drying, Milling, Floatation, Contaminant Separation, Crushing/ Shredding/ Processing, Extrusion, Cooling & Cutting. Moulding is another process to get it scaled-up.

#### **2.3. Experience: Awareness Campaign to Recycling Unit**

The Society started an awareness campaign (P4) about the hazards created by disposable plastics on March 9, 2014. Initially, it was only an awareness campaign. As many lessons were learned over the four years and passion for reducing the pollution made us setting up a recycling unit.















“The service is designed to reduce the requirement for the landfill disposal of plastics packaging waste, which until now, has been the option for country like India. Landfill disposal is already overburdened in Visakhapatnam City and subject to increasingly tight environmental legislation. These increasing restrictions make landfill disposal less financially viable and less attractive to the waste generator. The aim is to encourage, initially at commercial locations, the segregation of the waste at source and deliver this to the facility with the minimum of inconvenience to all involved parties.

A comprehensive business plan was prepared to cover the start up period 2018 -2030. The project is began with the resources available. Urban Local Body provides water, electricity and premises. Basic machinery for dusting plastic waste is contributed by a doctor. The collection of waste & dusting process is going on. Machinery is required to go for extrusion process (chips and granules reprocessing). In fact, there is no time bound of the project. The project will be taken in large in 15 days if there is a loan or grant.

The waste suitable for reprocessing at the facility includes all plastic packaging products manufactured from a wide range of secondary materials including:

- a) Polythene
- b) High Density Polyethylene
- c) Low Density Polyethylene
- d) Polystyrene
- e) PET
- f) Polyurethane
- g) Polypropylene

## Plastic Resin Identification Codes

 PETE	 HDPE	 PVC	 LDPE	 PP	 PS	 OTHER
<b>Polyethylene Terephthalate</b>	<b>High-Density Polyethylene</b>	<b>Polyvinyl Chloride</b>	<b>Low-Density Polyethylene</b>	<b>Polypropylene</b>	<b>Polystyrene</b>	<b>Other</b>
Common products: soda & water bottles; cups, jars, trays, clamshells	Common products: milk jugs, detergent & shampoo bottles, flower pots, grocery bags	Common products: cleaning supply jugs, pool liners, twine, sheeting, automotive product bottles, sheeting	Common products: bread bags, paper towels & tissue overwrap, squeeze bottles, trash bags, six-pack rings	Common products: yogurt tubs, cups, juice bottles, straws, hangers, sand & shipping bags	Common products: to-go containers & flatware, hot cups, razors, CD cases, shipping cushion, cartons, trays	Common types & products: polycarbonate, nylon, ABS, acrylic, PLA; bottles, safety glasses, CDs, headlight lenses
Recycled products: clothing, carpet, clamshells, soda & water bottles	Recycled products: detergent bottles, flower pots, crates, pipe, decking	Recycled products: pipe, wall siding, binders, carpet backing, flooring	Recycled products: trash bags, plastic lumber, furniture, shipping envelopes, compost bins	Recycled products: paint cans, speed bumps, auto parts, food containers, hangers, plant pots, razor handles	Recycled products: picture frames, crown molding, rulers, flower pots, hangers, toys, tape dispensers	Recycled products: electronic housings, auto parts,
						

“The waste itself goes through a series of processes prior to the final moulding stage at which point the products are recovered. The products take a wide variety of forms, ranging from timber and concrete alternatives to intricate designs, which in many cases can be created to meet with specific customer requirements. The goal at all times is to create an opportunity for the communities, both domestic and commercial, to make a significant contribution towards protecting the environment and creating a more sustainable future”.

## Section-III

### Sources: Throwaway to Recycling Unit

A comprehensive business plan was prepared to cover the start up period 2018 -2030. The business plan showed that the facility would come into profit by October 2018. Currently, waste is being collected from all available sources and being sent through ‘dusting process.’

#### 3.1. Sources of Plastic Waste

Plastic waste can be mainly classified as: (1) Municipal Waste (2) Industrial Waste Plastic wastes represent a considerable part of municipal wastes, while huge amounts of plastic waste arise as a by-product or faulty product in industry and agriculture. Of the total plastic waste, over 78 wt% of this total corresponds to thermoplastics and the remaining to thermosets.

##### 3.1.1 Plastic Products include:

(1) Domestic Waste (food containers, packaging foam, disposable cups, plates, cutlery, CD and cassette boxes. fridge liners, vending cups, electronic equipment cases, drainage pipe, carbonated drinks bottles, plumbing pipes and guttering, flooring. cushioning foams, thermal insulation foams, surface coatings, etc.)

(2) Municipal Waste (mulch films, feed bags, fertilizer bags, and in temporary tarpaulin-like uses such as covers for hay, silage, etc.)

(3) Wires and Cables

(4) Automobile Wrecking: The MSW collected plastics waste is mixed one with major components of polyethylene, polypropylene, polystyrene, polyvinyl chloride, polyethylene terephthalate etc.

