



**Forum of Cities that Segregate
Assessment Meeting
(7th June 2018)
New Delhi**

ALAPPUZHA MUNICIPALITY

**S Jahamgeer
Municipal Secretary**

Decentralised Solid Waste Management Project

ALAPPUZHA MUNICIPALITY

Coastal Municipality

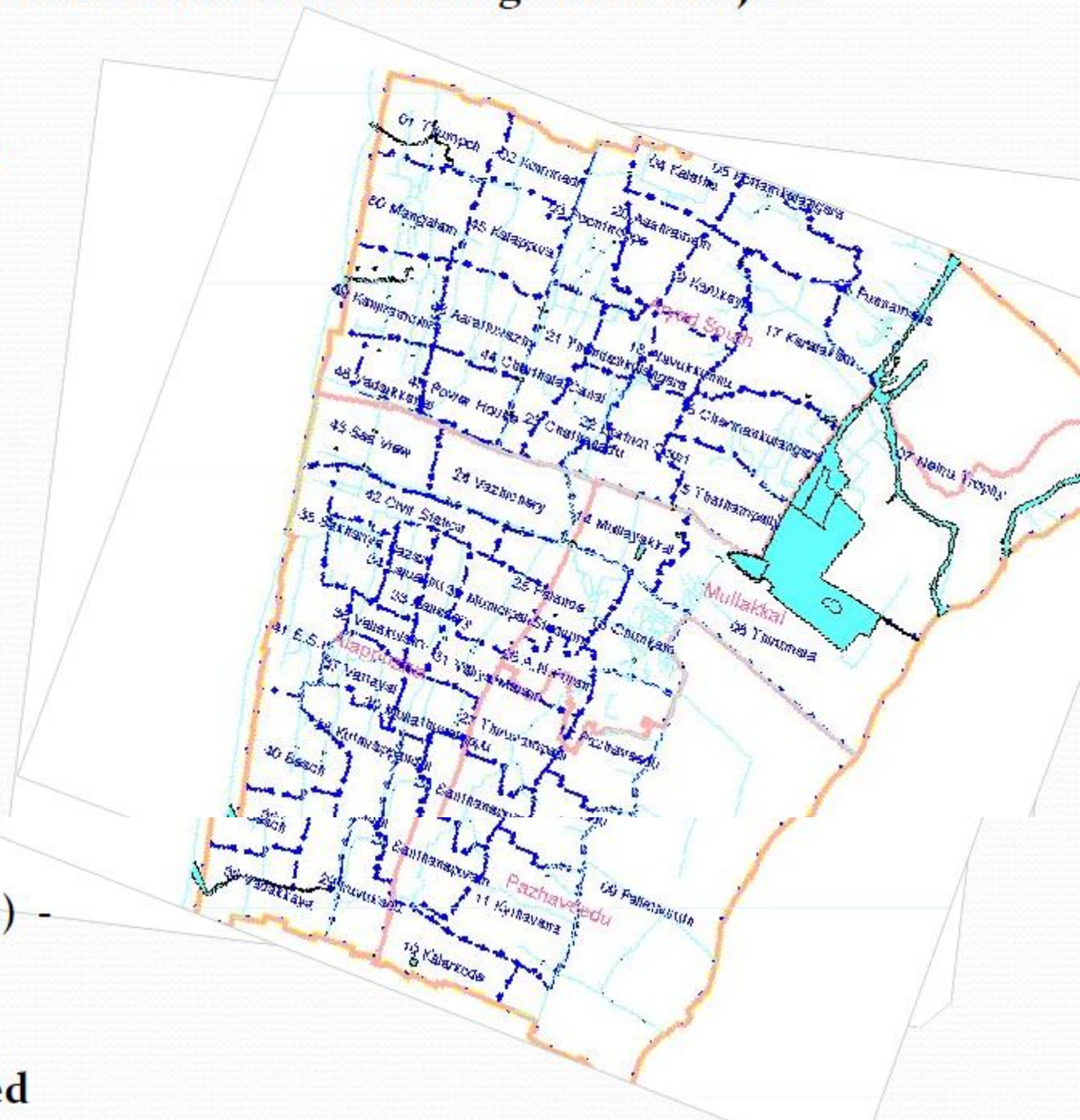
Sandwiched between
Embanadu lake and
Arabian sea

