

PROPOSAL FOR

**IMPLEMENTATION OF  
PLASTIC WASTE SHREDDING PROJECT**

*Submitted to*

Local Self Government Institutions, Kerala

*Submitted by*



## **BACKGROUND OF THE PROJECT**

Plastic rejections are considered to be the major contributor towards the irreparable damage caused to the environment due to pollution, world over. Plastic found in different forms are toxic in nature. Inordinate dumping of plastic near water bodies and Indiscriminate burning of plastics are the root cause of exponential increase in the pollution index of many a city in the world.

Clean Kerala Company Ltd, formed under the Local Self Government Department, Government of Kerala, is being coined with the objective of ensuring hygiene management of the state through the adoption of innovative and scientific methods and proven technology, adhering to the concept of active participation of the public and private sectors. The company aims to ensure comprehensive management of all harmful rejections in the state, thereby ensuring that the hygiene of the state is never compromised.

## **PURPOSE OF THE PROJECT**

Kerala comes across as a state which is a prolific user of plastic in every walk of life. The prevalent practices of managing plastic rejections in the state leave a lot to be desired. Due to the inherent non-biodegradable nature of plastics, inordinate dumping of plastic rejections in the banks of roads and various water bodies are maligning the environment and is posing a grave threat to the maintenance of hygiene in the society.

Clean Kerala Company Ltd has been able to collect and recycle 220 tons of low grade plastic rejects since its inception.

However, due to the presence of the bio degradable waste among the plastic rejects, the efforts of the company did not bear fruit to the extend desired

Subsequently, the Clean Kerala Company Ltd, vide **G.O No. 1641/2017/LSGD dated 19.05.2017** the Local Self Government Institutions and vide **G.O No. 3119/2016/LSGD dated 17.11.2016** has been authorized to supply shredded plastics to L.S.G.D for the construction of polymerized roads.

Clean Kerala Company Ltd has identified suitable agencies for the supply of machinery, suitable for converting clean plastic waste to be collected at the material recovery facilities at various Local Self Government Institutions into utility products.

If the Local Self Government Institutions is able to ensure that clean plastic rejects are being collected and brought in to a facility of not less than 1000sq feet in area with all required infrastructure, by the installation of the following machinery, along with allied equipment, clean plastic rejects can be converted into utility material for recycling

1. Plastic scrap shredder - for shredding low grade plastics
2. Blade grinding machine
3. Hydraulic baling machine

Converting these rejects into recyclable products will enable the Local Self Government Institutions to sell off the value added products to generate revenue. A separate agreement can be entered into between the Local Self Government Institutions and Clean Kerala Company Ltd for the marketing of the final products

## EXECUTIVE SUMMARY

### SALIENT FEATURES OF THE PROJECT

#### Installation of Plastic Shredding Machine and Baling Machine

- Clean Kerala Company Ltd propose to supply, install and Commission one number shredding machine of processing capacity 100Kg/hr and upto 1 TPD and baling machine based on a supply contract entered into with the Local Self Government Institutions.
- L.S.Gs to ensure that clean and dry plastics rejects are being brought in to the facility through the prevalent collection network of the local body
- The cost of the machinery, installation, erection and commissioning charges to be borne by Local Self Government Institutions. Local Self Government Institutions to provide a built up space (Shed) of 1000 square feet and provide all the required infrastructure, like electricity ((3 phase connection and starter switches for machineries), water supply etc.
- Clean Kerala Company Ltd to install the shredding machine and baling machine.
- The L.S.G to employ Kudumbasree Unit to process the waste at the facility and convert the waste plastic material, brought into the facility, into shredded plastic suitable for recycling and prepare it for forwarding for further recycling.
- Clean Kerala Company Ltd, based on the demand raised by the P.W.D/L.S.G.D., offer to collect the shredded plastics and forward to P.W.D/L.S.G.D for the construction of polymerized roads.
- A separate agreement can be entered into between Local Self Government Institutions and Clean Kerala Company Ltd for the marketing of the shredded plastics.

## TECHNICAL SPECIFICATIONS SHREDDING MACHINE

<b>Plastic Shredding Machine Specification</b>	
Capacity	1 TONNE/DAY (100KG/HR)
Size (Dimension)	1500x750x1500 mm
Power	15 H.P/15KW
RPM	1440
Thickness of Blade	16mm
Number of Blades	6 nos (Rotary - 4, Stationary - 2)
Size of Mouth	18 Inches
Height	5Feet
<b>Blade Grinding Machine</b>	
Size (Dimension)	1000x300x1000 mm
Length of sharpening	28 inch
Motor Power	2 HP
RPM	1440
Store Type	Cylindrical Model

<b>Hydraulic Baling Machine Specification</b>	
Capacity	50Kg to 2Tonne
Chamber size	900 x 450 x 450 mm
Bale size	450 x 450 x 450 mm
Bale weight	50-75 kg
Motor Power	7.5 kg
Number of cylinder	Single
Pressing time stroke	12 strokes per hour
Operation	Electric panel operated

<b>Accessories</b>	
Weighing machinery	Stainless steel pan 300 kg capacity (Least count – 50 g) Pan size – 450 x 550 mm
Tools	Necessary tool kit.