(5) Industrial Plastic Waste Industrial plastic wastes (so-called primary Waste) are those arising from the large plastics manufacturing, processing and packaging industry. The industrial waste plastic mainly constitute plastics from (1) Construction and Demolition companies (e.g. polyvinyl chloride pipes and fittings, tiles and sheets) (2) Electrical and Electronic Industries and Industrial Plastic Waste (e.g. switch boxes, cable sheaths, cassette boxes, TV screens, etc.) (3) The automotive industries spare-parts for cars (such as fan blades, seat coverings, battery containers and front grills). Most of the industrial plastic waste have relatively good physical characteristics i.e. they are sufficiently clean and free of contamination and are available in fairly large quantities

#### 3.2. Disposable Plastics

- a) Coffee cups
- b) Soft drink bottles
- c) Toiletry containers, i.e. shampoo, shower gel, etc
- d) Thread protectors for oil drilling tubes
- e) Carrier bags
- f) Bread bags
- g) Car bumpers

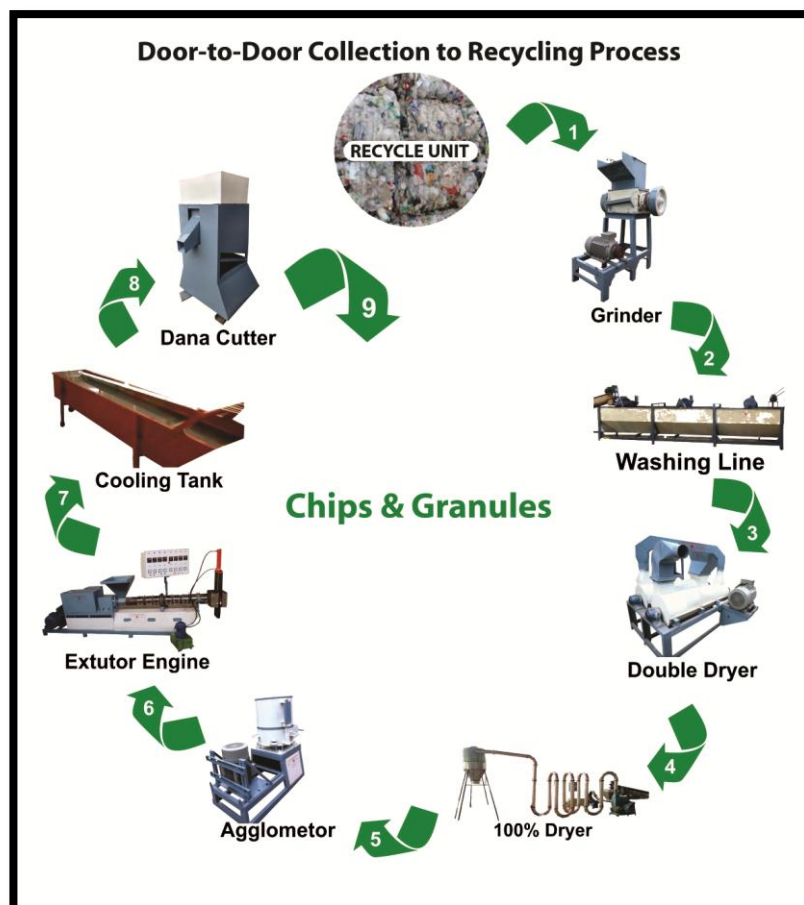
- h) Chemical drums
- i) Chemical bags
- j) Shrink wrap
- k) Cling film
- l) Food packaging
- m) Cooking oil containers
- n) Yoghurt pots
- o) Milk bottles
- p) Our Stakeholders



Major source of plastics waste is Scrap from GVMC and Segregated Plastics by supporters of India Youth for Society (IYFS), residents, apartments, hotels, schools, parks, shops, university, shopping malls etc and it is estimated that about 3-4 tonnes/ day would be collected. Another objective of the project is to collect dry waste from the source itself.

As per the new Plastic Waste Management Rules (2016), all the public, vendors, brand owners, manufacturing units, controlling authority, urban & rural local bodies, judiciary etc have role in it. Community participation in SWM is the key to a sustainable and integrated project. Therefore, the applicant organization shall participate in all the awareness programmes in connection with segregation of waste.

### 3.3. Figure Description: Segregation to Granulation



## Section-IV

### **Business: Dusting to Chips & Granules**

#### **4.1. Proposed Business Activity**

Recycling is reprocessing of the used plastics to form new similar products. The proposed type is a type of primary and secondary recycling of plastic where the homogeneous waste plastics are converted into products with nearly same or less performance level than the original product. Thermosets (Non-Recyclable) once set cannot be remoulded /softened by applying heat. Thermoplastics (Recyclable) become soft when heated, can be moulded or shaped with pressure when in plastic state.