Wards 52

20 wards Rural
Area 46.77 Sq. KM

Population (2011 census) -
7029

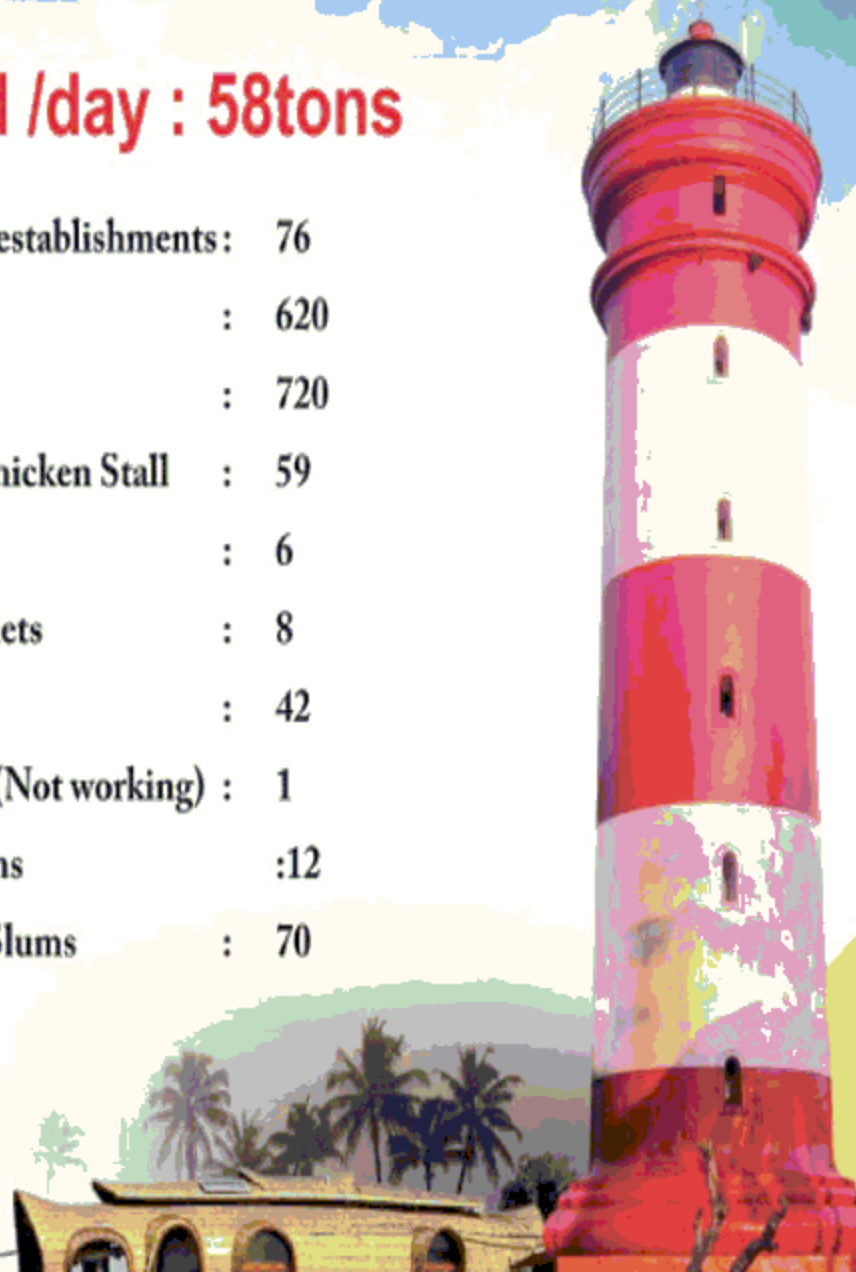
Most Densely Populated



MUNICIPAL SOLID WASTE STATUS

Total waste Generated /day : 58tons

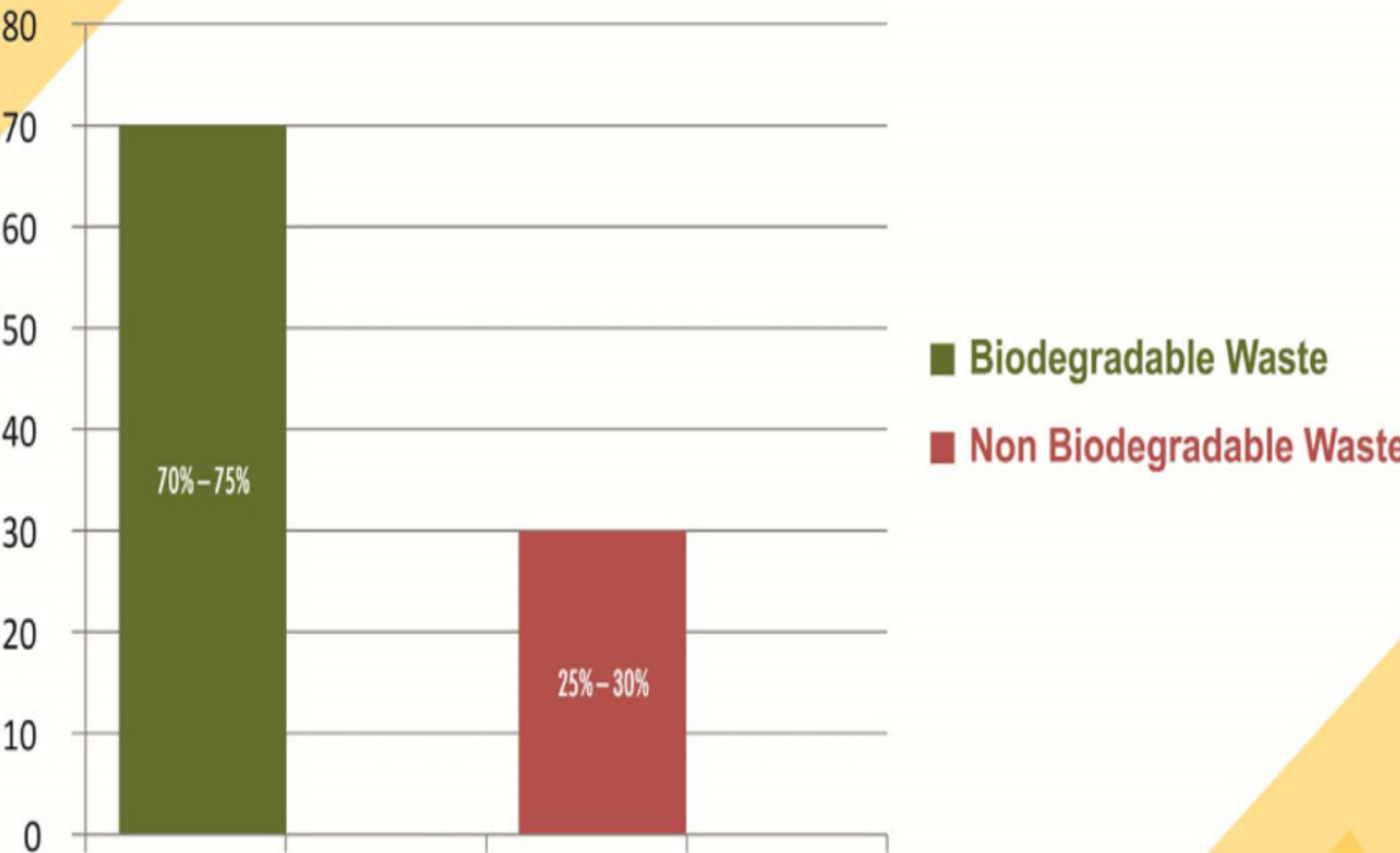
Total No. houses	: 48000	Health care and establishments:	76
Total No. Auditorium	: 35	Private Office	: 620
Total No. Public Halls	: 28	Street vendors	: 720
Total No. Market	: 5	Beef ,mutton, Chicken Stall	: 59
Number of Hotels,		Public toilets	: 6
Banquet, Hall	: 205	Community Toilets	: 8
Total No. shops, Commercial		Scraps shop	: 42
Establishments and Institutions :	7800	Slaughter house(Not working)	: 1
Govt. office	: 94	Authorized Slums	:12
Schools	: 95	Un Authorized Slums	: 70



