

**BEFORE THE NATIONAL GREEN TRIBUNAL**

**SOUTHERN ZONE, CHENNAI**

**Original Application No. 95 of 2021 (SZ)**

**With**

**Original Application No. 32 of 2020 (SZ)**

**IN THE MATTER OF**

Tribunal on its own motion – SUO MOTO based on the News

Item published in the New Indian Express,

Chennai Edition, Dated 25.02.21 under the caption

“Burning of garbage continues near Adyar”

...Applicant(s)

And

The Secretary to Govt. Tamilnadu

Department of Environment and Forests and Others

...Respondent(s)

With

Tribunal on its own motion in Dinamalar Chennai

News paper dated 10.02.2020, “heap of plastic wastes

and Garbage lying in a side of Porur Lake”

...Applicant(s)

And

The District Collector,

Kancheepuram and Others

...Respondent(s)

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Through

Dr. D. Shanmuganathan

Standing Counsel

National Green Tribunal, Southern Zone

## BEFORE THE NATIONAL GREEN TRIBUNAL

## SOUTHERN ZONE, CHENNAI

Original Application No.95 of 2021 (SZ)

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Original Application No.32 of 2020 (SZ)

## IN THE MATTER OF:

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...Applicant(s)

And

The Secretary to Govt. Tamilnadu  
Department of Environment & Forests,  
Govt.Secretariat, Fort St. George,  
Chennai, Tamilnadu – 600 009 and others.

...Respondent (s)

With

Tribunal on its own motion item in Dinamalar Chennai News Paper dated 10.02.2020, “heaps of plastic wastes and Garbage lying in a side of Porur Lake”.

...Applicant(s)

And

The District Collector,  
Kancheepuram District and others

...Respondent(s)

**ACTION TAKEN DETAILED REPORT FILED BY THE BLOCK  
DEVELOPMENT OFFICER (VILLAGE PANCHAYAT) KUNDRATHUR  
PANCHAYAT UNION AND ON BEHALF OF THE OFFICIAL OF KUNDRATHUR  
PANCHAYAT RAJ DEPARTMENT**

I, D. Kannan, S/o Dhanasekaran, aged 49 years, serving as the Block Development Officer, Kandrathur Panchayat Union, Kancheepuram District, solemnly affirm and sincerely state as follows:

1. I am discharging the duties of the Block Development Officer (Village Panchayat) and I am well acquainted with facts of the case as per records.
2. It is submitted that, based on the recommendations of the Joint Committee and the consequent orders of the Hon'ble National Green Tribunal, Southern Zone, the District Administration and the concerned Local Body has taken action on issue to comply the tribunal's Order to handle the addressed issues pertaining to Solid Waste Management in Kandrathur Block area.
3. It is submitted that, in the continuous process with regard to end the dumping of garbage and its removal in the Adyar River, 1396 Metric ton of garbage were removed during the month of November 2022 and 3798 Metric ton of garbage were removed during the month of July 2023 and August 2023.
4. It is further submitted that, the dumped garbage in the Adyar River had been fully removed and no garbage were dumped in the Adyar River from the Village Panchayats of Ayyappanthangal, Mowlivakkam, Kolapakkam and Gerugambakkam area again.
5. It is submitted that, the garbage has been segregated from the village panchayats of Ayyappanthangal, Mowlivakkam, Kolapakkam and Gerugambakkam has been segregated as Wet Waste and Dry Waste in the places of concerned panchayats as detailed below.

| S. No        | Name of the Panchayat | Wet Waste Management    |                          | Dry Waste Management    |                          | Domestic hazardous waste and MSW |                                  | Total Waste Capacity and cost |                 |
|--------------|-----------------------|-------------------------|--------------------------|-------------------------|--------------------------|----------------------------------|----------------------------------|-------------------------------|-----------------|
|              |                       | Capacity (tons per day) | Cost for MCC (incl. GST) | Capacity (tons per day) | Cost for MRF (incl. GST) | Capacity (tons per day)          | Cost for Incinerator (incl. GST) | Capacity (tons per day)       | Total           |
| 1            | 2                     | 3                       | 4                        | 5                       | 6                        | 7                                | 8                                | 9 (3+5+7)                     | 10 (4+6+8)      |
| 1            | Ayyapanthangal        | 5                       | 8475640                  | 2                       | 2158500                  | 1                                | 1475000                          | 8                             | 12109140        |
| 2            | Gerugambakkam         | 5                       | 8475640                  | 2                       | 2158500                  | 1                                | 1475000                          | 8                             | 12109140        |
| 3            | Moulivakkam           | 1.5                     | 3373480                  | 2                       | 2158500                  | 1                                | 1475000                          | 4.5                           | 7006980         |
| 4            | Kolapakkam            | 5                       | 8475640                  | 2                       | 2158500                  | 1                                | 1475000                          | 8                             | 1210940         |
| <b>Total</b> |                       | <b>16.5</b>             | <b>28800400</b>          | <b>8</b>                | <b>8634000</b>           | <b>4</b>                         | <b>5900000</b>                   | <b>28.5</b>                   | <b>43334400</b> |

6. It is further submitted that, the action is proposed for the segregation of wet waste management garbage are sent to the Micro Composting Unit, and dry waste management garbage are used for laying roads after shredded as macro particles under plastic shredding machine. The unused dry waste management garbage has been used as a fuel to the cement factory under Bailing Method through Non-Government Organisation.
7. It is submitted that, in the order dated 25.07.2023 the tribunal gave a direction to furnish the particulars about the alternate site and for setting up the Micro Composing Centre (MCC). A proposal is sent to the Secretariat of The Rural Development and Panchayat raj and the same is attached along with this report.
8. It is submitted that, the Micro Composting Unit is operated by Self Help Group members at Ayyappanthangal, Kolapakkam and Gerugambakkam daily and the details are as follows:

| S. No. | Name of the Panchayat | Total Garbage Collection per day (tons) | Bio-degradable Garbage Grinding by MCC (tons) |
|--------|-----------------------|---|---|
| 1.     | Ayyapanthangal        | 5                                       | 1.5   |
| 2.     | Gerugambakkam         | 5                                       | 1.5   |
| 3.     | Kolapakkam            | 5                                       | 1.5   |

9. It is humbly submitted that, as MCC can only segregate 5 tons of waste per day and we have 3 MCC's. The excess waste is carried through lorry to Appur Village, Chengalpattu District for garbage dumping with proper permission until an alternative site is allotted by the Government.

Therefore, it is humbly prayed that this Hon'ble Tribunal may be pleased to accept this report and pass further order, which deems fit to this case and render justice.

Date: 12.09.2023

Signature

With seal:

  
Block Development Officer (V.P.)  
Kundrathur @ Padappai

Verification

I, D. Kannan, S/o Dhanasekaran ,aged 49 years, serving as the Block Development Officer , Kundrathur Panchayat Union, Kancheepuram District, solemnly affirm that the contents of this report are true to the best of my knowledge based on the records and I have not suppressed any facts.

Date: 12.09.2023

Signature

With Seal:

  
Block Development Officer (N.P.)  
Kundrathur @ Padappai

PROJECT REPORT ON  
**SOLID WASTE MANAGEMENT SOLUTIONS**  
(Wet, Dry & Sanitary/MSW Wastes)

To

The Block Development Officer (VP)  
Kundrathur Panchayat Union  
Padappai

Project @ Gerugambakkam Panchayat.

Submitted by

**GREENRICH GROW INDIA PVT LTD**

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# GREENRICH GROW INDIA PVT LTD

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# GREENRICH GROW INDIA PVT LTD



## About Greenrich

Greenrich Group is an ISO Certified 14001:2015 "Effective Environment Management System" and CE Certified Company which is into providing end-to-end Eco-friendly Waste Management & Environmental Solutions since 2017. Greenrich products are patented innovative technology & certified by CII and IGBC as "GREENPRO", a mark of guarantee that the product is environment friendly throughout its life cycle.

We are empaneled by Chennai Municipal Corporation (GCC), Municipal Corporation Gurugram (MCG), Faridabad Municipality, Municipal Corporation of Greater Mumbai (MCGM), Navi Mumbai Municipal Corporation (NMMC), Pune Municipal Corporation (PMC), Pimpri-Chinchwad Municipal Corporation (PCMC), Indore Municipal Corporation (IMC). We are authorized vendors of GHMC, GVMC, Suryapet Municipality, Nellore Municipality, Sircilla Municipality and many others. We are assessed vendors of GEM e-procurement portal, CREDAI & CII.

## Certifications

- > MSME – Udyam Registration Certificate
- > NSIC – Government Purchase Enlistment Certificate
- > ISO 14001:2015 – Environment Management System
- > CE - Compliance Certificate
- > GreenPro - Certified by CII and IGBC
- > TradeMark Certificate
- > Patent – Certificate of Registration of Design – for Composting Bins
- > BEE Certification

Greenrich's End-To-End Solution for Solid Waste Management @ Gerugambakkam Panchayat

## Site Visit & Assessment of Waste Generated @ Gerugambakkam Panchayat

Further to the site inspection and detailed survey, the quantity of waste assessed in Gerugambakkam Panchayat is about 7-8 TPD waste which includes Wet waste (5 TPD), Dry waste (2 TPD) & Sanitary and MSW waste (upto 1 TPD).

## (G) Gerugambakkam Panchayat



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My  
Green  
Bin

## GREENRICH GROW INDIA PVT LTD

To implement the Waste management effectively and reduce the amount of waste going into Landfill following solutions can be implemented at both MICRO level and MACRO level.

### End to End Solution for Solid Waste Management with Greenrich

1. Solution for Wet Waste (MCC) with Greenrich Composters
2. Solution for Sanitary Waste with Greenrich Incinerator
3. Solution for Dry (MRF) Waste Management

#### A. Solution for Wet Waste Management

Composting is a natural micro-biological process, where the fungal inoculum break down the organic fractions of the solid waste stream under controlled conditions to produce a pathogen-free material called "Compost" that can be used for potting soil, soil amendments and mulch. The microbes, fungi, and macro-organisms that contribute to this biological decomposition is aerobic in nature.

Greenrich Grow proposes a state-of-the-art enhanced accelerated composting process for the wet waste which will drastically reduce the duration of composting process than the conventional way.

Greenrich Composting is accelerated by optimised and controlled process parameters like Input material, temperature, moisture, and pH. The process uses special aerobic microbes, Fungal Inoculum that are produced at Greenrich laboratory for the accelerated composting process. These micro-organisms or Fungal Inoculums will degrade the organic materials and turn it into a compost which can be used a fertilizer. Finished compost looks like soil— dark brown, crumbly and smells like a forest floor.

**Byproducts:** The byproducts from composting process are organic manure and BioBooster which can be used as nutrient rich solid and liquid fertilizer.

#### Highlights on the salient features of MY GREEN BIN

- We have different capacity of composters, providing solutions from single house hold to multiple dwelling, from small restaurants to star hotels, from Institutional canteens to large Industrial canteens.
- My Green Bins are made of FRP material – Fiber Reinforced Plastic that are designed for better resistance and high durability. Hassle free, easy to use, easy to maintain and easy to convert your organic waste to organic manure. Completely safe, Totally Green Natural Composting in 30 days. Odour free & No Sludge system.
- Mygreenbin can digest the Flower and Food waste in Temples and convert them into good quality Organic Manure. The unique feature is that, any organic waste cooked or uncooked, vegetarian waste as well as non-vegetarian waste can be digested by our system.
- Other major advantage of Mygreenbin is minimum mechanical or electrical energy is required in the process for aeration and shredding as there is no heating system involved.
- It is a natural process, using organically cultivated Microorganisms, a totally green composting method that is very much user friendly.
- Operator doesn't have to be qualified technical person. No service or maintenance or parts replacement is required for the composters.

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ISO  
14001





# GREENRICH GROW INDIA PVT LTD



We also provide Micro Composting units in localities with a population of 7000 to 8000 families for Municipalities and City Corporations, thus save the transportation cost for transferring the garbage into dumb yards, reduce the pollution as well as save precious natural resources. The output - which is an Organic Manure - also will be used for developing the greenery in the localities.

## Segregation of Waste: Waste Can be segregated as

**Bio Degradable Waste:** Bio Degradable waste includes organic waste, e.g. kitchen waste, vegetables, fruits, flowers, leaves from the garden and paper.

**Non Bio Degradable Waste:** Non-Biodegradables can be further segregated into Recyclable Waste, Toxic Waste & Soiled Waste

**WASTES TO BE SEGREGATED AND STORED IN BINS AS DETAILLED BELOW**

**BIODEGRADABLE WASTE (RED BIN)**

Vegetables, fruits, kitchen waste, garden waste, paper, etc.

**RECYCLABLE WASTE (BLUE BIN)**

Plastic bottles, newspapers, metal cans, etc.

**NON-RECYCLABLE WASTE (BLACK BIN)**

Broken glass, sharp objects, etc.