#### **4.2. Reprocessing through Extrusion Process**

Washing, Drying, Extrusion and Processing into granules would be the model of working:

- 1) Introduction of Plastic waste to the reactor
- 2) Closing the lid of the reactor (air-tight) and apply heating
- 3) Increase the heating gradually so that sudden temperature rise may not burn certain waste
- 4) Collect the generated fumes on water. They are cut into tiny pieces (granules or pellets)

Thus Extrusion, granules would be the outcome product in the processing. Washing generates waste water having high pollution load. The project organization is preparing plan for waste water treatment plant.

#### **4.3. Short Note on By-Products**

Through this reprocessing, the final products are Chips / Granules. They are raw-materials to for the plastics moulding (making new products). Virgin plastics are mixed products of used plastic granules. Units buy in large quantity from this unit as there is a good demand and virgin plastics chips or granules are expensive. In future, the organization has plans to scale up for moulding.

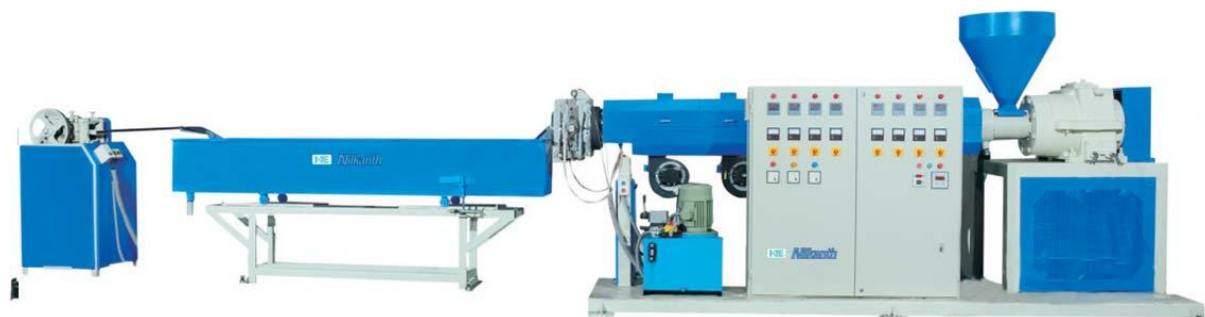
## Section-V

### **Mechanism & Capacity of Unit**

#### **5.1. Mechanism & Capacity**

The Proposed Unit shall handle all kinds of plastic upto 480 – 600 kgs per hour. The plant shall run 8 – 9 Hrs / day and 325 working days during the first year. On and average, the unit can handle 5 – 8 Metric Tonnes per a day. It is estimated that there shall be 8% - 11% increase in the profit by the project. The proposal shall achieve the best results. The project shall have sustainability in the long run besides salaries and miscellaneous. It is estimated that the project will have growth in the second year as the team get expertise in the market and shall try to increase capacity building.

- 1) Grinder (1)
- 2) Washing & Drying Unit (1)
- 3) Agglomerator (1)
- 4) Extrusion with Cooling Tank (1)
- 5) Dana Cutter with Colour Mixing Unit (1)



## 5.2. Approvals

The project organization collaborated with GVMC in implementation of CPCB Plastic Waste Guidelines & Recommendations, Sep 2017 (PWM Rules, 2016). The Urban Local Body provides water and electricity besides premises. As per the norms of PWM Rules (2016) (13) (3), the project organization shall abide by the rules and regulations of APPCB. APPCB has approved Consent for Establishment this entity (A copy has been attached).

## 5.3. Budget for Infrastructure, Machinery & Working Capital

### Machinery, Infrastructure & Installation:

50 HP AGG50	1 unit	2,86,000=00
Automated Plastic Washing Machine	1 unit	9,18,000=00
LCB & Spares for Washing Unit	1 set	1,04,000=00
Extruder EXTS200	1 unit	7,75,000=00
Electrification/ Installation	1 time	1,00,000=00
Basement for Unit & Civil Work	1 time	2,00,000=00
Water Tank	1 unit	1,00,000=00
<b>Total (A)</b>		<b>24,83,000=00</b>

Office Cabin/ Cabin for Staff/ Toilets	1 set	3,00,000=00
Safety Tools / Shoes/ Uniforms	15 pairs	75,000=00
Drums / Tins / Packaging Material	10 Sets	50,000=00
Waste Water Pipe Line	1 time	1,00,000=00
Industrial Trolley	4 units	24,000=00
Weighing Machine	2 units	16,600=00
<b>Total (B)</b>		<b>5,65,000=00</b>

### Logistics / Transport

Tempo / Mini Van (New / Used) /	1 unit	5,00,000=00
Motorcycle (New / Used)	1 unit	71,000=00
<b>Total (C)</b>		<b>5,71,000=00</b>

### **Beneficiaries: Rag Picking to Professional Dignity**

#### **6.1. Revenue to Organization**

- 1) Besides a clean local environment, the project has financial viability.