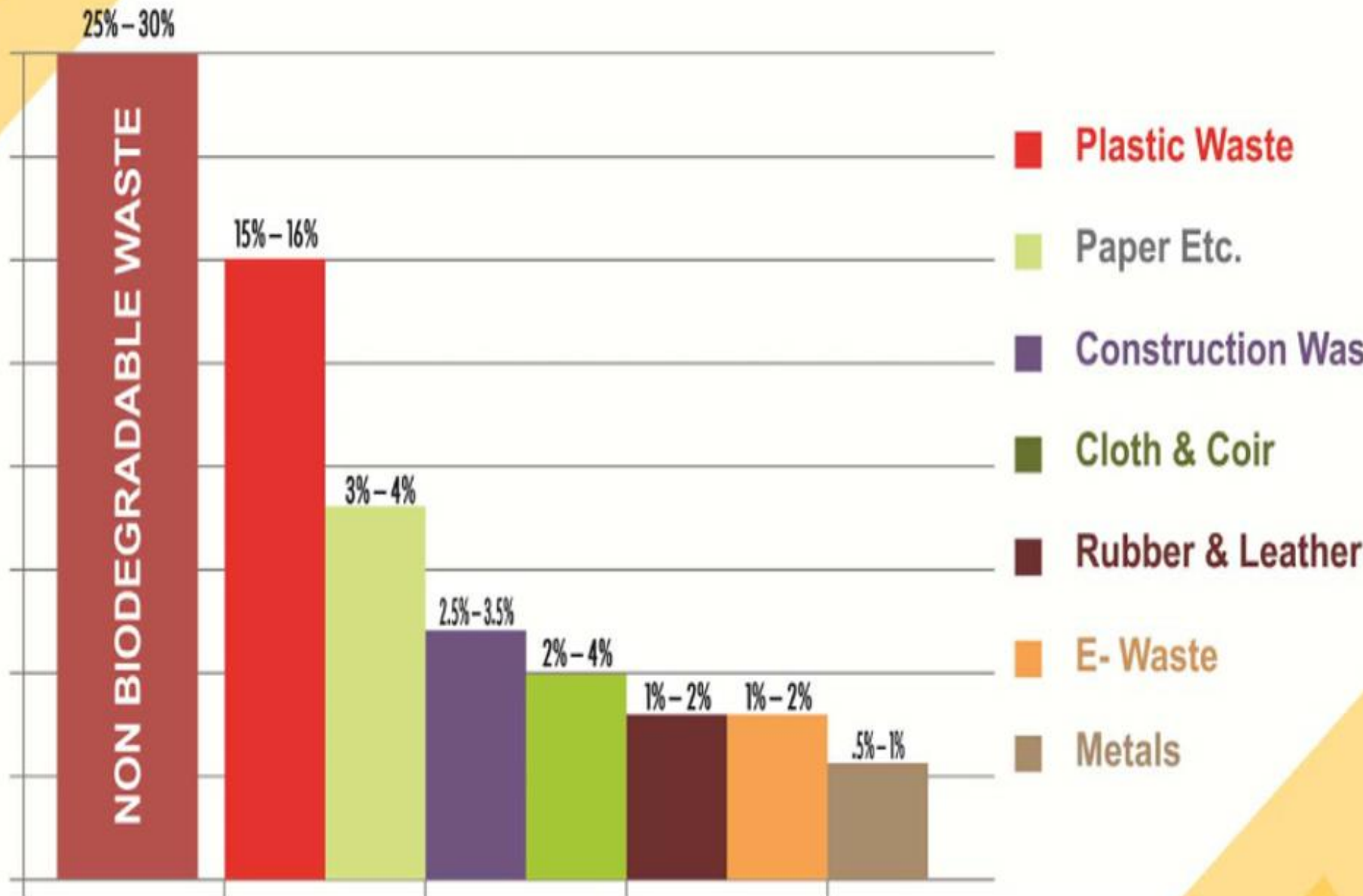
Improvement in status –since 2017

- We started the segregation in 2013 in 12 wards as a pilot project.
- Now implemented in 52 wards
- Now 80% of waste being segregated at source itself in the entire municipal area.