**DO'S**

**What to Compost**  
Vegetable Peels | Cooked Food | Fruit Seeds | Egg Shells | Non-Veg Food | Flowers | Garden Fruit Peels | Tea bags | Coffee grounds | Leaf litter | Turge Garden waste | Pallet leaves

**DONT'S**

**Please Avoid**  
Sanitary Napkins | Disposable Diapers | Sandwiches | Glass | Wire | Cloth | Any material contaminated with blood | Petrol | Lubricant | Motor Oil | Household | Plastic | Metal | Paper | Wood Shavings

**Waste - Hazardous waste**  
Nails | Batteries | Aerosols | Electronic waste | Paints | Cleaning agents | Oil | Animal carcass | Composites | Synthetic materials | Medicines | Thermometers

## Composting As a Solution

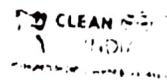
Composting is microbial degradation process where aerobic bacteria under optimum condition convert the biodegradable into valuable rich fertilizer. In this way the wastes that are generated are being taken care of in a sustainable way as well as wastes that are composted can be used as an organic fertilizer instead of synthetic fertilizer.

## Composting Benefits

- Compost that is applied into soil will continue to breakdown and in due course with parameters such as temperature, rainfall and feedstocks; a portion of that composted organic matter may become part of the soil's long term carbon pool (sequestration)
- The other indirect effects such as increased soil moisture holding capacity and a reduction in the need for fertilizers, herbicides or fungicide could result in less irrigation, which would mean less energy used and avoidance of GHGs.
- The biggest benefit of most compost comes from emission avoidance from diverting Organic MSWs to landfills. The end use of compost provides some GHG benefits, both directly through sequestration and indirectly through improve soil health, reduces soil loss, increased water infiltration and storage and reduction of other inputs.

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## Benefit of using Fungal Inoculum (Microbes)

- Fungal Inoculum performs important services related to water dynamics, nutrient cycling, and disease suppression.
- They are important as decomposers in the soil food web.
- They convert hard-to-digest organic material into forms that other organisms can use.
- They physically bind soil particles together, creating stable aggregates that help increase water infiltration and soil water holding capacity.
- The Fungal Inoculum decomposes the waste aerobically into high nutrient organic planting media and manure.
- The advantage is that no churning or rotation process is involved.

## Aerobic Process Inside the Digester

- Microbes will start forming as Mycellum, a Fungus that starts producing Enzymes. Mycellum will start growing in 5 days inside our bins and the breaking down will happen subsequently. After 5<sup>th</sup> day the reduction process will be very fast as the microbes starts multiplying.
- Major component of the waste is Carbohydrate, Fat and Protein. It will get broken into smaller particles of Sugar, Amino Acids, Fatty Acids or Glycerol. This will be Absorbed by Mycellum as Food.
- In this process, Nitrogen will be converted into Nitrogen Oxide because it is completely Oxidized. No Methane or any other Obnoxious gases are produced in an oxidizing environment. That is why our bins are fitted with Aerators.
- Ammonia, Hydrogen Sulphide, etc are Obnoxious gases that will stink. The Carbon Dioxide, Nitrogen Dioxide, Sulphur Dioxide produced doesn't stink in MYGREENBINS, as they are converted as Oxides that helps in preventing bad odour from the wet waste.
- Leachet is used as a "Folio Spray" and should not be applied to the roots as it will immediately get absorbed.
- Mycellum keeps attacking the Organic Wet Waste and is seen spread on the top layer, brown in colour.

## Byproducts from the composting process

The liquid & solid manure produced from composting has proved a boon to our farmers across all types of crop cultivation and has drastically reduced the usage of chemical fertilizers and pesticides.

The liquid compost acts as the best organic bio booster & insecticide and the solid manure a full-fledged organic fertilizer thereby eliminating large incidents of cancer and other health hazards.

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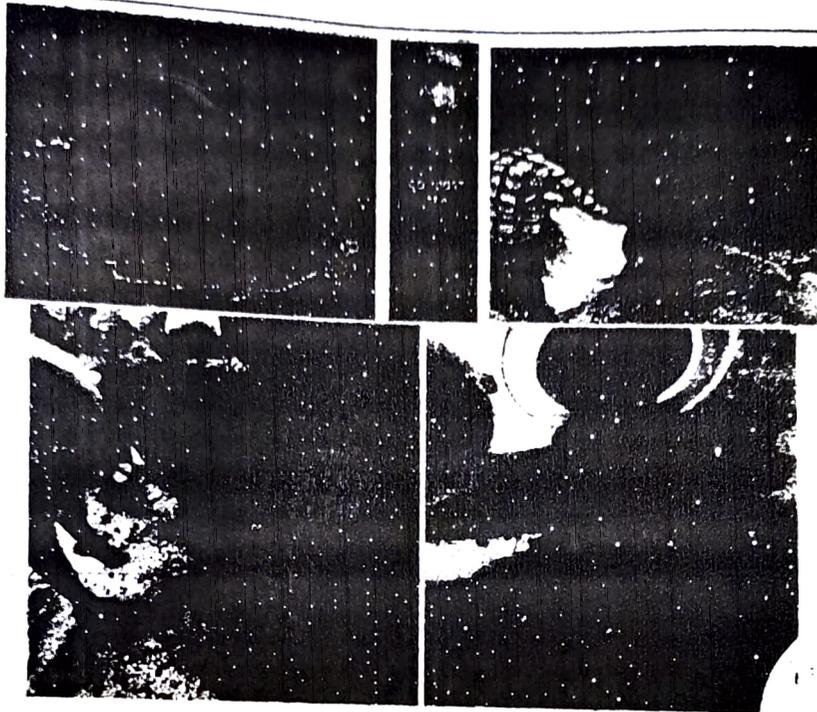
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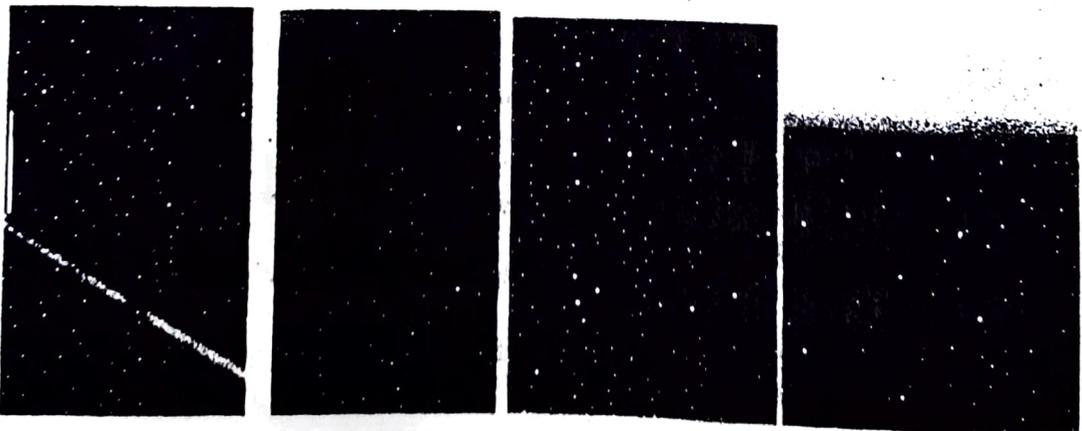
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## Rejuvenating Organic cultivation among farmers

Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity; and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs.

Chilli, Wheat, Strawberry & Mango Farms using My Green Bin compost and compost tea in Wai Satara, MAHARASHTRA.



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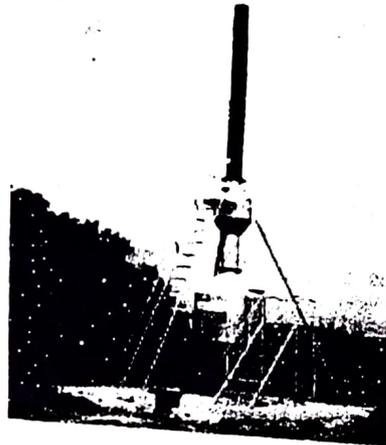
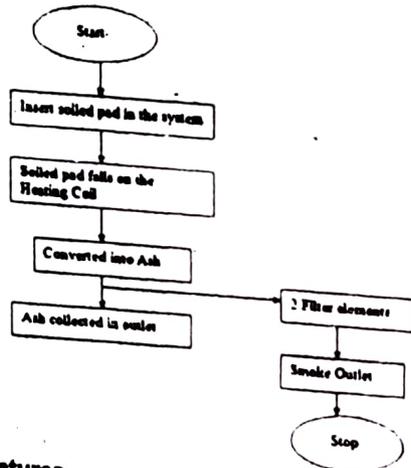


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## B. Solution for Hazardous Waste – Sanitary Waste & MSW

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials. Incineration and other high-temperature waste treatment systems are described as "thermal treatment". Incineration of waste materials converts the waste into ash, flue gas and heat.

Greenrich incinerators are a useful technology available through an economically feasible and environment-friendly method to combust household sanitary waste & medical waste, instead of discharging it in a landfill. Furthermore, heat and energy may be recovered and it helps to avoid open burning of municipal waste which creates much more harmful emissions and endanger human health and environment.



### Unique Features

- Fire & Moisture resistant materials
- Hygienic materials & sturdy build quality
- Faster Installations & Environment friendly functioning - Burns solid waste material permitted to be incinerated into pure ash within few of minutes adhering to relevant emission standards.
- Some of our high-end models provide Secondary filtering provision followed by combustion that ensures clean ash free emission in compliance with the emission prescribed under Environmental Protection rules.
- Highly economical in terms of Implementing, Operating and Maintenance compared to fuel-based incinerators.
- Made with branded raw materials under strict supervision of highly qualified and experienced professionals and Technicians

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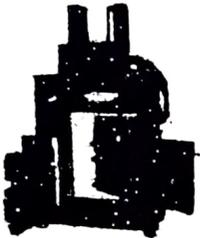


### C. MRF - Dry / Plastic Waste Management

A material recovery facility (MRF) receives pre-sorted streams of recyclables for dusting, baling, Conveyor, weighed and shipped to various end users.

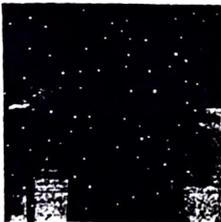
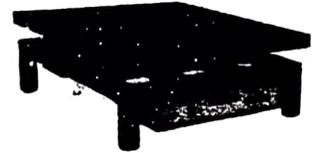


Plastic dust remover is used to remove mud and dust from the municipal plastic waste and PET before grinding for recycling process



Baling machine compresses material into a block (bale) which is secured by plastic or wire strapping and sent to recycling.

Weighing Scale is one of the important elements, which is required at transfer stations to measure the waste quantity coming at the transfer station and again transported from the site.



The system comprises of separation of dry waste metal and nonmetal waste; different sensors can be incorporated for detecting the material along the conveyor belt.



A Plastic Shredder is a machine used to cut plastic into smaller pieces.

\* The above product images are indicative

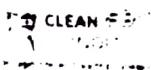
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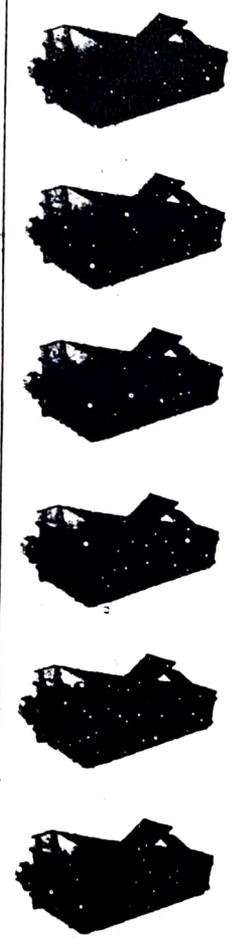
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## COMMERCIAL PROPOSAL for WET, SANITARY & DRY WASTE

### 1. SOLUTION FOR WET WASTE MANAGEMENT - 5 TPD WET WASTE

| Sl. No | Quantity   | Image  | Description of work  | Rate      | Amount    |
|--------|------------|--|--|-----------|-----------|
| 1      | 3.00 Pairs |  | <p>Providing Composting Solution for Wet Waste of capacity from 5 TPD (capacity per day) with 6 nos - 3 pair of My Green Bin MGB 1000 with following specifications as below- Each MGB 1000 of size - L 6.50 m x 2.0 m x 1.20 m made out of FRP Panel of thickness 5mm with the interior of the bin finished with additional FRP ribs of width 200mm with 8mm aerator holes are made inside and outside, top and bottom, joined together with FRP lining and SS fasteners. The bottom tank to be of ht 100mm and covered with FRP plates of thickness 5mm with 8mm holes for the Leachate to be collected. The bottom tank is provided with 20mm Ball Valve -2 nos. The central portion to have FRP channels with 7 nos of 75mm aerator pipes with 8mm holes supported between top and bottom FRP channels with end cap. The sides to have 8 doors of dia 450 mm fixed with SS flat &amp; nut with plastic head. The panels to be supported with hot dip galvanised MS channels of 3mm thickness. The top of the bin provided with 8 doors, all with FRP of thickness 3mm with MS stay. The bin to be engulfed outside with 50mm x 25mm hot dip galvanised MS Section at 2 levels. The bins will be provided with 2 Blowers mounted on FRP channel - Blower of specification: Single Phase, Power Input - 180 watts, Air Flow rate - 460 M3/ br and the blower outlet of 32 mm/PVC pipe &amp; internally with 32mm /PVC pipes with raises of 25 mm/ PVC Pipe of height 150mm at spaced at a distance of 400mm. The bins are provided with SS handle of size 250 mm and SS Hinges complete.</p> | 17,92,000 | 53,76,000 |