#### **6.2. Direct Beneficiaries**

- 1) The project would give a good platform for 110 rag pickers, 50 settled rag pickers and their families. This project will bring them a good price for their waste.
- 2) Hopefully, 11 – 15 people would be employed directly.
- 3) As a part of the project, it is aimed to launch a weekly mobile clinic for the rag pickers and nearby people.
- 4) They would have training about the plastics and hazardous waste handling and safety measures will be taught. Safe Sex & HIV counselling sessions are also planned for this community.

#### **6.3. Indirect Beneficiaries**

- 1) Rivers, Seas & Mother Earth are also indirect beneficiaries as they would not get polluted wherever collection and reprocessing takes place.
- 2) Local Environment: This proposed PW Handling & Recycling Project will contribute to a cleaner local environment, maintaining pure surface and ground water, healthy soils, and clean air. Noteworthy, a clean local environment will immediately benefit the most vulnerable groups of society whose livelihoods often depend on the natural resources available locally.
- 3) Micro-Entrepreneurship: There will also be opportunities for the start-up of micro-enterprises in recycling, e.g. recycling of paper, Tetra Pak cartons, Pet bottles, and etcetera. IYFS will here utilize existing organisational capacities to train unemployed youths.
- 4) The first and foremost benefit of recycling plastic is conservation of petroleum, which is getting scarce. Large amount of petroleum is needed for making new plastic products, and around 40% of the petroleum consumption can be reduced by recycling old and discarded plastic.
- 5) The benefits of recycling plastic include a reduction in the emission of greenhouse gases. In other words, greenhouse gases are emitted while burning petroleum, and if the amount of petroleum used in making plastic is reduced through recycling, the emission of these gases will also reduce.
- 6) Even the landfill space can be saved through recycling. It is said that removal of one ton of plastic for recycling spares a landfill space of around 7.5 cubic yards.
- 7) One of the important environmental benefits of recycling plastic bags and bottles is that, it saves animals, birds, and a wide range of aquatic creatures from death due to ingestion of plastic. The chemicals in plastic can also pollute the soil as well as water.



## Section-VII

### **Market: Existing Orders & Buyers of the Granules**

#### **7.1. Products**

The final products of the proposed project are Chips / Granules. They are raw-materials to for the plastics moulding (making new products). Virgin plastics are mixed products of used plastic granules. Units buy in large quantity from this unit as there is a good demand and virgin plastics chips or granules are expensive.

#### **7.2. In Building and Construction Industry**

From the moment famous Bakelite appeared in the first decade of 20th century, plastic became one of the most used building blocks of modern construction industry. This is only surpassed by packaging industry, which uses more plastic than construction industry. The most common uses for plastic in construction is in pipes, valves, bathroom units, flooring, siding, panels, insulation, plumbing fixtures, windows, doors, railings, glazing and gratings. They are used so much because of their awesome abilities to resist corrosion, natural elements and are also very light and easy to handle.

#### **7.3. In Packaging Units / Plastics Manufactures**

Versatile, durable, flexible, rigid, and light plastic was embraced by packaging industry with both hands. By employing various manufacturing techniques plastic can be shaped and moulded into any desirable form, have any colour, or any physical property. Plastic transport containers are not only used for household items such as shatterproof bottles and child resistant packages, but also in medicine (biohazard waste disposal, sensitive containers, transport moulds that hold their cargo in firm grip), research, and countless other fields.

#### **7.4. In Roads Construction**

A range of plastics products will be produced for the construction for roads (8% plastic chips is mandatory by GVMC) and related industries.

### **Conclusion**

As the issue is serious matter and challenging, expertise with passion requires for the processing. India Youth For Society feels that it can deal with the handling 100% efficiently. It is not just a unit but a service to the public health and mother earth. Upon having sources and assistance, surely, the organization could achieve the best results in the recycling.

## **References have been mentioned**

<http://www.moef.gov.in/sites/default/files/SWM%202016.pdf>

<http://www.moef.gov.in/sites/default/files/PWM%20Rules%2C%202016.pdf>

<http://mpcb.gov.in/images/pdf/Plasticenglish04.02.2011.pdf>

<http://www.thehindu.com/news/cities/Visakhapatnam/campaign-for-p4-stepped-up/article6950631.ece>

<http://www.thehindu.com/news/cities/Visakhapatnam/p4-steps-up-campaign/article6062565.ece>

<http://www.p4india.com/p4/>

<https://plus.google.com/+P4Campaign>

<https://www.youtube.com/channel/UC2w0cY2IDhOiuUIEC5g0kew>

<https://www.facebook.com/p4campaign/>

<http://www.thehindu.com/todays-paper/tp-national/tp-andhrapradesh/one-day-every-week-for-a-better-planet/article6045930.ece>

[https://www.acronymfinder.com/Prevent-Polythene- -Protect-Planet-\(India%3B-eco\\_campaign\)-\(P4\).html](https://www.acronymfinder.com/Prevent-Polythene- -Protect-Planet-(India%3B-eco_campaign)-(P4).html)