SEGREGATION OF MSW



NON BIODEGRADABLE WASTE

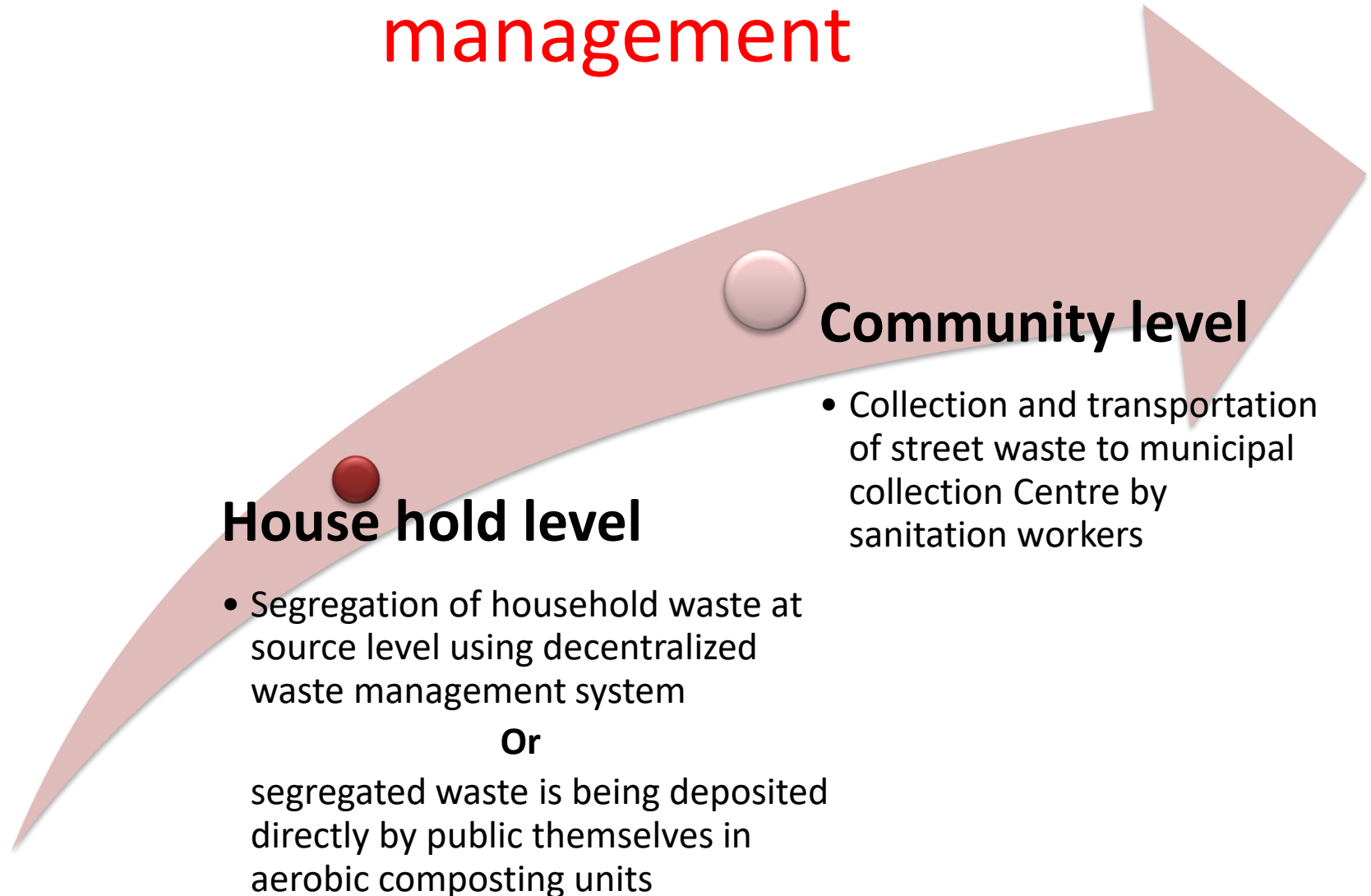


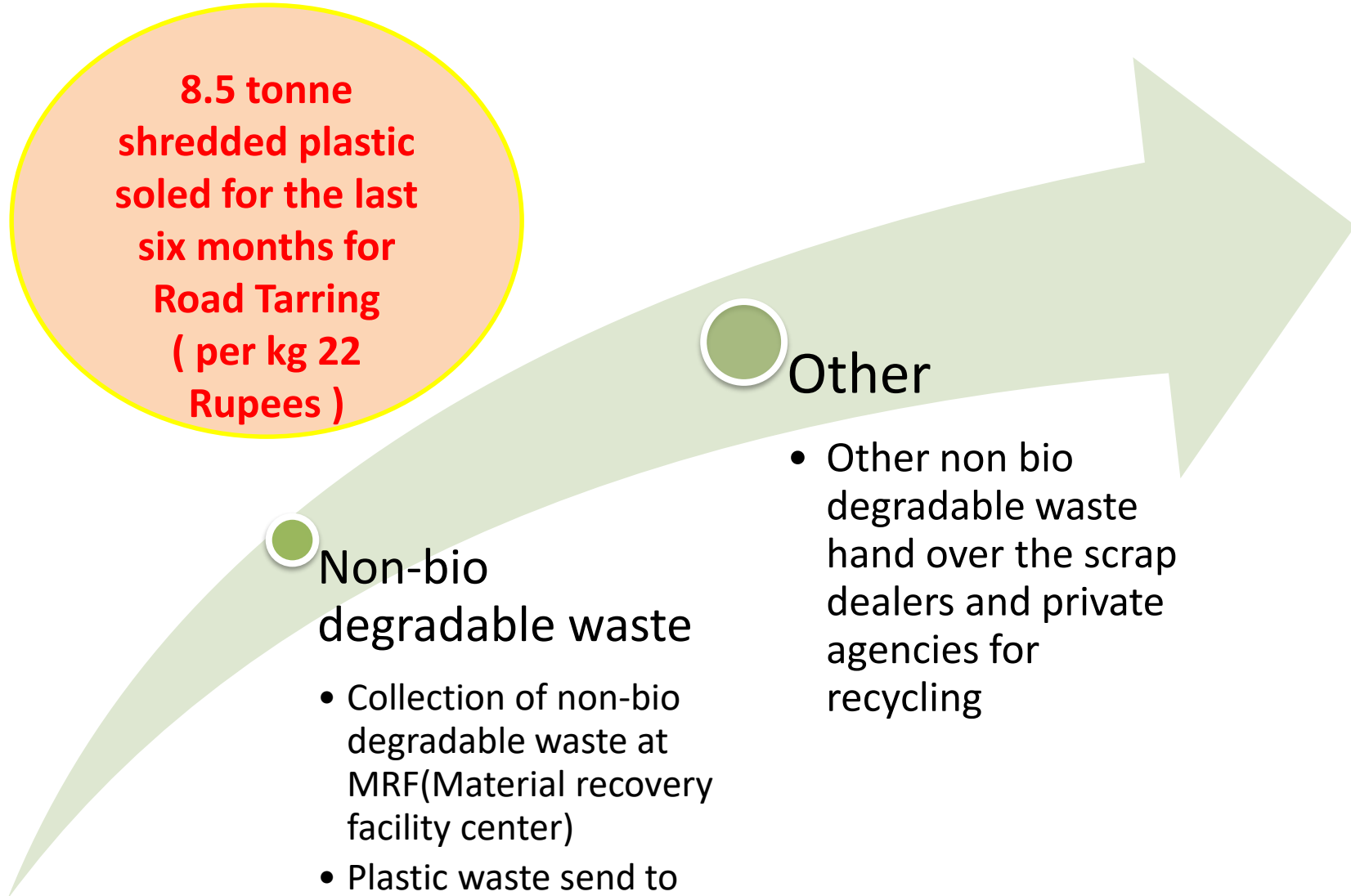


- Municipality is successful in creating awareness among the people in the entire municipal area.
- Each and everyone is responsible for the waste generated by them self

Door to door collection is not done in
“Alappuzha model”

Alappuzha model waste collection, transportation, Processing & management





**8.5 tonne
shredded plastic
soled for the last
six months for
Road Tarring
(per kg 22
Rupees)**

**Non-bio
degradable waste**

- Collection of non-bio degradable waste at MRF(Material recovery facility center)
- Plastic waste send to shredding unit and used for road taring

Other

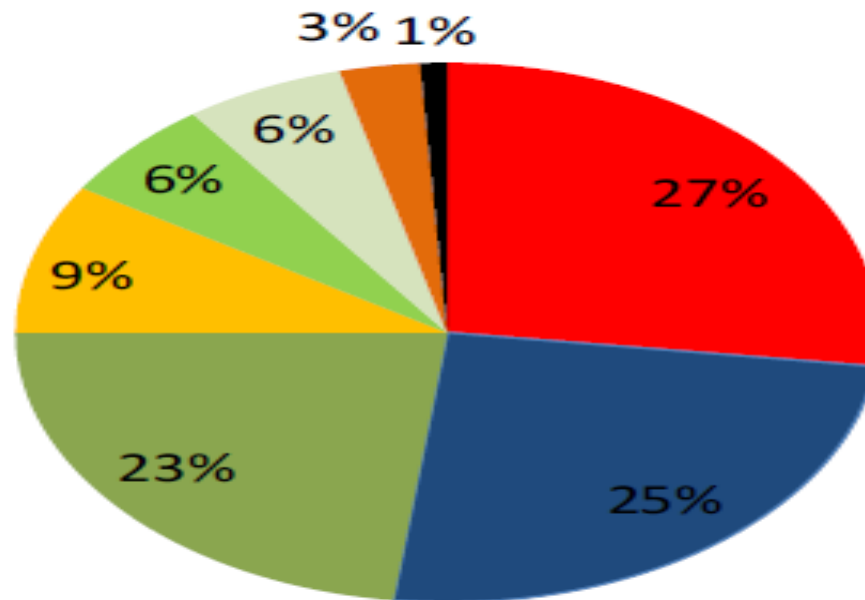
- Other non bio degradable waste hand over the scrap dealers and private agencies for recycling

Processing (recycling & treatment of wet/dry waste)

- Biodegradable Domestic Waste – composting and bio methanation
- Hotels, Shops, slaughter houses etc – contract with a private party (pig and fish farms)
- Plastic etc – periodic collection by the municipality (resource recovery centre)
- Bio-medical waste being managed by Indian Medical Association (IMA)(IMAGE)