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# GREENRICH GROW INDIA PVT LTD



|                  |      |                   |   |  |           |                  |
|------------------|------|-------------------|---|--|-----------|------------------|
| 2                | 1.00 | No                |    | Providing and Supplying of Precomposter with Working Capacity: 800-1000 Kg per hr<br>Motor: 15 HP (7.5HP + 7.5 HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS  | 12,50,000 | 12,50,000        |
| 3                | 3600 | 10 Ltr / 6 months |    | Supply of Greenrich Microbes (10Ltr Capacity)<br>Type of Bio Culture- Aerobic Microbial Composting Culture Culture<br>Specification- Composting agent formulated using cocopeat along with micro & macro nutrients and Cultured with Lignocellulolytic Organisms.<br>Fungal Population Count- In the range 105 to 108<br>Odour-Odour free<br>Electrical Conductivity- Within the range 0.4-3<br>pH- Within the range 5 - 6.5,<br>Composting Process- 30 days | 254       | 9,14,400         |
| 4                | 1.00 | No                |  | Providing and supplying of Siever Machine with the following spec<br>Model MS Steel Manure Siever<br>Body Material MS Steel<br>Capacity 2 to 3 Tons per hour<br>Voltage 240<br>Automation Grade Semi-Automatic<br>Others<br>Screener Size 1500 x 600 mm<br>Usage/Application To Screen Manure<br>Color blue and white<br>Phase Single Phase  | 80,000    | 80,000           |
| <b>SUB TOTAL</b> |      |                   |   |  |           | <b>76,20,400</b> |

**(Rupees: Seventy six lakhs twenty thousand four hundred only)**

**As per Govt Norms the applicable taxes will be extra as below**

|                           |  |  |                       |                  |
|---------------------------|--|--|-----------------------|------------------|
|                           |  |  | GST @ 12% (Item no.1) | 6,45,120         |
|                           |  |  | GST @ 12% (Item no.2) | 1,50,000         |
|                           |  |  | GST @ 5% (Item no.3)  | 45,720           |
|                           |  |  | GST @ 18% (Item no.4) | 14,400           |
| <b>SUB TOTAL WITH GST</b> |  |  |                       | <b>84,75,640</b> |

**(Rupees: Eighty four lakhs seventy five thousand six hundred and forty only)**

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**2. SOLUTIONS FOR MRF - 2 TPD DRY WASTE**

| Sl. No | Quantity |    | Image   | Description of work  | Rate     | Amount   |
|--------|----------|----|---|--|----------|----------|
| 1      | 1.00     | No |    | Providing and Suppling of Dust Remover Machine with the following specification<br>-7.5Hp Motor New Standard Company<br>-6' L x 4' H x 5.5' W<br>-Roll Heavy Duty 115 MM<br>-45 MM Pedestal Bearing Heavy Duty<br>-Heavy Duty Machine Fabrication<br>-Starter Star Delta with on/off Button  | 3,00,000 | 3,00,000 |
| 2      | 1.00     | No |   | Providing and Suppling of Flat Conveyor with the following specification<br>5000mm Length x 750mm Width x 800mm Height<br>Belt : PVC Green Colour<br>Speed : 4m/min<br>Frames : Powder Coated MS<br>Roller : Zinc Coated MS<br>Power Input : Single Phase 230V<br>Speed : Variable through VFD   | 2,50,000 | 2,50,000 |
| 3      | 1.00     | No |  | Providing and Suppling of Balling Machine with the following specification<br>Capacity - 60 Ton Pressure Single Chamber Single Cylinder Baler Machine<br>Bale Size - 34(L)x26(W) In Inch<br>Bale Weight - 80-100 Kg<br>Chamber Size - 72 (L)x34(W)x26(H) In Inch<br>No. of Cylinder - 1 Nos.<br>No. of Glide - 2 Nos.<br>No. Of Door - 2 Nos.<br>No. of Striping - 3 Nos<br>Oil Tank Capacity - 300 Liters.<br>Production Rates - 20 To 25 Minuets<br>Hydraulic System - Vane Pump Systems.<br>Operation - 20 Size Hand levers Operate Systems.<br>Electric Motor - 10 HP Motor 3Phase<br>1440 RPM 50HZ<br>Electric Starter - Provided | 4,00,000 | 4,00,000 |

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# GREENRICH GROW INDIA PVT LTD



|   |      |    |   |   |          |           |
|---|------|----|---|---|----------|-----------|
| 4   | 1.00 | No |  | Providing and supplying of Plastic Waste Shredder with the following spec<br>Working Capacity: 1Ton per hr<br>Motor: 20 HP (10HP + 10HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS | 9,00,000 | 9,00,000  |
| 5   | 1.00 | No |  | Supply and erection of Multi Purpose weighing machine having 500 kg capacity weighing scale, commercial weight machine for industry mildsteel having 50g accuracy complying with standard specifications                | 25,000   | 25,000    |
| SUB TOTAL   |      |    |   |   |          | 18,75,000 |
| (Rupees: Eighteen lakhs seventy five thousand only)               |      |    |   |   |          |           |
| As per Govt Norms the applicable taxes will be extra as below     |      |    |   |   |          |           |
|   |      |    |   | GST @ 18% (Item no.1,2,3,5)   |          | 1,75,500  |
|   |      |    |   | GST @ 12% (Item no.4)   |          | 1,08,000  |
|   |      |    |   | SUB TOTAL WITH GST  |          | 21,58,500 |
| (Rupees: Twenty one lakhs fifty eight thousand five hundred only) |      |    |   |   |          |           |

### 3. SOLUTION FOR DOMESTIC HAZARDOUS WASTE AND MSW

| Sl. No  | Quantity |    | Image   | Description of work  | Rate      | Amount    |
|---|----------|----|---|--|-----------|-----------|
| 1   | 1.00     | No |  | Providing and supplying of "GREENRICH" zero fuel General Solid Waste Burner (Model No: GRE200PCS) - 2.2 cubic meter (200kg/hr.) with pollution control system. Dispensing Time: 200kgs/45 mins<br>Chamber size: Dia x Ht: 1250 x 1650 mm, Weight: 2.7 ton<br>Chimney Size: 6 mts | 12,50,000 | 12,50,000 |
| SUB TOTAL   |          |    |   |  |           | 12,50,000 |
| (Rupees: Twelve lakhs fifty thousand only)                    |          |    |   |  |           |           |
| As per Govt Norms the applicable taxes will be extra as below |          |    |   |  |           |           |
|   |          |    |   | GST @ 18% (Item no.1)  |           | 2,25,000  |
|   |          |    |   | SUB TOTAL WITH GST   |           | 14,75,000 |
| (Rupees: Fourteen lakhs seventy five thousand only)           |          |    |   |  |           |           |

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| SUMMARY   |                            |                         |
|---|----------------------------|-------------------------|
|   | Amount (Rs)<br>without GST | Amount (Rs)<br>Incl.GST |
| Cost for MCC (for Wet waste management)                     | 76,20,400.00               | 84,75,640.00            |
| Cost for MRF (for dry waste management)                     | 18,75,000.00               | 21,58,500.00            |
| Cost for Incinerator (for Domestic hazardous waste and MSW) | 12,50,000.00               | 14,75,000.00            |
| <b>TOTAL</b>  | <b>1,07,45,400.00</b>      | <b>1,21,09,140.00</b>   |

• **TRANSPORTATION CHARGES EXTRA**

**Terms:**

|          |  |
|----------|--|
| Payment  | : 50 % as advance along with the confirmed order<br>40% on delivery<br>10% on installation |
| Delivery | : 40 days from the date of Work Order and Advance  |
| Validity | : 1 month from date of proposal.   |

**Conclusion**

With our strong expertise we guarantee to provide you an end to end solution for solid waste management for wet, dry and hazardous waste. We can design an optimum solution with our home composting and onsite composting system, a decentralized system for effectively handling the wet waste and utilizing the byproducts compost or biogas or electricity for production. The rest of the dry and hazardous waste can be recycled or incinerated.

With Warm Regards  
For Greenrich Grow India Pvt Ltd



S. Saravananaraj  
Director  
98404 75000

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PROJECT REPORT ON  
**SOLID WASTE MANAGEMENT SOLUTIONS**  
(Wet, Dry & Sanitary/MSW Wastes)

To

The Block Development Officer (VP)  
Kundrathur Panchayat Union  
Padappai

Project @ Moulivakkam Panchayat

Submitted by

**GREENRICH GROW INDIA PVT LTD**

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# GREENRICH GROW INDIA PVT LTD

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## GREENRICH GROW INDIA PVT LTD



### About Greenrich

Greenrich Group is an ISO Certified 14001:2015 "Effective Environment Management System" and CE Certified Company which is into providing end-to-end Eco-friendly Waste Management & Environmental Solutions since 2017. Greenrich products are patented innovative technology & certified by CII and IGBC as "GREENPRO", a mark of guarantee that the product is environment friendly throughout its life cycle.

We are empaneled by Chennai Municipal Corporation (GCC), Municipal Corporation Gurugram (MCG), Faridabad Municipality, Municipal Corporation of Greater Mumbai (MCGM), Navi Mumbai Municipal Corporation (NMMC), Pune Municipal Corporation (PMC), Pimpri-Chinchwad Municipal Corporation (PCMC), Indore Municipal Corporation (IMC). We are authorized vendors of GHMC, GVMC, Suryapet Municipality, Nellore Municipality, Sircilla Municipality and many others. We are assessed vendors of GEM e-procurement portal, CREDAI & CII.

### Certifications

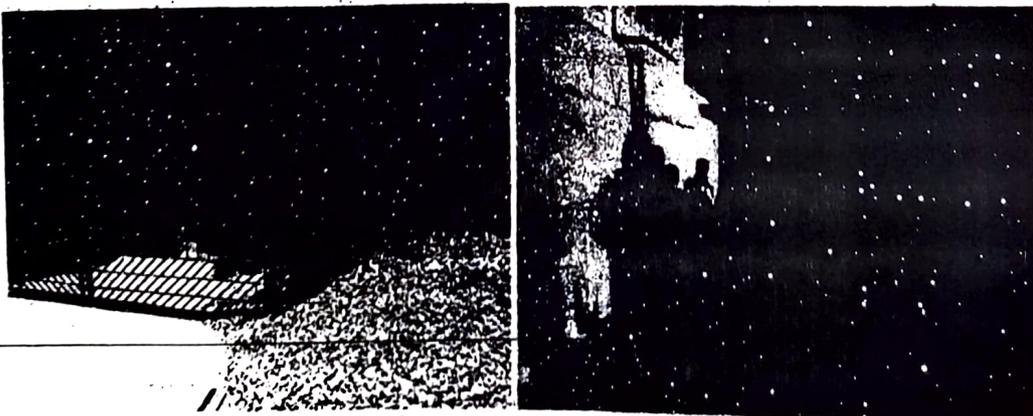
- MSME – Udyam Registration Certificate
- NSIC – Government Purchase Enlistment Certificate
- ISO 14001:2015 – Environment Management System
- CE - Compliance Certificate
- GreenPro - Certified by CII and IGBC
- TradeMark Certificate
- Patent – Certificate of Registration of Design – for Composting Bins
- BEE Certification

Greenrich's End-To-End Solution for Solid Waste Management @ Moulivakkam Panchayat

### Site Visit & Assessment of Waste Generated @ Moulivakkam Panchayat

Further to the site inspection and detailed survey, the quantity of waste assessed in Moulivakkam Panchayat is about 4-5 TPD waste which includes Wet waste (1.5 TPD), Dry waste (2 TPD) & Sanitary and MSW waste (upto 1 TPD).

### @ Moulivakkam Panchayat



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CLEAN  
WASTE  
SOLUTIONS





# GREENRICH GROW INDIA PVT LTD



To implement the Waste management effectively and reduce the amount of waste going into Landfill following solutions can be implemented at both MICRO level and MACRO level.

## End to End Solution for Solid Waste Management with Greenrich

1. Solution for Wet Waste (MCC) with Greenrich Composters
2. Solution for Sanitary Waste with Greenrich Inclinerator
3. Solution for Dry (MRF) Waste Management

### A. Solution for Wet Waste Management

Composting is a natural micro-biological process, where the fungal inoculum break down the organic fractions of the solid waste stream under controlled conditions to produce a pathogen-free material called "Compost" that can be used for potting soil, soil amendments and mulch. The microbes, fungi, and macro-organisms that contribute to this biological decomposition is aerobic in nature.

Greenrich Grow proposes a state-of-the-art enhanced accelerated composting process for the wet waste which will drastically reduce the duration of composting process than the conventional way.

Greenrich Composting is accelerated by optimised and controlled process parameters like input material, temperature, moisture, and pH. The process uses special aerobic microbes, Fungal Inoculum that are produced at Greenrich laboratory for the accelerated composting process. These micro-organisms or Fungal Inoculums will degrade the organic materials and turn it into a compost which can be used a fertilizer. Finished compost looks like soil- dark brown, crumbly and smells like a forest floor.

**Byproducts:** The byproducts from composting process are organic manure and BioBooster which can be used as nutrient rich solid and liquid fertilizer.

### Highlights on the salient features of MY GREEN BIN

- We have different capacity of composters, providing solutions from single house hold to multiple dwelling, from small restaurants to star hotels, from Institutional canteens to large industrial canteens.
- My Green Bins are made of FRP material - Fiber Reinforced Plastic that are designed for better resistance and high durability. Hassle free, easy to use, easy to maintain and easy to convert your organic waste to organic manure. Completely safe, Totally Green Natural Composting in 30 days. Odour free & No Sludge system.
- Mygreenbin can digest the Flower and Food waste in Temples and convert them into good quality Organic Manure. The unique feature is that, any organic waste cooked or uncooked vegetarian waste as well as non-vegetarian waste can be digested by our system.
- Other major advantage of Mygreenbin is minimum mechanical or electrical energy is required in the process for aeration and shredding as there is no heating system involved.
- It is a natural process, using organically cultivated Microorganisms, a totally green composting method that is very much user friendly.
- Operator doesn't have to be qualified technical person. No service or maintenance or parts replacement is required for the composters.