[http://www.cpcb.nic.in/wast/plasticwast/PW\\_60\\_cities\\_report-Jan-2015.pdf](http://www.cpcb.nic.in/wast/plasticwast/PW_60_cities_report-Jan-2015.pdf)

[http://www.cpcb.nic.in/wast/plasticwast/Consolidate\\_Guidelines\\_for\\_disposal\\_of\\_PW.pdf](http://www.cpcb.nic.in/wast/plasticwast/Consolidate_Guidelines_for_disposal_of_PW.pdf)

[http://www.cpcb.nic.in/Directions\\_commissioners.pdf](http://www.cpcb.nic.in/Directions_commissioners.pdf)

[http://www.cpcb.nic.in/wast/plasticwast/Certified\\_Manufacturers\\_&\\_sellers.pdf](http://www.cpcb.nic.in/wast/plasticwast/Certified_Manufacturers_&_sellers.pdf)

### Positive Plastics Industries for our Plastic Recycled Material


Balaji Industries, Sy. No.65/5, Boduvalasa (V), Sabbavaram (M), Visakhapatnam Dist.	Sri Satya Sai Industries, R.Sy. No.68/10, Boduvalasa, Sabbavaram, Visakhapatnam	Sai Jyothi Plastic Pack, Sy. No.38/11, 33/13, Gulleypalli (V), Sabbavaram (M), Visakhapatnam
Sri Lakshmi Ganapathi indstury , Sy. No.11/1, Bagulawada, Anakapalli, Visakhapatnam	SKML Packings, Sy. No.38/12, 38/13, Gulleypalli (V), Sabbavaram (M), Visakhapatnam	Surana Pipes, Autonagar, Gajuwaka, Visakhapatnam
Pavan Polymers, E-Block, Auto Nagar, Visakhapatnam	Sai Shreya Industries, R.Sy. No.68/10, Boduvalasa, Sabbavaram, Visakhapatnam	Kanta Enterprises, Plot.No. 13, F- Block, IDA, Autonagar (V), Gajuwaka (M), Visakhapatnam (Dist).
Sun Polymers, Plot No.84/6, Autonagar, Gajuwaka, Visakhapatnam	Shree Polyfilms Pvt.Ltd., IDA, B-Block, D-11, Autonagar, Visakhapatnam	Mahaveer Industries, Sy. No.65/5, Boduvalasa (V), Sabbavaram (M), Visakhapatnam Dist
Vijay Plastic Industries, Sy. No.148/7, Plot No.20-6, Chinnamill, Pendurthi, Visakhapatnam	Arunodaya Packing PL Plot No. 49, APIIC industrial Park, Gambheeram,, Anandapuram, Visakhapatnam	Chaitanya Polypack Industries, IDA, D-Block, D-2A, Autonagar, Visakhapatnam
Vijaya Ganapathi Aqua Industries, Sivasaktinagar, K. Nagarapalem Kapuluppada, Bheemunipatnam Visakhapatnam	Pratik Polymer Products PL Plot No. 79 & 80, E – Block, IDA, Autonagar, Visakhapatnam	Metro Polymers, Plot No. D - 112, IDA, Autonagar, Gajuwaka, Visakhapatnam
Pack-Tec Poly Films, Sy. 72/P, D – 10/P, B – Block, EEIE, Autonagar, Gajuwaka, Visakhapatnam – 530 012	Arunodaya Polyfilms, Syno 9, Paradesipalem, Near Boipalem Jn., Visakhapatnam	Hindustan Plastics, Sy.No. 165/8 (p), Asakapalli(V), Yerukunaidu Palem(V), Sabbavaram(M), Visakhapatnam(Dist.)
Radha Kameswari Print pack, Sy.no.230, Vellanki (V), Anandapuram (M), Visakhapatnam	Techno Blow Moulders Pvt Ltd., Plot No. 4 & 5, Edulapaka Bonangi (V), Parawada, Visakhapatnam	Sri Gowri Parameswara Industries, D Block Street, Gajuwaka Village, Gajuwaka Mandal, Visakhapatnam District
Shree Polyfilms Pvt.Ltd., IDA, B-Block, D-11, Autonagar, Visakhapatnam	Sri Surya Polypet, Sy.No.230/6, Vellanki, Anandapuram, Visakhapatnam	Balaji Polyfilmex, Sy No. 78/1, Gullepalli, Sabbavaram, Visakhapatnam
Sri Lakshmi Plastic Industry, D-27, Industrial Estate, Visakhapatnam	Vijaya krishna Plastics, E-45, Industrial Estate, Pedagantyada, Visakhapatnam	Mani Das Industries, Sy.No. 20,22, F- Block, Autonagar, Industrial Estate, Gajuwaka (M), Visakhapatnam



## Greater Visakhapatnam Municipal Corporation

### Authorisation letter

I, Dr. A. Hemanth, Chief Medical Officer, Health (CMOH), GVMC, hereby authorise the India Youth for Society (IYFS) NGO for the collection of the plastic wastes from the schools, colleges, commercial establishments, markets, parks, hotels etc. for recycling activities. The collected waste should only be used for the recycling activities and not for any other activities. All the collected plastic waste and recycled material should be logged into a Service logbook and monthly report of logbook should be sent to GVMC, Public Health department for the maintenance of the record as per the stipulated SBM guidelines.

