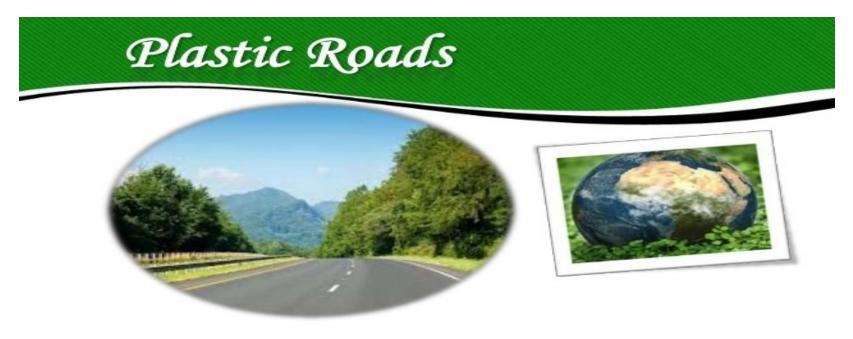
## ZERO WASTE PANCHAYATH PROJECT ANDHRA PRADESH

Use of shredded waste polyethylene covers of below 50 microns in laying of BT Roads





A Long lasting road from waste plastic for a better and green world....





- Utility of waste plastic in bituminous mixture for Road construction was proved in laboratories
- It enhances the strength of the mix
- It is a solution for disposal of covers in an useful and scientific way

#### **Process**

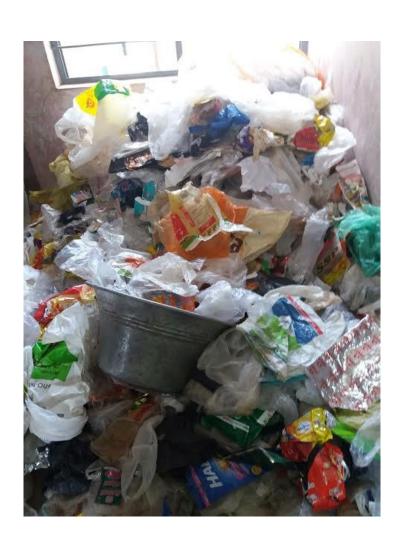
- Collection
- Segregation at SWPC
- Cleaning process
- Shredding process

#### Collection

Collection with processing facility was established one at each Divisional level in Andhra Pradesh

Government of Andhra Pradesh made it a policy that Collection centre can procure waste covers from surrounding Gram Panchayats, rag pickers and public of Gram Panchayaths at the rate of Rs.20/kg(with transport) and Rs.30(without transport)

#### Segregation



 Plastic waste of below 50 microns (carry bags, wrappers of biscuits, snacks, soaps etc) collected from various sources must be separated from other plastic waste

#### **Cleaning Process**



- Removing dust and foreign material from plastic waste covers is important to maintain quality of the material and to not to cause damage to the machine
- Motor 3HP/1040RPM/440V
- Drum: Mild steel

Price : Rs. 40,000

## **Cleaning Process**



#### Plastic covers Shredding machine



Motor :10HP/1444 RPM/440 V

Blade : 8nos(6+2)

Bearing: 2 nos

Output: about 100kgs per Hour

Filter : 8mm Holes

Price : Rs.1,60,000





#### **Shredding Process**

# Plastic waste shredded or cut in to small pieces of 8mm size



### 8mm pieces



## Central Government and Government of Andhra Pradesh are encouraging laying of plastic Roads and made it a policy



Sale to Engineering Departments like P.R,R&B & Municipal corporations at the rate of Rs.40/kg.

For every 100 kg of bitumen, 8 kg of shredded plastic is used.

#### Transport to Engineering departments



#### Laying of BT roads using shredded Polyethylene covers

- 8 to 10% of BT is replaced by shredded Polyethylene covers while laying BT roads
- The shredded Polyethylene covers are added to the metal chips in the hot mixing plant of Bitumen and the mixture of metal chips and shredded Polyethylene covers enter into BT chamber wherein the metal chips, shredded Polyethylene covers and the Bitumen mixes thoroughly.
- During this mixing process the shredded Polyethylene covers melt due to the high temperatures (roughly 150°C – 160°C) present in the BT chamber.
- This mixture is transported through tippers for laying of BT roads.
  We cannot use chips of plastic bottles because the temperature maintained in the chamber is not sufficient to melt them
- About 800 kgs of shredded plastic is used for laying 1km of BT road.
- Due to this durability or lifespan of the road increases by 2 years(from 5 years to 7 years) depending on the traffic of the road

## Bitumen plants



### Mixing of plastic flakes with bitumen







#### Road laid in Kurnool District of Andhra pradesh



How much plastic flakes supplied from ZWPP?
 And how many kilometres of road laid till now in AP?

#### Advantages

- Increased binding and better bonding of the mix
- Better resistance towards rain water and water stagnation
- Stronger road with increased strength
- No leaching of plastics
- No potholes
- Value addition to the waste covers
- Disposal is no longer a problem
- Smaller carbon foot prints

# Recycle or Reuse it all – no matter how small