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• We also provide Micro Composting units in localities with a population of 7000 to 8000 families for Municipalities and City Corporations, thus save the transportation cost for transferring the garbage into dump yards, reduce the pollution as well as save precious natural resources. The output – which is an Organic Manure - also will be used for developing the greenery in the localities.

## Segregation of Waste: Waste Can be segregated as

**Bio Degradable Waste:** Bio Degradable waste includes organic waste, e.g. kitchen waste, vegetables, fruits, flowers, leaves from the garden and paper.

**Non Bio Degradable Waste:** Non-Biodegradables can be further segregated into Recyclable Waste, Toxic Waste & Soiled Waste

**WASTES TO BE SEPARATED AND STORED IN ONE OF THESE BINS**

**BIODEGRADABLE WASTE (GREEN BIN)**

Vegetable Peels, Fruit Peels, Kitchen Waste, Paper, Leaves, Flowers, Grass, etc.

**RECYCLABLE WASTE (BLUE BIN)**

Plastic Bottles, Glass, Metal, Paper, etc.

**NON-RECYCLABLE WASTE (RED BIN)**

Broken Glass, Sharp Objects, Batteries, etc.

**DO'S**

**What to Compost**  
Vegetable Peels | Coffee Pood | Fruit Seeds | Egg Shells | Non-Veg Food | Flowers | Coriander Peels, Peas | Tea Bags | Coffee grounds | Leaf litter | Tulsi Leaves | etc.

**DON'T'S**

**Please Avoid**  
Sanitary Napkins | Disposable Diapers | Bandages | Glass | Wire | Cloth | Any material contaminated with blood | Plastic | Leather | Rubber | Foam | Paper | Wood | Shells

**Waste - Hazardous Waste**  
Batteries | Inks | Solvents | Electronic waste | Pesticides | Cleaning agents | Oil | Animal waste | Composites | Synthetic Insecticides | Medicines | Thermometers

## Composting As a Solution

Composting is microbial degradation process where aerobic bacteria under optimum condition convert the biodegradable into valuable rich fertilizer. In this way the wastes that are generated are being taken care of in a sustainable way as well as wastes that are composted can be used as an organic fertilizer instead of synthetic fertilizer.

## Composting Benefits

- Compost that is applied into soil will continue to breakdown and in due course with parameters such as temperature, rainfall and feedstocks; a portion of that composted organic matter may become part of the soil's long term carbon pool (sequestration)
- The other indirect effects such as increased soil moisture holding capacity and a reduction in the need for fertilizers, herbicides or fungicide could result in less irrigation, which would mean less energy used and avoidance of GHGs.
- The biggest benefit of most compost comes from emission avoidance from diverting Organic MSWs to landfills. The end use of compost provides some GHG benefits, both directly through sequestration and indirectly through improve soil health, reduces soil loss, increased water infiltration and storage and reduction of other inputs.





## GREENRICH GROW INDIA PVT LTD



### Benefit of using Fungal Inoculum (Microbes)

- Fungal Inoculum performs important services related to water dynamics, nutrient cycling, and disease suppression.
- They are important as decomposers in the soil food web.
- They convert hard-to-digest organic material into forms that other organisms can use.
- They physically bind soil particles together, creating stable aggregates that help increase water infiltration and soil water holding capacity.
- The Fungal Inoculum decomposes the waste aerobically into high nutrient organic planting media and manure.
- The advantage is that no churning or rotation process is involved.

### Aerobic Process Inside the Digester

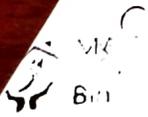
- Microbes will start forming as Mycellum, a Fungus that starts producing Enzymes. Mycellum will start growing in 5 days inside our bins and the breaking down will happen subsequently. After 5<sup>th</sup> day the reduction process will be very fast as the microbes starts multiplying.
- Major component of the waste is Carbohydrate, Fat and Protein. It will get broken into smaller particles of Sugar, Amino Acids, Fatty Acids or Glycerol. This will be Absorbed by Mycellum as Food.
- In this process, Nitrogen will be converted into Nitrogen Oxide because it is completely Oxidized. No Methane or any other Obnoxious gases are produced in an oxidizing environment. That is why our bins are fitted with Aerators.
- Ammonia, Hydrogen Sulphide, etc are Obnoxious gases that will stink. The Carbon Dioxide, Nitrogen Dioxide, Sulphur Dioxide produced doesn't stink in MYGREENBINS, as they are converted as Oxides that helps in preventing bad odour from the wet waste.
- Leachet is used as a "Folio Spray" and should not be applied to the roots as it will immediately get absorbed.
- Mycellum keeps attacking the Organic Wet Waste and is seen spread on the top layer, brown in colour.

### Byproducts from the composting process

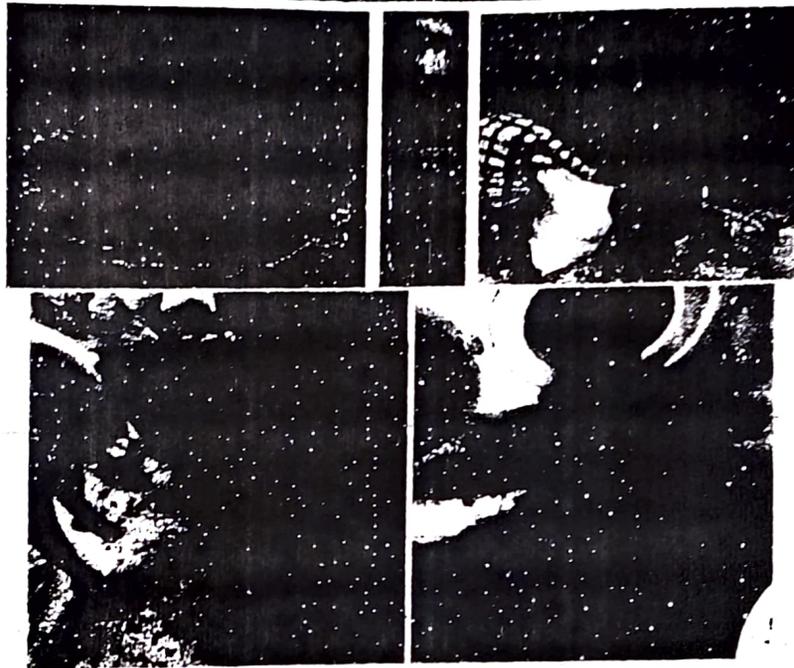
The liquid & solid manure produced from composting has proved a boon to our farmers across all types of crop cultivation and has drastically reduced the usage of chemical fertilizers and pesticides.

The liquid compost acts as the best organic bio booster & insecticide and the solid manure a full-fledged organic fertilizer thereby eliminating large incidents of cancer and other health hazards.





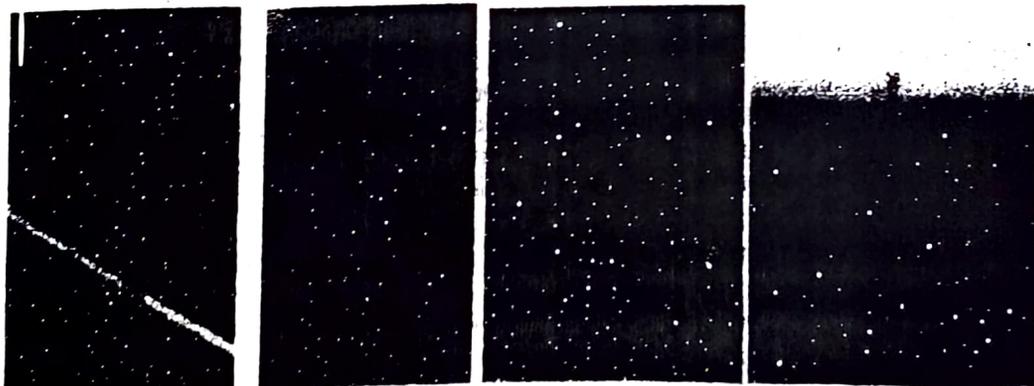
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## Rejuvenating Organic cultivation among farmers

Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs.

Chilli, Wheat, Strawberry & Mango Farms using My Green Bin compost and compost tea in Wai Satara. MAHARASHTRA.

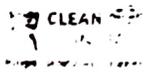


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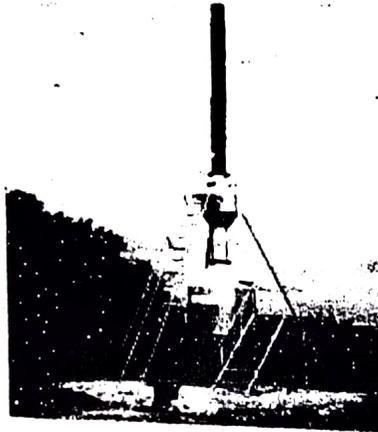
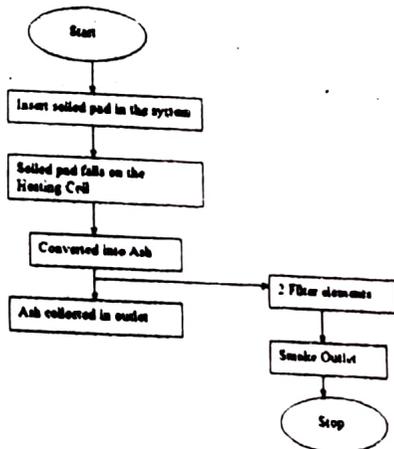
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### B. Solution for Hazardous Waste – Sanitary Waste & MSW

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials. Incineration and other high-temperature waste treatment systems are described as "thermal treatment". Incineration of waste materials converts the waste into ash, flue gas and heat.

Greenrich incinerators are a useful technology available through an economically feasible and environment-friendly method to combust household sanitary waste & medical waste, instead of discharging it in a landfill. Furthermore, heat and energy may be recovered and it helps to avoid open burning of municipal waste which creates much more harmful emissions and endangers human health and environment.



### Unique Features

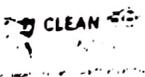
- Fire & Moisture resistant materials
- Hygienic materials & sturdy build quality
- Faster installation & Environment friendly functioning - Burns solid waste material permitted to be incinerated into pure ash within few of minutes adhering to relevant emission standards.
- Some of our high-end models provide Secondary filtering provision followed by combustion that ensures clean ash free emission in compliance with the emission prescribed under Environmental Protection rules.
- Highly economical in terms of Implementing, Operating and Maintenance compared to fuel-based incinerators.
- Made with branded raw materials under strict supervision of highly qualified and experienced professionals and Technicians

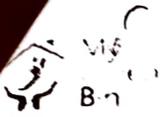
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# GREENRICH GROW INDIA PVT LTD

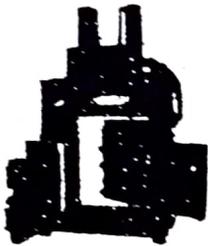


## C. MRF - Dry / Plastic Waste Management

A material recovery facility (MRF) receives pre-sorted streams of recyclables for dusting, baling, Conveyor, weighed and shipped to various end users.

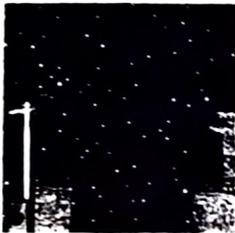


Plastic dust remover is used to remove mud and dust from the municipal plastic waste and PET before grinding for recycling process



Baling machine compresses material into a block (bale) which is secured by plastic or wire strapping and sent to recycling.

Weighing Scale is one of the important elements, which is required at transfer stations to measure the waste quantity coming at the transfer station and again transported from the site.



The system comprises of separation of dry waste metal and nonmetal waste; different sensors can be incorporated for detecting the material along the conveyor belt.



A Plastic Shredder is a machine used to cut plastic into smaller pieces.