  
08/06/18  
Dr. A. Hemanth  
Chief Medical Officer of Health  
CMOH  
Greater Visakhapatnam Municipal Corporation  
GVMC  
VISAKHAPATNAM

# మింగేసే ప్లాస్టిక్ ని...

నగరవాసుల్ని తీవ్రంగా వేధిస్తున్న ప్లాస్టిక్ వ్యర్థాల సమస్యకు కొంత వరకు చెక్ చేస్తున్నామని బీలగా కాలుష్య నియంత్రణ మండలి, జీవీఎస్ లిద్దరూల సమావేశంతో బీ పరిశ్రమ ఏర్పాటు కానుంది. ప్లాస్టిక్ను శుద్ధి చేసి చిప్స్ గా తయారు చేసే పరిశ్రమ ఏర్పాటు బాధ్యతను బీ వ్యక్తికి అప్పగించారు. జీవీఎస్ పాలిటెక్స్ కార్మికులు సేకరిస్తున్న ఘన వ్యర్థాల్లో టన్నుల కొద్దీ ప్లాస్టిక్ ఉంటుందని నగర శివారులోని కాపులుప్పాడ దంపింగ్ యార్డులో ఆ సంస్థకు ఏర్పాటు చేస్తున్నారు. మరో రెండు నెలల్లో ఆ సంస్థ లిండుబాటులోకి రానుంది. దీంతో నగరాన్ని తీవ్రంగా వేధిస్తున్న ప్లాస్టిక్ సమస్యకు కొంత వరకు పరిష్కారం లభిస్తుందని నగర పరిషత్ ప్రకటించింది.

ఈనాడు, విశాఖపట్నం

# పిప్పి చేసేలా

పులివిడిగా ప్లాస్టిక్ను వినియోగించి ఎక్కువ పడేత ఆర్థిక పారవేస్తుందని ఏడగ పర్యావరణాన్ని కాల్చి తీవ్రంగా వెల్లడిస్తోంది. ఆయా ప్లాస్టిక్ వ్యర్థాలను కూడా ఆత్మంత ఆశ్చర్యంగా సేకరిస్తుండడం, మన వ్యర్థాల్లో కలిసి చెత్తకుంటిలో పారవేయడం చేస్తున్నారు. అవిడంగా మన వ్యర్థాల్లో కలిసిపోయిన చెత్తను లాల్లో కాపులుప్పాడ దంపింగ్ యార్డుకు తరలిస్తున్నారు. అక్కడ చెత్త ముప్పల్ల ఎక్కువ చూసినా ప్రమాదకరమైన ప్లాస్టిక్ వ్యర్థాలే దభ్రమమవుతున్నాయి. ఆ చెత్తను కూడా ఆశ్చర్యంగా తగుల పెట్టిస్తుండడంతో ప్లాస్టిక్ కలిగిపోయి ఆత్మంత ప్రమాదకరమైన కాన్సెంట్రేషన్ విష వాయువులు వెలువడుతున్నాయి. ఆయా వాయువుల్ని వీలైనప్పుడు వచ్చే ప్రమాదం ఉందని పలువురు పర్యావరణ వేత్తలు, నిపుణులు సూచిస్తున్నారు. దీంతో జీవీఎస్, కాలుష్య నియంత్రణ మండలి అధికారులు 'ఇండియా యూత్ ఫర్ ప్లాస్టిక్' స్వచ్ఛంద సంస్థకు కాపులుప్పాడ దంపింగ్ యార్డులోని ప్లాస్టిక్ను వేరుచేసి పర్యావరణానికి హాని కలిగని ...మిగతా 7లో



ప్లాస్టిక్ కవర్లను డస్టర్ లానే యంత్రంలో వేసి శుద్ధి చేస్తున్న భిక్షం

# మింగేసే ప్లాస్టిక్ ని... పిప్పి చేసేలా

(మొదటి పేజీ తరువాయి) రీతిలో తిరిగి ఉపయోగించేలా ప్లాస్టిక్ చిప్స్, ప్లాస్టిక్ బ్రిక్స్ తయారుచేసే బాధ్యతను అప్పగించారు. ఇది అందుబాటులోకి వస్తే రోజుకు 10 టన్నుల ప్లాస్టిక్ను శుద్ధి చేయడంతోపాటు, ఒక టన్ను ప్లాస్టిక్ బ్రిక్స్, ప్లాస్టిక్ చిప్స్, గ్రాన్యుల్స్ తయారు చేయవచ్చు.