ALAPPUZHA MUNICIPALITY

EXISTING SOLID WASTE MANAGEMENT DEALING SYSTEM



Total waste Generated /day 58 Ton

- 27% of the commercial waste managed by the private agency
- 25% Handover to recycling and re using
- 23% waste community aerobic units to onsite compost
- 9% house hold waste dumbbed (un scientifically)
- 6% using domestic bio gas plant, pipe compost biobin
- 6% onsite compost commercial waste
- 3% Construction waste (land filling)
- 1% Bio Medical Waste

Improvements

- Night patrolling in order to find the miscreants who continue to dump wastes in public places and canal
- Sign boards and placards are placed to warn public
- CCTV Cameras are placed in the areas that are more prone to waste dumping

Status of compliance and monitoring

- Grievance redressal at the five health circle offices
- complaint boxes are place in different regions of town
- swachata app
- Grievance redressal via web service
www.alappuzhamunicipality.in/swachalleppey
- Awareness via social media, ward sabhas,media etc



LOVE **YOUR** ENVIRONMENT.
SPREAD LOVE NOT LITTER.



മാലിന്യങ്ങൾ വലിച്ചെറിയാതെ
മാലിന്യ സ്വീകരണ കേന്ദ്രത്തിൽ എത്തിക്കൂ...
മാലിന്യസ്വീകരണകേന്ദ്രം വളരെ അടുത്ത്...