\* The above product images are indicative

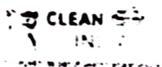
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# GREENRICH GROW INDIA PVT LTD



## COMMERCIAL PROPOSAL for WET, SANITARY & DRY WASTE

### 1. SOLUTION FOR WET WASTE MANAGEMENT - 1.5 TPD WET WASTE

| Sl. No | Quantity | Image   | Description of work  | Rate      | Amount    |
|--------|----------|---|--|-----------|-----------|
| 1      | 1.00     | Pair<br> | <p>Providing Composting Solution for Wet Waste of capacity from 1.5 TPD (capacity per day) with 2 nos - 1 pair of My Green Bin MGB 1000 with following specifications as below- Each MGB 1000 of size - L 6.50 m x 2.0 m x 1.20 m made out of FRP Panel of thickness 5mm with the interior of the bin finished with additional FRP ribs of width 200mm with 8mm aerator holes are made inside and outside, top and bottom, joined together with FRP lining and SS fasteners. The bottom tank to be of ht 100mm and covered with FRP plates of thickness 5mm with 8mm holes for the Leachate to be collected. The bottom tank is provided with 20mm Ball Valve -2 nos. The central portion to have FRP channels with 7 nos of 75mm aerator pipes with 8mm holes supported between top and bottom FRP channels with end cap. The sides to have 8 doors of dia 450 mm fixed with SS flat &amp; nut with plastic head. The panels to be supported with hot dip galvanised MS channels of 3mm thickness. The top of the bin provided with 8 doors, all with FRP of thickness 3mm with MS stay. The bin to be engulfed outside with 50mm x 25mm hot dip galvanised MS section at 2 levels. The bins will be provided with 2 Blowers mounted on FRP channel - Blower of specification: Single Phase, Power Input - 180 watts, Air Flow rate - 460 M3/ hr and the blower outlet of 32 mm/PVC pipe &amp; internally with 32mm /PVC pipes with raises of 25 mm/ PVC Pipe of height 150mm at spaced at a distance of 400mm. The bins are provided with SS handle of size 250 mm and SS Hinges complete.</p> | 17,92,000 | 17,92,000 |

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# GREENRICH GROW INDIA PVT LTD

Bin

|                  |      |                   |   |  |          |          |                  |
|------------------|------|-------------------|---|--|----------|----------|------------------|
| 2                | 1.00 | No                |    | Providing and Supplying of Precomposter with Working Capacity: 700-800 Kg per hr<br>Motor: 10 HP (5HP + 5 HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS   | 8,50,000 | 8,50,000 |                  |
| 3                | 1200 | 10 Ltr / 6 months |    | Supply of Greenrich Microbes (10Ltr Capacity)<br>Type of Bio Culture- Aerobic Microbial Composting Culture Culture<br>Specification- Composting agent formulated using cocopeat along with micro & macro nutrients and Cultured with Lignocellulolytic Organisms.<br>Fungal Population Count- In the range 105 to 106<br>Odour-Odour free<br>Electrical Conductivity- Within the range 0.4-3<br>pH- Within the range 5 - 6.5,<br>Composting Process- 30 days | 254      | 3,04,800 |                  |
| 4                | 1.00 | No                |  | Providing and supplying of Siever Machine with the following spec<br>Model MS Steel Manure Siever<br>Body Material MS Steel<br>Capacity 2 to 3 Tons per hour<br>Voltage 240<br>Automation Grade Semi-Automatic<br>Others<br>Screener Size 1500 x 600 mm<br>Usage/Application To Screen Manure<br>Color blue and white<br>Phase Single Phase  | 80,000   | 80,000   |                  |
| <b>SUB TOTAL</b> |      |                   |   |  |          |          | <b>30,26,800</b> |

(Rupees: Thirty lakhs twenty six thousand eight hundred only)

As per Govt Norms the applicable taxes will be extra as below

|                           |  |  |  |                       |                  |
|---------------------------|--|--|--|-----------------------|------------------|
|                           |  |  |  | GST @ 12% (Item no.1) | 2,15,040         |
|                           |  |  |  | GST @ 12% (Item no.2) | 1,02,000         |
|                           |  |  |  | GST @ 5% (Item no.3)  | 15,240           |
|                           |  |  |  | GST @ 18% (Item no.4) | 14,400           |
| <b>SUB TOTAL WITH GST</b> |  |  |  |                       | <b>33,73,480</b> |

(Rupees: Thirty three lakhs seventy three thousand four hundred and eighty only)

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# GREENRICH GROW INDIA PVT LTD



Bm

|                  |      |                   |   |  |          |                  |
|------------------|------|-------------------|---|--|----------|------------------|
| 2                | 1.00 | No                |    | Providing and Supplying of Precomposter with Working Capacity: 700-800 Kg per hr<br>Motor: 10 HP (5HP + 5 HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS   | 8,50,000 | 8,50,000         |
| 3                | 1200 | 10 Ltr / 6 months |    | Supply of Greenrich Microbes (10Ltr Capacity)<br>Type of Bio Culture- Aerobic Microbial Composting Culture<br>Specification- Composting agent formulated using cocopeat along with micro & macro nutrients and Cultured with Lignocellulolytic Organisms.<br>Fungal Population Count- In the range 105 to 108<br>Odour-Odour free<br>Electrical Conductivity- Within the range 0.4-3<br>pH- Within the range 5 - 6.5,<br>Composting Process- 30 days | 254      | 3,04,800         |
| 4                | 1.00 | No                |  | Providing and supplying of Siever Machine with the following spec<br>Model MS Steel Manure Siever<br>Body Material MS Steel<br>Capacity 2 to 3 Tons per hour<br>Voltage 240<br>Automation Grade Semi-Automatic<br>Others<br>Screener Size 1500 x 600 mm<br>Usage/Application To Screen Manure<br>Color blue and white<br>Phase Single Phase  | 80,000   | 80,000           |
| <b>SUB TOTAL</b> |      |                   |   |  |          | <b>30,26,800</b> |

(Rupees: Thirty lakhs twenty six thousand eight hundred only)

As per Govt Norms the applicable taxes will be extra as below

|                           |  |  |  |                       |                  |
|---------------------------|--|--|--|-----------------------|------------------|
|                           |  |  |  | GST @ 12% (Item no.1) | 2,15,040         |
|                           |  |  |  | GST @ 12% (Item no.2) | 1,02,000         |
|                           |  |  |  | GST @ 5% (Item no.3)  | 15,240           |
|                           |  |  |  | GST @ 18% (Item no.4) | 14,400           |
| <b>SUB TOTAL WITH GST</b> |  |  |  |                       | <b>33,73,480</b> |

(Rupees: Thirty three lakhs seventy three thousand four hundred and eighty only)

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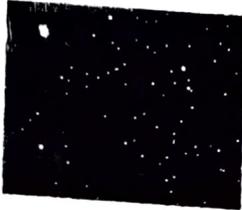
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# GREENRICH GROW INDIA PVT LTD

## 2. SOLUTIONS FOR MRF - 2 TPD DRY WASTE

| Sl. No | Quantity |    | Image   | Description of work  | Rate     | Amount   |
|--------|----------|----|---|--|----------|----------|
| 1      | 1.00     | No |    | Providing and Suppling of Dust Remover Machine with the following specification<br>-7.5Hp Motor New Standard Company<br>-8' L x 4' H x 5.5' W<br>-Roll Heavy Duty 115 MM<br>-45 MM Pedestal Bearing Heavy Duty<br>-Heavy Duty Machine Fabrication<br>-Starter Star Delta with on/off Button  | 3,00,000 | 3,00,000 |
| 2      | 1.00     | No |   | Providing and Suppling of Flat Conveyor with the following specification<br>5000mm Length x 750mm Width x 800mm Height<br>Belt : PVC Green Colour<br>Speed : 4m/min<br>Frames : Powder Coated MS<br>Roller : Zinc Coated MS<br>Power Input : Single Phase 230V<br>Speed : Variable through VFD   | 2,50,000 | 2,50,000 |
| 3      | 1.00     | No |  | Providing and Suppling of Balling Machine with the following specification<br>Capacity - 60 Ton Pressure Single Chamber Single Cylinder Baler Machine<br>Bale Size - 34(L)x26(W) in Inch<br>Bale Weight - 80-100 Kg<br>Chamber Size - 72 (L)x34(W)x26(H) In Inch<br>No. of Cylinder - 1 Nos.<br>No. of Glide - 2 Nos.<br>No. Of Door - 2 Nos.<br>No. of Striping - 3 Nos<br>Oil Tank Capacity - 300 Liters.<br>Production Rates - 20 To 25 Minuets<br>Hydraulic System - Vane Pump Systems.<br>Operation - 20 Size Hand levers Operate Systems.<br>Electric Motor - 10 HP Motor 3Phase<br>1440 RPM 50Hz<br>Electric Starter - Provided | 4,00,000 | 4,00,000 |

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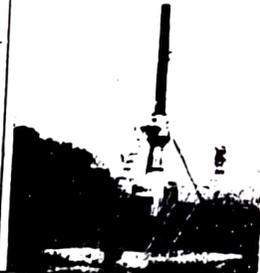


# GREENRICH GROW INDIA PVT LTD



|  |      |    |   |  |          |                  |
|--|------|----|---|--|----------|------------------|
| 4  | 1.00 | No |  | Providing and supplying of Plastic Waste Shredder with the following spec<br>Working Capacity: 1 Ton per hr<br>Motor: 20 HP (10HP + 10HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS | 9,00,000 | 9,00,000         |
| 5  | 1.00 | No |  | Supply and erection of Multi Purpose weighing machine having 500 kg capacity weighing scale, commercial weight machine for industry mildsteel having 50g accuracy complying with standard specifications                 | 25,000   | 25,000           |
| <b>SUB TOTAL</b>   |      |    |   |  |          | <b>18,75,000</b> |
| <b>(Rupees: Eighteen lakhs seventy five thousand only)</b>               |      |    |   |  |          |                  |
| <b>As per Govt Norms the applicable taxes will be extra as below</b>     |      |    |   |  |          |                  |
|  |      |    |   | GST @ 18% (Item no.1,2,3,5)  |          | 1,75,500         |
|  |      |    |   | GST @ 12% (Item no.4)  |          | 1,08,000         |
| <b>SUB TOTAL WITH GST</b>  |      |    |   |  |          | <b>21,58,500</b> |
| <b>(Rupees: Twenty one lakhs fifty eight thousand five hundred only)</b> |      |    |   |  |          |                  |

### 3. SOLUTION FOR DOMESTIC HAZARDOUS WASTE AND MSW

| Sl. No   | Quantity |    | Image   | Description of work  | Rate      | Amount           |
|--|----------|----|---|--|-----------|------------------|
| 1  | 1.00     | No |  | Providing and supplying of "GREENRICH" zero fuel General Solid Waste Burner (Model No: GRE200PCS) - 2.2 cubic meter (200kg/hr.) with pollution control system. Dispensing Time: 200kgs/45 mins<br>Chamber size: Dia x Ht: 1250 x 1650 mm, Weight: 2.7 ton<br>Chimney Size: 6 mts | 12,50,000 | 12,50,000        |
| <b>SUB TOTAL</b>   |          |    |   |  |           | <b>12,50,000</b> |
| <b>(Rupees: Twelve lakhs fifty thousand only)</b>                    |          |    |   |  |           |                  |
| <b>As per Govt Norms the applicable taxes will be extra as below</b> |          |    |   |  |           |                  |
|  |          |    |   | GST @ 18% (Item no.1)  |           | 2,25,000         |
| <b>SUB TOTAL WITH GST</b>  |          |    |   |  |           | <b>14,75,000</b> |
| <b>(Rupees: Fourteen lakhs seventy five thousand only)</b>           |          |    |   |  |           |                  |

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# GREENRICH GROW INDIA PVT LTD



| SUMMARY   |                            |                          |
|---|----------------------------|--------------------------|
|   | Amount (Rs)<br>without GST | Amount (Rs)<br>Incl. GST |
| Cost for MCC (for Wet waste management)                     | 30,26,800.00               | 33,73,480.00             |
| Cost for MRF (for dry waste management)                     | 18,75,000.00               | 21,58,500.00             |
| Cost for Incinerator (for Domestic hazardous waste and MSW) | 12,50,000.00               | 14,75,000.00             |
| <b>TOTAL</b>  | <b>61,51,800.00</b>        | <b>70,06,980.00</b>      |

## • TRANSPORTATION CHARGES EXTRA

### Terms:

- Payment : 50 % as advance along with the confirmed order  
40% on delivery  
10% on installation
- Delivery : 40 days from the date of Work Order and Advance
- Validity : 1 month from date of proposal.

### Conclusion

With our strong expertise we guarantee to provide you an end to end solution for solid waste management for wet, dry and hazardous waste. We can design an optimum solution with our home composting and onsite composting system, a decentralized system for effectively handling the wet waste and utilizing the byproducts compost or biogas or electricity for production. The rest of the dry and hazardous waste can be recycled or incinerated.

With Warm Regards  
For Greenrich Grow India Pvt Ltd

**S. Saravanas**  
Director  
98404 75000

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PROJECT REPORT ON  
**SOLID WASTE MANAGEMENT SOLUTIONS**

(Wet, Dry & Sanitary/MSW Wastes)

To

The Block Development Officer (VP)  
Kundrathur Panchayat Union  
Padappal

Project @ Iyappanthangal Panchayat

**Submitted by**

**GREENRICH GROW INDIA PVT LTD**

Door No. 31A, Chockanathan 2nd Street,

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# GREENRICH GROW INDIA PVT LTD



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## GREENRICH GROW INDIA PVT LTD



### About Greenrich

Greenrich Group is an ISO Certified 14001:2015 "Effective Environment Management System" and CE Certified Company which is into providing end-to-end Eco-friendly Waste Management & Environmental Solutions since 2017. Greenrich products are patented innovative technology & certified by CII and IGBC as "GREENPRO", a mark of guarantee that the product is environment friendly throughout its life cycle.

We are empaneled by Chennai Municipal Corporation (GCC), Municipal Corporation Gurugram (MCG), Faridabad Municipality, Municipal Corporation of Greater Mumbai (MCGM), Navi Mumbai Municipal Corporation (NMMC), Pune Municipal Corporation (PMC), Pimpri-Chinchwad Municipal Corporation (PCMC), Indore Municipal Corporation (IMC). We are authorized vendors of GHMC, GVMC, Suryapet Municipality, Nellore Municipality, Sircilla Municipality and many others. We are assessed vendors of GEM e-procurement portal, CREDAI & CII.