## రహదారుల నిర్మాణానికి కీలకం

రహదారుల నిర్మాణ ప్రక్రియలో ఉపయోగించే తారులో ఎనిమిది శాతం ప్లాస్టిక్ వ్యర్థాలను కూడా కలపాలని తాజాగా నిర్ణయించిన

విషయం తెలిసిందే. ఫలితంగా ప్లాస్టిక్ వ్యర్థాలు పర్యావరణానికి హాని చేయకుండా తారులో కలిపి పోయి రహదారి పొరల్లో ఉంటాయి. ఈ విధానంలో రహదారి నిర్మాణ వ్యయం ఒకింత తగ్గుతుంది. మన వ్యర్థాల నుంచి ప్లాస్టిక్ను వేరుచేస్తే మిగిలిన వ్యర్థాల నుంచి అత్యధిక కంపోస్టును తయారు చేసుకోవచ్చు. ప్లాస్టిక్ లేని మన వ్యర్థాలను తగుల బెట్టినా పెద్ద ప్రమాదం ఉండదు. వ్యర్థాలను తిని మనుగడ సాగించే పలు రకాల జీవరాశులకు కూడా ప్రాణాపాయం తప్పుతుంది.

## ఇలా చేస్తారు.. :

'ఇండియా యూత్ ఫర్ సాస్టేబిల్' ఏర్పాటు చేస్తున్న ప్లాస్టిక్ రీసైక్లింగ్ యూనిట్లో ఇప్పటికే డస్టర్, హైడ్రాలిక్ ప్రెస్సర్, గ్రైండర్ తదితర యంత్రాలను నెలకొల్పారు. మురికి కాలువల్లో పేరుకుపోయిన ప్లాస్టిక్ వ్యర్థాలను బాగా ఎండబెట్టిన తరువాత ఈ డస్టర్లో వేస్తే దాని మురికి మొత్తం వదిలిపోతుంది. అనంతరం ఆ ప్లాస్టిక్ వ్యర్థాలను 'ఎక్స్ట్రూజన్ ప్రాసెసింగ్ మిషన్'లో బాగా కడిగి పూర్తిస్థాయిలో శుద్ధి చేసి మలిచాలను బాగా తగ్గిస్తారు. అనంతరం 'ఎక్స్ట్రూడర్' అనే పరికరంతో వేడిచేసి ఉండల్లా, బ్రిక్స్ గా తయారు చేస్తారు. వాటితో కొత్త ప్లాస్టిక్ ఉత్పత్తులను తయారు చేసుకోవచ్చు. లేదంటే పరిశుభ్రం చేసిన ప్లాస్టిక్ను దనకట్టర్ పరికరం సాయంతో చిన్నచిన్న ముక్కలుగానూ రహదారుల నిర్మాణానికి పంపిస్తారు. తక్కువ మందం ఉన్న ప్లాస్టిక్ కవర్లను తిరిగి ఉపయోగించడానికి వీలయ్యే కొత్త ఉత్పత్తులుగా మార్చాలంటే ముందుగా వాటిని గ్రాన్యుల్స్ గా మార్చాలి. ఆ గ్రాన్యుల్స్ తయారుచేసే యంత్రాలను కూడా ఏర్పాటు చేయబోతున్నారు.

## రెండు నెలల్లో అందుబాటులోకి తీసుకొస్తాం :

ఇండియా యూత్ ఫర్ సాస్టేబిల్ సంస్థ తరపున సామాజిక బాధ్యతతో ప్లాస్టిక్ వ్యర్థాల నిర్మూలనకు, వాటి కారణంగా పర్యావరణానికి హాని కలిగకుండా ఉండేందుకు వీలుగా 'ప్లాస్టిక్ రీసైక్లింగ్ యూనిట్' ఏర్పాటు చేస్తున్నాం. పర్యావరణానికి హానికరంగా ఉన్న వ్యర్థాల్ని సేకరించి రీసైకిల్ చేస్తాం. కాపులుప్పాడలో యూనిట్ ఏర్పాటుచేసి కొన్ని యంత్రాలను నెలకొల్పాం. మరికొన్ని యంత్రాలు రావాల్సి ఉంది. రెండు నెలల్లో వాటిని కూడా ఏర్పాటుచేసి ప్లాస్టిక్ అనర్థాలను తగ్గించే ప్రయత్నం చేస్తాం. - ఎన్.ఆనంద్ కుమార్, ఐ.వై.ఎఫ్.ఎస్., అధ్యక్షుడు