## FINANCIAL DETAILS

### ITEM A. MACHINERY FOR PROCESSING 1 TONNE PLASTIC REJECTS/DAY

#### Project Cost

A. Shredding Machine 15 HP	:	Rs.3, 84,552.38
add CGST 9%	:	Rs. 34,609.71
add SGST 9%	:	Rs. 34,609.71
Round Off - (-) 0.20		
Total	:	Rs. 4, 53,772.00
B. Baling Machine 7.5 HP	:	Rs. 3,92,857.00
add SGST 9%	:	Rs. 35,357.14
add CGST 9%	:	Rs. 35,357.14
Round Off - (-) 0.28		
Total	:	Rs.4, 63,571.00
C. Installation Charges	:	Rs. 24,600.00
D. Supervision Charges (one year)	:	Rs. 41,000.00

**Total Project Cost : Rs. 9, 82,943.00**

**(Rupees Nine Lakh Eighty Two Thousand Nine Hundred and Forty Three Only)**

- ❖ **Item A.** Includes of cost of shredding machine 15 H.P, cost of blade grinding machine and tools and weighing machinery
- ❖ **Item C and D.** Installation and supervision charges are inclusive of GST 18%

#### **1. MAINTANANCE OF MACHINERY**

**After the guarantee period of 1 year, for the next 4 years, Clean Kerala Company Ltd proposes to maintain the machinery as per the following terms:**

⊙ Second year - 10% of the Machinery cost	:	Rs.66,080/-
⊙ Third year - 15% of the Machinery cost	:	Rs.84,252/-
⊙ Fourth year - 20% of the Machinery cost	:	Rs.95,485/-
⊙ Fifth year - 25% of the Machinery cost	:	Rs.1,01,453/-

\*15% depreciation is deducted from the machinery cost

- **GENERAL TERMS AND CONDITIONS**

- Supply of shredding machine and baling machine to be completed within 90 days of receipt of firm work order and upon handing over of shed and infrastructure, complete in all respects
- Installation of machinery to be completed within the next 15 days
- The proposal is inclusive of transportation charges.

**PAYMENT TERMS AND CONDITIONS**

- 100% of the total machinery cost, installation charges, and supervision charges, shall be paid by the L.S.G.I to the “COMPANY” at the time of signing of the agreement.

## METHODOLOGY

- Local Self Government Institutions to provide a built up space(shed) of not less than 1000 square feet and provide all the required infrastructure, like electricity of 3 phase connection (with transformer if needed), water supply, etc, complete in all respects
- Local Self Government Institutions to ensure that clean plastic rejects are being brought into the facility through the prevalent collection network of the local body.
- The machinery has to be procured by the Local Self Government Institutions through the Clean Kerala Company Ltd as per the proposal.
- Local Self Government Institutions to directly employ Kudumbashree workers to process the waste at the processing centre by operating the shredding machine and baling machine, bear the operational costs and convert the clean plastic rejects brought into the facility into shredded plastic suitable for recycling and prepare it for forwarding for further recycling by packing in a fool proof manner and bear all the expenditure for the same.
- The supervision of the process to be carried out by the Clean Kerala Company Ltd for a period of one year initially and to be extended upon satisfactory performance
- The end products of the process employed to be sold by the local Self-governments in the open market. However, Clean Kerala Company Ltd offer to assist the Local Self Government Institutions to find suitable market for the end product or procure directly from the Local Self Government Institutions at a rate of Rs. 15/- per kilo gram (for shredded plastics only), and forward to P.W.D/L.S.G.D for the construction of polymerized roads based on the requirement.



## TECHNICAL REQUIREMENTS

### Electrical requirements for installation of machineries

3 phase power connection required (With Transformer, if necessary, as advised by K.S.E.B)

#### Plastic Shredding Machine-15 HP Motor

Starter - Star Delta  
Isolator - 63A  
Capacitor - 5KVR, Cable - 6mm.

#### Hydraulic Bale Press Machine-7.5HP Motor

Starter - DOL  
Isolator - 32A  
Capacitor - 3KVR, Cable - 4mm

#### Blade Sharpener Machine-2HP Motor

Starter - DOL  
Isolator - 32 A  
Capacitor - 1KVR, Cable - 2.5mm

Water Requirement – 1/2 KLD

Shed for machine – 40 ft X 25 ft

### **Quantity of Waste Input/Output:**

Maximum input quantity of waste which can be processed in the plant – 1 tonne per day and

Maximum output quantity of plastic per day – 800 Kg

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### Enclosure:

1. Copy of G.O No. 3119/2016/LSGD dated 17.11.2016
2. Copy of G.O No. 1641/2017/LSGD dated 19.05.2017