### Certifications

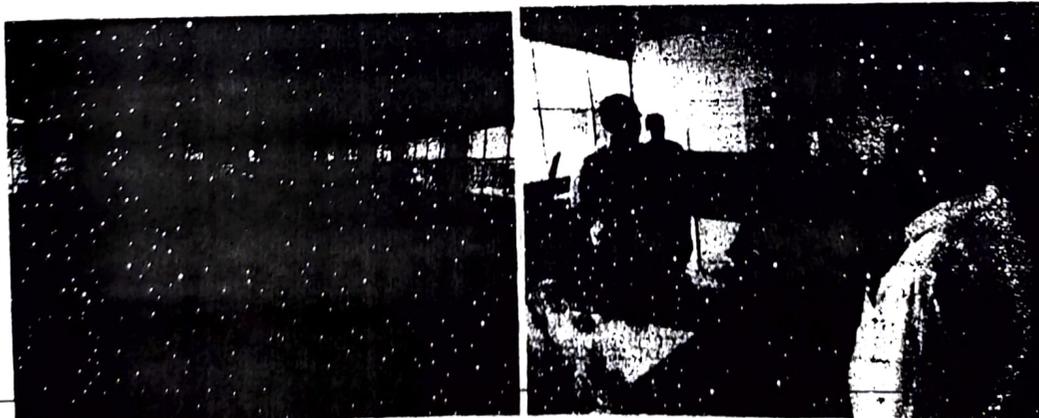
- MSME – Udyam Registration Certificate
- NSIC – Government Purchase Enlistment Certificate
- ISO 14001:2015 – Environment Management System
- CE - Compliance Certificate
- GreenPro - Certified by CII and IGBC.
- TradeMark Certificate
- Patent – Certificate of Registration of Design – for Composting Bins
- BEE Certification

Greenrich's End-To-End Solution for Solid Waste Management @ Iyyappanthangal Panchayat

### Site Visit & Assessment of Waste Generated @ Iyyappanthangal Panchayat

Further to the site inspection and detailed survey, the quantity of waste assessed in Iyyappanthangal Panchayat is about 7-8 TPD waste which includes Wet waste (5 TPD), Dry waste (2 TPD) & Sanitary and MSW waste (upto 1 TPD).

### @ Iyyappanthangal Panchayat



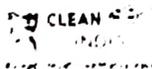
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## GREENRICH GROW INDIA PVT LTD



To implement the Waste management effectively and reduce the amount of waste going into Landfill following solutions can be implemented at both MICRO level and MACRO level.

### *End to End Solution for Solid Waste Management with Greenrich*

1. *Solution for Wet Waste (MCC) with Greenrich Composters*
2. *Solution for Sanitary Waste with Greenrich Inclinerator*
3. *Solution for Dry (MRF) Waste Management*

#### A. Solution for Wet Waste Management

Composting is a natural micro-biological process, where the fungal inoculum break down the organic fractions of the solid waste stream under controlled conditions to produce a pathogen-free material called "Compost" that can be used for potting soil, soil amendments and mulch. The microbes, fungi, and macro-organisms that contribute to this biological decomposition is aerobic in nature.

Greenrich Grow proposes a state-of-the-art enhanced accelerated composting process for the wet waste which will drastically reduce the duration of composting process than the conventional way.

Greenrich Composting is accelerated by optimised and controlled process parameters like input material, temperature, moisture, and pH. The process uses special aerobic microbes, Fungal Inoculum that are produced at Greenrich laboratory for the accelerated composting process. These micro-organisms or Fungal Inoculums will degrade the organic materials and turn it into a compost which can be used a fertilizer. Finished compost looks like soil- dark brown, crumbly and smells like a forest floor.

**Byproducts:** The byproducts from composting process are organic manure and BioBooster which can be used as nutrient rich solid and liquid fertilizer.

#### Highlights on the salient features of MY GREEN BIN

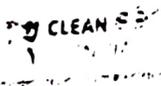
- We have different capacity of composters, providing solutions from single house hold to multiple dwelling, from small restaurants to star hotels, from institutional canteens to large industrial canteens.
- My Green Bins are made of FRP material – Fiber Reinforced Plastic that are designed for better resistance and high durability. Hassle free, easy to use, easy to maintain and easy to convert your organic waste to organic manure. Completely safe, Totally Green Natural Composting in 30 days. Odour free & No Sludge system.
- Mygreenbin can digest the Flower and Food waste in Temples and convert them into good quality Organic Manure. The unque feature is that, any organic waste cooked or uncooked, vegetarian waste as well as non-vegetarian waste can be digested by our system.
- Other major advantage of Mygreenbin is minimum mechanical or electrical energy is required in the process for aeration and shredding as there is no heating system involved.
- It is a natural process, using organically cultivated Microorganisms, a totally green composting method that is very much user friendly.
- Operator doesn't have to be qualified technical person. No service or maintenance or parts replacement is required for the composters.

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# GREENRICH GROW INDIA PVT LTD



- We also provide Micro Composting units in localities with a population of 7000 to 8000 families for Municipalities and City Corporations, thus save the transportation cost for transferring the garbage into dumb yards, reduce the pollution as well as save precious natural resources. The output – which is an Organic Manure - also will be used for developing the greenery in the localities.

## Segregation of Waste: Waste Can be segregated as

**Bio Degradable Waste:** Bio Degradable waste includes organic waste, e.g. kitchen waste, vegetables, fruits, flowers, leaves from the garden and paper.

**Non Bio Degradable Waste:** Non-Biodegradables can be further segregated into Recyclable Waste, Toxic Waste & Soiled Waste

**WASTES TO BE SEPARATED AND STORED IN BIN OR RETURNED HOME**

**BIODEGRADABLE WASTE (RED BIN)**

Vegetable waste, Fruit waste, Kitchen waste, Paper, Leaves, Flowers, Garden waste, etc.

**RECYCLABLE WASTE (BLUE BIN)**

Plastic bottles, Glass bottles, Metal cans, Paper, etc.

**NON-RECYCLABLE WASTE (BLACK BIN)**

Styrofoam, Broken glass, Broken metal, etc.

**DO'S**

**What to Compost**

Vegetable Peels | Cooked Food | Fruit Seeds | Egg Shells | Hair-Nag Food | Residues | Garbage Peels Peels | Tea bags | Coffee grounds | Leaf plates | Paper-Carton waste | Pallets leaves

**DONT'S**

**Please Avoid**

Sanitary Napkins | Disposable Diapers | Bandages | Glass | Wire | Cloth | Any material contaminated with blood | Polymers | Leather | Rubber | Thermoset | Plastic | Metal | Paper | Wood Shavings

**H Waste - Hazardous waste**

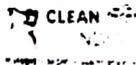
Subsides | Bulbs | Batteries | Electronic waste | Poisons | Cleaning agents | Oil | Aerosol cans | Composites | Oxygen cylinders | Medicines | Thermostats

## Composting As a Solution

Composting is microbial degradation process where aerobic bacteria under optimum condition convert the biodegradable into valuable rich fertilizer. In this way the wastes that are generated are being taken care of in a sustainable way as well as wastes that are composted can be used as an organic fertilizer instead of synthetic fertilizer.

## Composting Benefits

- Compost that is applied into soil will continue to breakdown and in due course with parameters such as temperature, rainfall and feedstocks; a portion of that composted organic matter may become part of the soil's long term carbon pool (sequestration)
- The other indirect effects such as increased soil moisture holding capacity and a reduction in the need for fertilizers, herbicides or fungicide could result in less irrigation, which would mean less energy used and avoidance of GHGs.
- The biggest benefit of most compost comes from emission avoidance from diverting Organic MSWs to landfills. The end use of compost provides some GHG benefits, both directly through sequestration and indirectly through improve soil health, reduces soil loss, increased water infiltration and storage and reduction of other inputs.





## Benefit of using Fungal Inoculum (Microbes)

- Fungal Inoculum performs important services related to water dynamics, nutrient cycling, and disease suppression.
- They are important as decomposers in the soil food web.
- They convert hard-to-digest organic material into forms that other organisms can use.
- They physically bind soil particles together, creating stable aggregates that help increase water infiltration and soil water holding capacity.
- The Fungal Inoculum decomposes the waste aerobically into high nutrient organic planting media and manure.
- The advantage is that no churning or rotation process is involved.

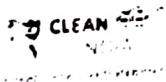
## Aerobic Process Inside the Digester

- Microbes will start forming as Mycelium, a Fungus that starts producing Enzymes. Mycelium will start growing in 5 days inside our bins and the breaking down will happen subsequently. After 5<sup>th</sup> day the reduction process will be very fast as the microbes starts multiplying.
- Major component of the waste is Carbohydrate, Fat and Protein. It will get broken into smaller particles of Sugar, Amino Acids, Fatty Acids or Glycerol. This will be Absorbed by Mycelium-as Food.
- In this process, Nitrogen will be converted into Nitrogen Oxide because it is completely Oxidized. No Methane or any other Obnoxious gases are produced in an oxidizing environment. That is why our bins are fitted with Aerators.
- Ammonia, Hydrogen Sulphide, etc are Obnoxious gases that will stink. The Carbon Dioxide, Nitrogen Dioxide, Sulphur Dioxide produced doesn't stink in MYGREENBINS, as they are converted as Oxides that helps in preventing bad odour from the wet waste.
- Leachet is used as a "Folio Spray" and should not be applied to the roots as it will immediately get absorbed.
- Mycelium keeps attacking the Organic Wet Waste and is seen spread on the top layer, brown in colour.

## Byproducts from the composting process

The liquid & solid manure produced from composting has proved a boon to our farmers across all types of crop cultivation and has drastically reduced the usage of chemical fertilizers and pesticides.

*The liquid compost acts as the best organic bio booster & insecticide and the solid manure a full-fledged organic fertilizer thereby eliminating large incidents of cancer and other health hazards.*



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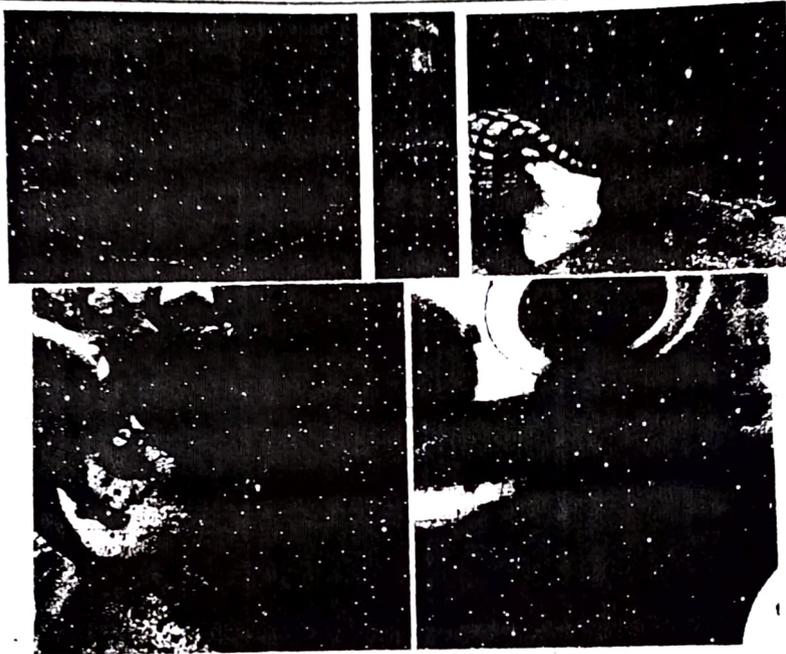
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Website: <http://www.mygreenbin.in>

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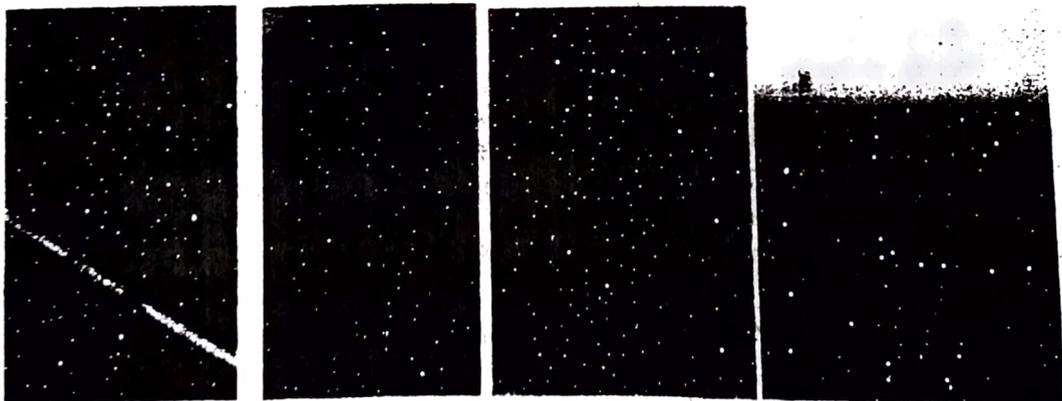




**Rejuvenating Organic cultivation among farmers**

Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs.

Chilli, Wheat, Strawberry & Mango Farms using My Green Bin compost and compost tea in Wai Satara, MAHARASHTRA.