**ఘన వ్యర్థాల్లో కలిపేస్తుండడమే పెను సమస్య :** చాలా మంది ప్లాస్టిక్ను మన వ్యర్థాలతో కలిపేసి చెత్తకుంటిల్లో పారేస్తున్నారు. అవి డెవింగ్ యార్డులో మిగిలిన చెత్తలో కలిసిపోయి సేకరించడం కూడా అత్యంత కష్టతరంగా మారుతోంది. దాన్ని శుభ్రం చేసి వినియోగించడం సంక్లిష్టం అవుతోంది. ప్లాస్టిక్ వ్యర్థాలను విడిగా ఇస్తే వారు రీసైక్లింగ్ కు పంపుతారు. పరిశుభ్రంగా ఉండే ప్లాస్టిక్ను రీసైక్లింగ్ చేయడం కూడా తేలికపడుతుంది. మా ఫోన్ నెంబరు 9703489797కు ఫోన్ చేసినా మేము తీసుకెళ్లి శాస్త్రీయంగా రీసైకిల్ చేస్తాం. - వై.అప్పలరెడ్డి, ఐ.వై.ఎఫ్.ఎస్.

# ఆసుపత్రు

(మొదటి పేజీ తరువాయి)  
ఉండటం గమనార్హం.  
**10 శాతం డబ్బు పెడితే చాలు..:** నగరంలోని ఆసుపత్రుల్లో చాలావరకు పదేళ్ల కిందట, 15 ఏళ్ల కిందట కట్టినవి



2

## CITY

# Campaign for P4 stepped up

Staff Reporter

**VISAKHAPATNAM:** With Municipal Commissioner Pravin Kumar firming up the ban on plastic sachets that are below 40 microns thick and constituting a task force for the purpose, India Youth for Society (IYFS) has come forward to do its bit to make the city plastic-free and help execute the initiative effectively.

Lauding the efforts taken by the GVMC to impose penalty on those who sell plastics that are below the prescribed standards, the two-year long 'Prevent Polythene Protect Planet' (P4) campaign of the IYFS has taken a new route to educate people on the harmful impact of plastics.

On Sunday, the team conducted an awareness walk from Isukathota junction to MVP Rythu Bazaar. With the prime focus on educating the makeshift tiffin vendors dotting all along the streets, the team members spoke about the menace caused by plastics elaborately.

Carrying placards and banners and distributing handouts that explain the intricacies involved in using plastic material, the team members took part in

IYFS members take out an awareness walk to educate makeshift tiffin vendors on the ill-effects of use of plastics

the drive enthusiastically.

"We requested those who came to pick up parcels to bring containers and cloth bags from home and avoid getting the stuff packed in plastic covers," says P. Madhu, president of IYFS. Through public address system, the toxic content present in plastics was explained to visitors at the rythu bazaar by M. Jagadish Kumar, secretary of the society.

It is also learnt that use of non-biodegradable plastics is on the higher side at small eateries, food joints, and wine shops across the city.

Members of the society, including N.B. Murthy, Appala Reddy, and Satya Kumar, said that they were willing to do their bit to society and flag off similar awareness drives at various places in a phased manner.





## On a mission for positive change



Team members of India Youth for Society in Visakhapatnam in a celebration mode on Sunday. — PHOTO: C.V. SUBRAHMANYAM

Rani Devalla

**VISAKHAPATNAM:** Exactly four years ago, India Youth for Society (IYFS) was just a two-member team. Today, it has about 20 volunteers lending support and contributing to various campaigns across the city that aim at bringing about positive change in society.

Marking the association's fourth anniversary on Sunday, those who have come from diverse backgrounds spoke on what it means to be associated with the group, challenges faced and lessons learnt.

Besides initiating several awareness drives that focused on water, power and environmental issues, the society has taken up six long-term campaigns such as 'P4' (anti-plastic), 'Beat' (beach environmental awareness talk), water campaign, 'Smart' (road safety awareness), 'Swap' (solid waste management) and 'H2O' (rainwater harvesting).

"Addressing a plethora of social issues helps us understand the magnitude of each problem better, chart out an action plan and shoulder responsibilities," explains P. Madhu, president of the society.

While some of the volunteers are students, a few teachers and bank employees formed part of the group. "The kind of exposure that we got over the last four years is incomparable. Coordinating with people for various programmes helped me get rid of stage fear, groom my

“Addressing a plethora of social issues helps us understand the magnitude of each problem better, chart out an action plan and shoulder responsibilities

**P. MADHU**  
President of IYFS

interpersonal skills and change my outlook towards life," says S. Anand, a member of IYFS.

The forum encouraged the members to tap their potential and nurture their interests. "Other than teamwork and time management skills, the platform made us understand the importance of exchanging ideas. As a team, it is very essential to consider others' views before arriving at a conclusion," says M. Jagadish, secretary of IYFS. This apart, bringing several social issues to the notice of the officials concerned and involving them to take necessary steps appeared to be an onerous task for Y. Appala Reddy of the society. "Dealing with different people and getting your message across calls for patience which one can only gain over a certain period of time," he adds.

### New campaign

The 20-member team is all set to step up efforts to contribute to society through a new campaign called 'Message' (Making each school aware of good environment) in a couple of weeks.