ആലപ്പുഴ നഗരസഭ



SWACHH BHARAT MISSION

SWACHH SURVEKSHAN 2018



**PAPER
BOTTLE
PLASTIC
CANS** **RECYCLE THEM ALL**

ആലപ്പുഴ നഗരസഭ



SWACHH BHARAT MISSION

SWACHH SURVEKSHAN 2018



മാലിന്യങ്ങൾ
വലിച്ചെറിയരുത്

മാലിന്യ സ്വീകരണ
കേന്ദ്രത്തിൽ
എത്തിക്കൂ...
മാലിന്യസ്വീകരണകേന്ദ്രം വളരെ അടുത്ത്...



ആലപ്പുഴ നഗരസഭ



SWACHH BHARAT MISSION

SWACHH SURVEKSHAN 2018



**WE SALUTE
DO NOT LITTER**

വലിച്ചെറിയാതിരുന്നതിന് നന്ദി...

ആലപ്പുഴ നഗരസഭ



SWACHH BHARAT MISSION

SWACHH SURVEKSHAN 2018



എന്റെ മാലിന്യം
എന്റെ ഉത്തരവാദിത്വം

ആലപ്പുഴ നഗരസഭ



SWACHH BHARAT MISSION

SWACHH SURVEKSHAN 2018



എന്റെ മാലിന്യം

എന്റെ
ഉത്തരവാദിത്വം

ആലപ്പുഴ നഗരസഭ



SWACHH BHARAT MISSION

SWACHH SURVEKSHAN 2018

Penalty provision for littering

- Municipal Act 1994;
- ✓ 340,340A & 340B , imposing fine to persons who are throwing waste to the canals and public places.
- ✓ collected 60,000 rupees as fine for the last six months

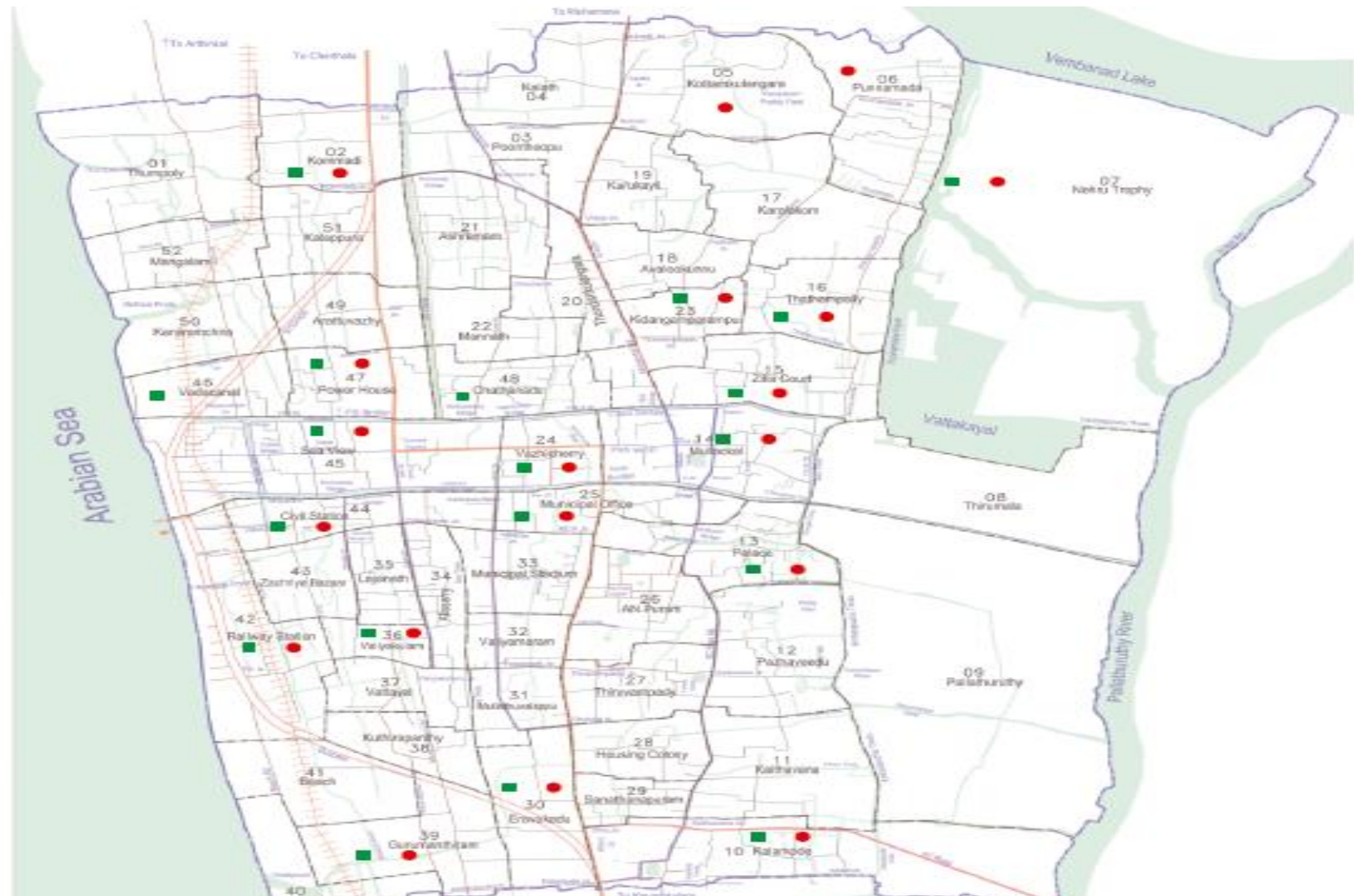
State policy to ban plastic

- Plastic Waste management rule 2016
- Ban of Plastic coming under 50 microns.
- Municipal health officers periodically inspect violations.
- Green protocol policy implemented.