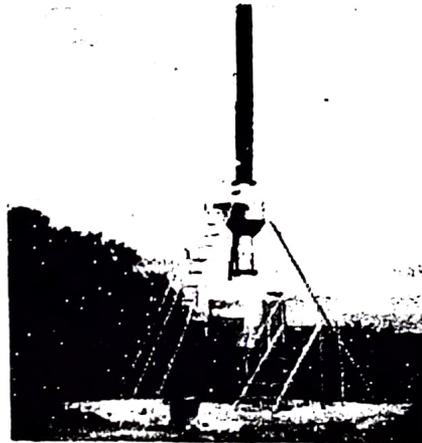
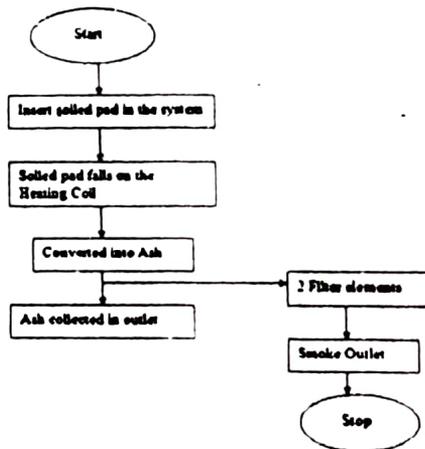




## B. Solution for Hazardous Waste – Sanitary Waste & MSW

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials. Incineration and other high-temperature waste treatment systems are described as "thermal treatment". Incineration of waste materials converts the waste into ash, flue gas and heat.

Greenrich incinerators are a useful technology available through an economically feasible and environment-friendly method to combust household sanitary waste & medical waste, instead of discharging it in a landfill. Furthermore, heat and energy may be recovered and it helps to avoid open burning of municipal waste which creates much more harmful emissions and endanger human health and environment.



### Unique Features

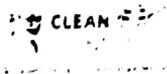
- Fire & Moisture resistant materials
- Hygienic materials & sturdy build quality
- Faster installations & Environment friendly functioning - Burns solid waste material permitted to be incinerated into pure ash within few of minutes adhering to relevant emission standards.
- Some of our high-end models provide Secondary filtering provision followed by combustion that ensures clean ash free emission in compliance with the emission prescribed under Environmental Protection rules.
- Highly economical in terms of Implementing, Operating and Maintenance compared to fuel-based incinerators.
- Made with branded raw materials under strict supervision of highly qualified and experienced professionals and Technicians

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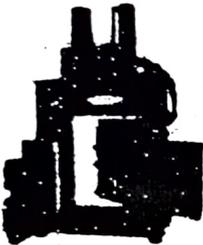


## C. MRF - Dry / Plastic Waste Management

A material recovery facility (MRF) receives pre-sorted streams of recyclables for dusting, baling, Conveyor, weighed and shipped to various end users.



Plastic dust remover is used to remove mud and dust from the municipal plastic waste and PET before grinding for recycling process



Baling machine compresses material into a block (bale) which is secured by plastic or wire strapping and sent to recycling.

Weighing Scale is one of the important elements, which is required at transfer stations to measure the waste quantity coming at the transfer station and again transported from the site.



The system comprises of separation of dry waste metal and nonmetal waste; different sensors can be incorporated for detecting the material along the conveyor belt.



A Plastic Shredder is a machine used to cut plastic into smaller pieces.

\* The above product images are indicative



# GREENRICH GROW INDIA PVT LTD

## COMMERCIAL PROPOSAL for WET, SANITARY & DRY WASTE

### 1. SOLUTION FOR WET WASTE MANAGEMENT - 5 TPD WET WASTE

| Sl. No | Quantity   | Image | Description of work   | Rate      | Amount    |
|--------|------------|-------|---|-----------|-----------|
| 1      | 3.00 Pairs |       | <p>Providing Composting Solution for Wet Waste of capacity from 5 TPD (capacity per day) with 6 nos - 3 pair of My Green Bin MGB 1000 with following specifications as below- Each MGB 1000 of size - L 6.50 m x 2.0 m x 1.20 m made out of FRP Panel of thickness 5mm with the interior of the bin finished with additional FRP ribs of width 200mm with 8mm aerator holes are made inside and outside, top and bottom, joined together with FRP lining and SS fasteners. The bottom tank to be of ht 100mm and covered with FRP plates of thickness 5mm with 8mm holes for the Leachate to be collected. The bottom tank is provided with 20mm Ball Valve -2 nos. The central portion to have FRP channels with 7 nos of 75mm aerator pipes with 8mm holes supported between top and bottom FRP channels with end cap. The sides to have 8 doors of dia 450 mm fixed with SS flat &amp; nut with plastic head. The panels to be supported with hot dip galvanised MS channels of 3mm thickness. The top of the bin provided with 8 doors, all with FRP of thickness 3mm with MS stay. The bin to be engulfed outside with 50mm x 25mm hot dip galvanised MS Section at 2 levels. The bins will be provided with 2 Blowers mounted on FRP channel - Blower of specification: Single Phase, Power Input - 180 watts, Air Flow rate - 460 M<sup>3</sup>/ hr and the blower outlet of 32 mm/PVC pipe &amp; internally with 32mm /PVC pipes with raises of 25 mm/ PVC Pipe of height 150mm at spaced at a distance of 400mm. The bins are provided with SS handle of size 250 mm and SS Hinges complete.</p> | 17,92,000 | 53,76,000 |

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CLEAN



# GREENRICH GROW INDIA PVT LTD



|                  |      |                   |   |  |           |                  |
|------------------|------|-------------------|---|--|-----------|------------------|
| 2                | 1.00 | No                |    | Providing and Supplying of Precomposter with Working Capacity: 800-1000 Kg per hr<br>Motor: 15 HP (7.5HP + 7.5 HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS  | 12,50,000 | 12,50,000        |
| 3                | 3600 | 10 Ltr / 8 months |    | Supply of Greenrich Microbes (10Ltr Capacity)<br>Type of Bio Culture- Aerobic Microbial Composting Culture<br>Specification- Composting agent formulated using cocopeat along with micro & macro nutrients and Cultured with Lignocellulolytic Organisms.<br>Fungal Population Count- In the range 105 to 106<br>Odour-Odour free<br>Electrical Conductivity- Within the range 0.4-3<br>pH- Within the range 5 - 6.5,<br>Composting Process- 30 days | 254       | 9,14,400         |
| 4                | 1.00 | No                |  | Providing and supplying of Siever Machine with the following spec<br>Model MS Steel Manure Siever<br>Body Material MS Steel<br>Capacity 2 to 3 Tons per hour<br>Voltage 240<br>Automation Grade Semi-Automatic<br>Others<br>Screener Size 1500 x 600 mm<br>Usage/Application To Screen Manure<br>Color blue and white<br>Phase Single Phase  | 80,000    | 80,000           |
| <b>SUB TOTAL</b> |      |                   |   |  |           | <b>76,20,400</b> |

**(Rupees: Seventy six lakhs twenty thousand four hundred only)**

**As per Govt Norms the applicable taxes will be extra as below**

|                           |  |  |  |                       |                  |
|---------------------------|--|--|--|-----------------------|------------------|
|                           |  |  |  | GST @ 12% (Item no.1) | 6,45,120         |
|                           |  |  |  | GST @ 12% (Item no.2) | 1,50,000         |
|                           |  |  |  | GST @ 5% (Item no.3)  | 45,720           |
|                           |  |  |  | GST @ 18% (Item no.4) | 14,400           |
| <b>SUB TOTAL WITH GST</b> |  |  |  |                       | <b>84,75,640</b> |

**(Rupees: Eighty four lakhs seventy five thousand six hundred and forty only)**

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# GREENRICH GROW INDIA PVT LTD

## 2. SOLUTIONS FOR MRF - 2 TPD DRY WASTE

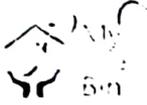
| Sl. No | Quantity |    | Image   | Description of work   | Rate     | Amount   |
|--------|----------|----|---|---|----------|----------|
| 1      | 1.00     | No |    | Providing and Suppling of Dust Remover Machine with the following specification<br>-7.5Hp Motor New Standard Company<br>-8' L x 4' H x 5.5' W<br>-Roll Heavy Duty 115 MM<br>-45 MM Pedestal Bearing Heavy Duty<br>-Heavy Duty Machine Fabrication<br>-Starter Star Delta with on/off Button   | 3,00,000 | 3,00,000 |
| 2      | 1.00     | No |   | Providing and Suppling of Flat Conveyor with the following specification<br>5000mm Length x 750mm Width x 800mm Height<br>Belt : PVC Green Colour<br>Speed : 4m/min<br>Frames : Powder Coated MS<br>Roller : Zinc Coated MS<br>Power Input : Single Phase 230V<br>Speed : Variable through VFD  | 2,50,000 | 2,50,000 |
| 3      | 1.00     | No |  | Providing and Suppling of Bailing Machine with the following specification<br>Capacity - 60 Ton Pressure Single Chamber Single Cylinder Baler Machine<br>Bale Size - 34(L)x26(W) in Inch<br>Bale Weight - 80-100 Kg<br>Chamber Size - 72 (L)x34(W)x26(H) in Inch<br>No. of Cylinder - 1 Nos.<br>No. of Gide - 2 Nos.<br>No. Of Door - 2 Nos.<br>No. of Striping - 3 Nos<br>Oil Tank Capacity - 300 Liters.<br>Production Rates - 20 To 25 Minuets<br>Hydraulic System - Vane Pump Systems.<br>Operation - 20 Size Hand levers Operate Systems.<br>Electric Motor - 10 HP Motor 3Phase<br>1440 RPM 50HZ<br>Electric Starter - Provided | 4,00,000 | 4,00,000 |

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## GREENRICH GROW INDIA PVT LTD



|   |      |    |   |   |          |                  |
|---|------|----|---|---|----------|------------------|
| 4   | 1.00 | No |  | Providing and supplying of Plastic Waste Shredder with the following spec<br>Working Capacity: 1Ton per hr<br>Motor: 20 HP (10HP + 10HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS | 9,00,000 | 9,00,000         |
| 5   | 1.00 | No |  | Supply and erection of Multi Purpose weighing machine having 500 kg capacity weighing scale, commercial weight machine for industry mildsteel having 50g accuracy complying with standard specifications                | 25,000   | 25,000           |
| <b>SUB TOTAL</b>  |      |    |   |   |          | <b>18,75,000</b> |
| (Rupees: Eighteen lakhs seventy five thousand only)               |      |    |   |   |          |                  |
| As per Govt Norms the applicable taxes will be extra as below     |      |    |   |   |          |                  |
|   |      |    |   | GST @ 18% (Item no.1,2,3,5)   |          | 1,75,500         |
|   |      |    |   | GST @ 12% (Item no.4)   |          | 1,08,000         |
| <b>SUB TOTAL WITH GST</b>   |      |    |   |   |          | <b>21,58,500</b> |
| (Rupees: Twenty one lakhs fifty eight thousand five hundred only) |      |    |   |   |          |                  |

### 3. SOLUTION FOR DOMESTIC HAZARDOUS WASTE AND MSW

| Sl. No  | Quantity |    | Image   | Description of work  | Rate      | Amount           |
|---|----------|----|---|--|-----------|------------------|
| 1   | 1.00     | No |  | Providing and supplying of "GREENRICH" zero fuel General Solid Waste Burner (Model No: GRE200PCS) - 2.2 cubic meter (200kg/hr.) with pollution control system. Dispensing Time: 200kgs/45 mins<br>Chamber size: Dia x Ht: 1250 x 1650 mm, Weight: 2.7 ton<br>Chimney Size: 6 mts | 12,50,000 | 12,50,000        |
| <b>SUB TOTAL</b>  |          |    |   |  |           | <b>12,50,000</b> |
| (Rupees: Twelve lakhs fifty thousand only)                    |          |    |   |  |           |                  |
| As per Govt Norms the applicable taxes will be extra as below |          |    |   |  |           |                  |
|   |          |    |   | GST @ 18% (Item no.1)  |           | 2,25,000         |
| <b>SUB TOTAL WITH GST</b>                                     |          |    |   |  |           | <b>14,75,000</b> |
| (Rupees: Fourteen lakhs seventy five thousand only)           |          |    |   |  |           |                  |

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# GREENRICH GROW INDIA PVT LTD



| SUMMARY   |                            |                         |
|---|----------------------------|-------------------------|
|   | Amount (Rs)<br>without GST | Amount (Rs)<br>Incl.GST |
| Cost for MCC (for Wet waste management)                     | 76,20,400.00               | 84,75,640.00            |
| Cost for MRF (for dry waste management)                     | 18,75,000.00               | 21,58,500.00            |
| Cost for Incinerator (for Domestic hazardous waste and MSW) | 12,50,000.00               | 14,75,000.00            |
| <b>TOTAL</b>  | <b>1,07,45,400.00</b>      | <b>1,21,09,140.00</b>   |

## • TRANSPORTATION CHARGES EXTRA

### Terms:

|          |   |  |
|----------|---|--|
| Payment  | : | 50 % as advance along with the confirmed order<br>40% on delivery<br>10% on installation |
| Delivery | : | 40 days from the date of Work Order and Advance  |
| Validity | : | 1 month from date of proposal.   |

### Conclusion

With our strong expertise we guarantee to provide you an end to end solution for solid waste management for wet, dry and hazardous waste. We can design an optimum solution with our home composting and onsite composting system, a decentralized system for effectively handling the wet waste and utilizing the byproducts compost or biogas or electricity for production. The rest of the dry and hazardous waste can be recycled or incinerated.