Initiatives and practices for segregation

ALAPPUZHA MUNICIPALITY

EXISTING DRY & WET WASTE MANAGEMENT UNITS IN WARD LEVEL



Decentralised waste mgt since 2017

- 28 Aerobic center's for community level composting.
- 265 units, 52 wards
- 15 MCF (Material Collection Facility Centre).
- 3 Plastic shredding unit.
- 1 Bailing Unit.
- 3000 Biogas plant individual houses for bio methanisation.
- 2000 Pipe compost units.
- 2500 Bio Bin individual houses.

Challenges in treatment at source

- Population density
- Lack of space
- Leased accommodation
- Geographical reasons
- Lack of awareness and financial reasons

ആലപ്പുഴ നഗരസഭ
ജൈവ മാലിന്യ സംസ്കരണ കേന്ദ്രം കളക്ട്രേറ്റിംഗ് സ്റ്റാൻഡിംഗ് നമ്പർ 20

ജൈവ മാലിന്യ സംസ്കരണ കേന്ദ്രം

ജൈവ മാലിന്യ സംസ്കരണ കേന്ദ്രം

സിറോ വേസ്റ്റ് സിവിൽ സ്പെഷൽ

വലിച്ചെറിയാത്ത മിന്നുകൾ... മാലിന്യമില്ലാത്ത



opp:wat'san park



പ്ലാസ്റ്റിക് കുപ്പികൾ
പ്ലാസ്റ്റിക് ഉൽപ്പന്നങ്ങൾ

ഇ-വസ്തു

പ്ലാസ്റ്റിക് കുപ്പികൾ

MRF Unit- F.C.I



ബെയ്.ലിംഗ് യൂണിറ്റ്





പ്രൈഡിംഗ് യൂണിറ്റ്

Composting –Types

Biogas plants



Aerobic composting



Pipe compost



Major gaps and challenges of source segregation

- Resistance to change attitude of people
- Floating population
- Street Vendors

Best Practice

- Swap Shops
- Green protocol

Upcoming initiatives

- Bio tumbler
- Green schools
- E Governance

പ്ലാസ്റ്റിക് കവറുകൾ

പ്ലാസ്റ്റിക് കുപ്പികൾ
പ്ലാസ്റ്റിക് ഉൽപ്പന്നങ്ങൾ



Nirmala Bhavanam Nirmala Nagaram

Sanitation Park Alappuzha

Before



After



PARADISE REGAINED

The Venice of the East is no longer the eyesore it used to be with heaps of garbage and accompanying epidemics. Today, Alappuzha has scripted a success story in managing solid waste, which has even been lauded by the UN

3,500
Biogas units

4,000
Pipe compost units

40
Aerobic composting units

Agencies supplying bio gas plants: Agency for Nonconventional Energy and Rural Technology (Anert) and Integrated Rural Technology Centre (IRTC)

Energy saved in 2012-13 and 2013-14 (Biogas equivalent to 70,694.47 kg LPG was produced in this period. It is equal to 4,992.57 cylinders, ₹70,80,447 saved, ₹100 was the rate of commercial LPG per kg at that period)

2,342
tonnes
Processed solid waste

2,653
tonnes
Processed liquid waste

Savings from street cleaning: ₹1,712 lakhs in 2012-13 and ₹1,004 lakhs in 2013-14

225 tonnes
Production of biogas residue

RUPA R PAUL @rupa

UNTIL 2012, Alappuzha - the Venice of the East - was a synonym for epidemics. The town used to be an eyesore with heaps of waste packed in plastic bins from households and carried through everywhere. People satirically threw these bins of trash on the wayside, banks of canals and public places. Through the municipal authorities spent crores of rupees to set up a waste treatment facility at Sarvodayapuram nearby, it was met by agitation from local residents, which grabbed the headlines on most days.

Now, the scene has changed. The small town is an example to the world. Solid waste is a rare thing on roads and public places and epidemics have been brought under control. The municipality with the concerted effort of Minister M. T. Thomas Isaac has set an example as to how to manage solid waste in a low-cost manner automatically.

The United Nations Environmental Programme has showcased the Alappuzha model waste management by including it among the five best waste management models across the world. Three times it won the Kerala State Pollution Control Board award. The Central Pollution Control Board, as well as the Centre for Science and Environment, have also appreciated the efforts of the city body. This system was showcased in the United Nations Climate Change conference held at Le Bourget in Paris on April 11, 2008. Many states adopted the Alappuzha model and towns from around the world visited the town to study the model. It all began in 2013 when the civic body started to implement the decentralised solid waste management system to find a solution for the problem.

According to M. T. Thomas Isaac, the mayor, after taking the decision, the municipal chairman Mervy Diana Mendes told officers, "waste management was a tough task at that period. The municipality owned a treatment plant at Sarvodayapuram in Mararikulam panchayat. The waste collected from the town was transported to Sarvodayapuram and kept on the banks of the plant. It started to create many kinds of ecological problems and the local residents began an agita-

tion," she said. According to the former municipal chairman, the vehicles carrying waste were blocked by local residents and it hindered waste movement from the town. Garbage piled up and soon Alappuzha resembled Sion before the outbreak of the plague. "One could spot every dog and rodent everywhere. We also feared there would be an outbreak of epidemics, including plague," said Mervy.

She said the civic body adopted alternative methods. "Sometimes, the waste collected from town was piled up in Varkkeshery lorry stand, but the local residents started agitating. Sometimes, we tried to bury it in huge pits in plots owned by the municipality but it resulted in stiff opposition from local residents. We struggled hard to manage the waste," she said.

"With the agitation gained strength, Isaac came out with a proposal to set up bio gas plants and pipe compost units. We implemented the

project on a pilot basis at Kandanamparavilla, Karamkudi and Karamkudi wards of the municipality. The bio gas plants and pipe compost units were given to households with government subsidy by the Agency for Nonconventional Energy and Rural Technology (Anert) and Integrated Rural Technology Centre (IRTC). For the residents with no land for setting up bio gas plants and pipe composting units, the municipality constructed aerobic composting units. It became a success and it

achieved a major revolution in waste management and energy conservation," said Mervy. "We implemented the project successfully but we lost the decentralisation of the municipality in the solid waste. However, I am very much satisfied to implement a permanent solution to the perennial problem faced by the municipality. The solid waste goes to the house and from there it goes to the localised community treatment system. The municipality is keen to continue the project. We have constructed more aerobic plants and distributed bio gas and pipe compost units. The second stage of the project will begin in January."

Councillor M. H. Prem said, "The project is not only a success in waste management, it is an apt example of energy conservation. The consumption of LPG came down by 4,992 cylinders in the 2012-13 and 2013-14 period," he said.



The aerobic composting unit set up as part of the waste management park at Varkkeshery in Alappuzha | ANUR AGNELA

Economics of waste



Former municipal chairman Mervy Diana Mendes operating a biogas plant set up at her residence at Kandanamparavilla in Alappuzha municipality | ANUR AGNELA

EXPRESS NEWS SERVICE @ Alappuzha

THE Energy Management Centre awarded Alappuzha municipality to 2015 for conserving energy through the implementation of bio gas plants in municipal limits. This earned a drastic dip in the consumption of LPG. LPG costs around ₹16.89 lakh was saved in the process.

In the 2012-13 and 2013-14 period, the municipality saved ₹1,104 lakhs

₹0.88,447 as per the market value of the cylinder in that period, the report said.

As much as 2,342 tonnes of solid waste and 2,653 tonnes of liquid waste were processed in that period. The municipality used more than 40 vehicles for removing waste and transport it to the treatment plant at Sarvodayapuram. In the one-year period, the municipality saved 31,712 litres of diesel and ₹1.74 lakh in the

A team was formed in each ward for maintenance of bio gas plants and pipe compost units. The members of the committee were given training to prevent technical snags of the plant.

M. H. Prem, municipal councillor

THE TWIN SAVIOURS

EXPRESS NEWS SERVICE @ Alappuzha

Biogas plants and pipe compost are the main components of the decentralised waste management system. The bio gas plants are used to process waste and generate cooking gas. The pipe compost units break down the degradable waste into manure.

ANERT and IRTC supply the units with a government subsidy. The customers receive a subsidy of 50 per cent of the cost while the municipality is subsidised with 50 per cent. The units are kept in the compound of every household and it is collected by an agency under the Clean Kerala Mission (CKM) periodically. It is recycled and used for other purposes. The households lacking the space to set up bio gas or pipe compost units can hand over the waste to the aerobic composting units set up at various parts of the municipality. The segregated waste is collected at the centre. The food waste is processed into vermicompost.

The municipality has also set up several bins across in various areas of the town to track people who throw waste in public places and penalise them. These bins also saw the civic body started making the bins

Solid effort brings laurels to Alappuzha

Sajimon.PS@timesgroup.com

Alappuzha: Alappuzha is among five cities of the world whose efforts in solid waste management have been recognised as success stories by the United Nations environment body United Nations Environment Programme (UNEP).

UNEP is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system and serves as an authoritative advocate for the global environment.

Besides Alappuzha, the other cities that feature in the list are Osaka (Japan), Ljubljana (Slovenia), Penang (Malaysia) and Cajicá (Colombia).

A report published on the UN Environment website sa-



id, "Prime Minister Narendra Modi chose World Environment Day 2017 to launch a drive to address the mountains of trash piling up in streets and landfills across India. To implement it, cities across the world's second most-populous nation could do worse than follow the example of progressive municipalities like Alappuzha. A few years ago, roadsides and canals filled with stinking garbage were threatening coastal Alappuzha's status as a tourist destination as well as exposing resi-

Alappuzha's efforts in solid waste management have been recognised by the United Nations environment body United Nations Environment Programme

dents and visitors alike to clouds of flies and disease-spreading mosquitoes. Protests by local residents had led to the closure of the city's main landfill site in 2014".

"Since then, the city in the eastern state of Kerala has addressed the problem by introducing a decentralized waste management system. This separates out biodegradable waste at ward level, treats it in small composting plants, and provides many of its 174,000 residents with biogas for cooking," the report added.

Alappuzha also received the Clean City Award from India's Centre for Science and Environment in 2016. The municipality executed a decentralized waste management system, the brainchild of the then MLA T M Thomas Isaac.

Former chairperson of the municipality Mercy Diana Masido, under whose tenure the project was executed, said if the UN sees the plight of Alappuzha now, the agency will withdraw all their words.

"Now, the condition of the municipality is pathetic. There is no enthusiasm from the part of the municipal authorities to execute the solid waste management system started by us," said Masido.

Municipal chairman Thomas Joseph, who expressed happiness over the UN recognition, said that the municipality would go ahead with the project.

“Alappuzha Municipality earn Kerala Govt: Energy Conservation Award in 2013-2014 & 2014-2015, Kerala Govt: Pollution Control board award in 2014-2015, 2015-2016 & 2016-2017. Centre for Science and Environment's (CSE) “The Best City in India” award in 2015-2016”.

**World Environmental Day June 5th 2018 We
Get an Award from Kerala State Pollution
Control Board in Best Practise in Waste
Management**

Alappuzha's effort in solid waste management have been recognised by United Nations environment body, United Nations Environment Programme.

“Prime Minister Narendra Modi chose World Environment Day 2017 to launch a drive to address the mountains of trash piling up in streets and landfills across India. To implement it, cities across the world's second most-populous nations could do worse than follow the example of progressive Municipalities like Alappuzha.





Thank You