With Warm Regards  
For Greenrich Grow India Pvt Ltd

**S. Saravanaraj**  
Director  
98404 75000

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PROJECT REPORT ON  
**SOLID WASTE MANAGEMENT SOLUTIONS**

(Wet, Dry & Sanitary/MSW Wastes)

To

The Block Development Officer (VP)  
Kundrathur Panchayat Union  
Padappai

Project @ Kolapakkam Panchayat

**Submitted by**

**GREENRICH GROW INDIA PVT LTD**

Door No. 31A, Chockanathan 2nd Street,

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# GREENRICH GROW INDIA PVT LTD

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# GREENRICH GROW INDIA PVT LTD

## About Greenrich

Greenrich Group is an ISO Certified 14001:2015 "Effective Environment Management System" and CE Certified Company which is into providing end-to-end Eco-friendly Waste Management & Environmental Solutions since 2017. Greenrich products are patented innovative technology & certified by CII and IGBC as "GREENPRO", a mark of guarantee that the product is environment friendly throughout its life cycle.

We are empaneled by Chennai Municipal Corporation (GCC), Municipal Corporation Gurugram (MCG), Faridabad Municipality, Municipal Corporation of Greater Mumbai (MCGM), Navi Mumbai Municipal Corporation (NMMC), Pune Municipal Corporation (PMC), Pimpri-Chinchwad Municipal Corporation (PCMC), Indore Municipal Corporation (IMC). We are authorized vendors of GHMC, GVMC, Suryapet Municipality, Nellore Municipality, Sirsilla Municipality and many others. We are assessed vendors of GEM e-procurement portal, CREDAI & CII.

## Certifications

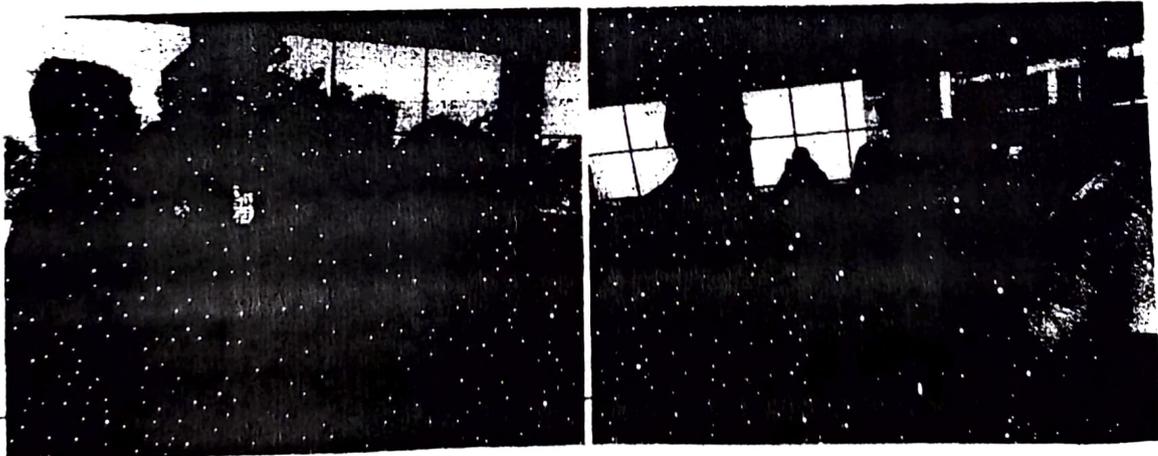
- MSME – Udyam Registration Certificate
- NSIC – Government Purchase Enlistment Certificate
- ISO 14001:2015 – Environment Management System
- CE - Compliance Certificate
- GreenPro - Certified by CII and IGBC
- TradeMark Certificate
- Patent – Certificate of Registration of Design – for Composting Bins
- BEE Certification

Greenrich's End-To-End Solution for Solid Waste Management @ Kolapakkam Panchayat

## Site Visit & Assessment of Waste Generated @ Kolapakkam Panchayat

Further to the site inspection and detailed survey, the quantity of waste assessed in Kolapakkam Panchayat is about 7-8 TPD waste which includes Wet waste (5 TPD), Dry waste (2 TPD) & Sanitary and MSW waste (upto 1 TPD).

## @ Kolapakkam Panchayat



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## GREENRICH GROW INDIA PVT LTD

To implement the Waste management effectively and reduce the amount of waste going into Landfill following solutions can be implemented at both MICRO level and MACRO level.

### **End to End Solution for Solid Waste Management with Greenrich**

1. Solution for Wet Waste (MCC) with Greenrich Composters
2. Solution for Sanitary Waste with Greenrich Incinerator
3. Solution for Dry (MRF) Waste Management

#### **A. Solution for Wet Waste Management**

Composting is a natural micro-biological process, where the fungal inoculum break down the organic fractions of the solid waste stream under controlled conditions to produce a pathogen-free material called "Compost" that can be used for potting soil, soil amendments and mulch. The microbes, fungi, and macro-organisms that contribute to this biological decomposition is aerobic in nature.

Greenrich Grow proposes a state-of-the-art enhanced accelerated composting process for the wet waste which will drastically reduce the duration of composting process than the conventional way.

Greenrich Composting is accelerated by optimised and controlled process parameters like input material, temperature, moisture, and pH. The process uses special aerobic microbes, Fungal Inoculum that are produced at Greenrich laboratory for the accelerated composting process. These micro-organisms or Fungal Inoculums will degrade the organic materials and turn it into a compost which can be used as a fertilizer. Finished compost looks like soil— dark brown, crumbly and smells like a forest floor.

**Byproducts:** The byproducts from composting process are organic manure and BioBooster which can be used as nutrient rich solid and liquid fertilizer.

#### **Highlights on the salient features of MY GREEN BIN**

- We have different capacity of composters, providing solutions from single house hold to multiple dwelling, from small restaurants to star hotels, from Institutional canteens to large industrial canteens.
- My Green Bins are made of FRP material – Fiber Reinforced Plastic that are designed for better resistance and high durability. Hassle free, easy to use, easy to maintain and easy to convert your organic waste to organic manure. Completely safe, Totally Green Natural Composting in 30 days. Odour free & No Sludge system.
- Mygreenbin can digest the Flower and Food waste in Temples and convert them into good quality Organic Manure. The unique feature is that, any organic waste cooked or uncooked, vegetarian waste as well as non-vegetarian waste can be digested by our system.
- Other major advantage of Mygreenbin is minimum mechanical or electrical energy is required in the process for aeration and shredding as there is no heating system involved.
- It is a natural process, using organically cultivated Microorganisms, a totally green composting method that is very much user friendly.
- Operator doesn't have to be qualified technical person. No service or maintenance or parts replacement is required for the composters.

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# GREENRICH GROW INDIA PVT LTD

- We also provide Micro Composting units in localities with a population of 7000 to 8000 families for Municipalities and City Corporations, thus save the transportation cost for transferring the garbage into dump yards, reduce the pollution as well as save precious natural resources. The output - which is an Organic Manure - also will be used for developing the greenery in the localities.

## Segregation of Waste: Waste Can be segregated as

**Bio Degradable Waste:** Bio Degradable waste includes organic waste, e.g. kitchen waste, vegetables, fruits, flowers, leaves from the garden and paper.

**Non Bio Degradable Waste:** Non-Biodegradables can be further segregated into Recyclable Waste, Toxic Waste & Solled Waste

**WASTES TO BE SEGREGATED AND STORED IN BIN AS DETAINED BELOW**

**My Bin**

**BIODEGRADABLE WASTE (GREEN BIN)**  
 Vegetable peels, fruit peels, kitchen waste, garden waste, leaves, flowers, paper, etc.

**RECYCLABLE WASTE (BLUE BIN)**  
 Paper, cardboard, plastic bottles, glass bottles, metal cans, etc.

**NON-RECYCLABLE WASTE (RED BIN)**  
 Plastic, metal, glass, etc.

**DO'S**  
 What to Compost: Vegetable peels, Kitchen Peels, Fruit peels, Egg Shells, Non-veg Food, Flowers, Cardboard, Fruit Peels, Tea bags, Coffee grounds, Leaf plants, Tarpaulin waste, Fallen leaves.

**DONT'S**  
 Please Avoid: Sanitary Napkins, Disposable Diapers, Bandages, Glass, Wire, Cloth, Any material contaminated with blood, Plastic, Leather, Rubber, Thermoset, Plastic, Metal, Paper, Used Shells.

**E Waste - Hazardous waste**  
 Telelight, Bulbs, Batteries, Electronic waste, Paints, Cleaning agents, Oil, Aerosol cans, Currencies, Synthetic materials, Medicines, Thermometers.

## Composting As a Solution

Composting is microbial degradation process where aerobic bacteria under optimum condition convert the biodegradable into valuable rich fertilizer. In this way the wastes that are generated are being taken care of in a sustainable way as well as wastes that are composted can be used as an organic fertilizer instead of synthetic fertilizer.

## Composting Benefits

- Compost that is applied into soil will continue to breakdown and in due course with parameters such as temperature, rainfall and feedstocks; a portion of that composted organic matter may become part of the soil's long term carbon pool (sequestration)
- The other indirect effects such as increased soil moisture holding capacity and a reduction in the need for fertilizers, herbicides or fungicide could result in less irrigation, which would mean less energy used and avoidance of GHGs.
- The biggest benefit of most compost comes from emission avoidance from diverting Organic MSWs to landfills. The end use of compost provides some GHG benefits, both directly through sequestration and indirectly through improve soil health, reduces soil loss, increased water infiltration and storage and reduction of other inputs.



## GREENRICH GROW INDIA PVT LTD

### Benefit of using Fungal Inoculum (Microbes)

- Fungal Inoculum performs important services related to water dynamics, nutrient cycling, and disease suppression.
- They are important as decomposers in the soil food web.
- They convert hard-to-digest organic material into forms that other organisms can use.
- They physically bind soil particles together, creating stable aggregates that help increase water infiltration and soil water holding capacity.
- The Fungal Inoculum decomposes the waste aerobically into high nutrient organic planting media and manure.
- The advantage is that no churning or rotation process is involved.

### Aerobic Process Inside the Digester

- Microbes will start forming as Mycellium, a Fungus that starts producing Enzymes. Mycellium will start growing in 5 days inside our bins and the breaking down will happen subsequently. After 5<sup>th</sup> day the reduction process will be very fast as the microbes starts multiplying.
- Major component of the waste is Carbohydrate, Fat and Protein. It will get broken into smaller particles of Sugar, Amino Acids, Fatty Acids or Glycerol. This will be Absorbed by Mycellium as Food.
- In this process, Nitrogen will be converted into Nitrogen Oxide because it is completely Oxidized. No Methane or any other Obnoxious gases are produced in an oxidizing environment. That is why our bins are fitted with Aerators.
- Ammonia, Hydrogen Sulphide, etc are Obnoxious gases that will stink. The Carbon Dioxide, Nitrogen Dioxide, Sulphur Dioxide produced doesn't stink in MYGREENBINS, as they are converted as Oxides that helps in preventing bad odour from the wet waste.
- Leachet is used as a "Folio Spray" and should not be applied to the roots as it will immediately get absorbed.
- Mycellium keeps attacking the Organic Wet Waste and is seen spread on the top layer, brown in colour.

### Byproducts from the composting process

The liquid & solid manure produced from composting has proved a boon to our farmers across all types of crop cultivation and has drastically reduced the usage of chemical fertilizers and pesticides.

The liquid compost acts as the best organic bio booster & insecticide and the solid manure a full-fledged organic fertilizer thereby eliminating large incidents of cancer and other health hazards.

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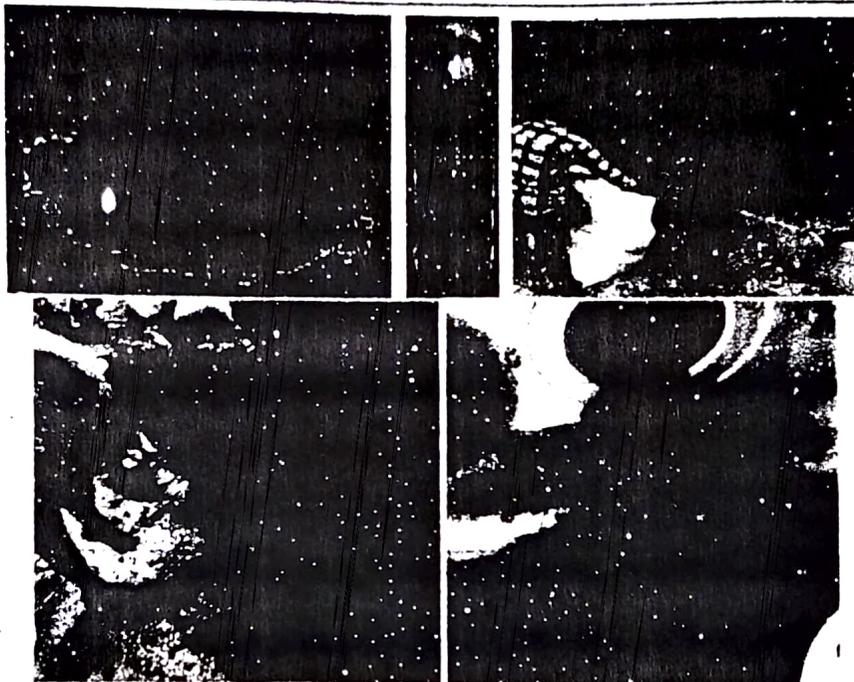
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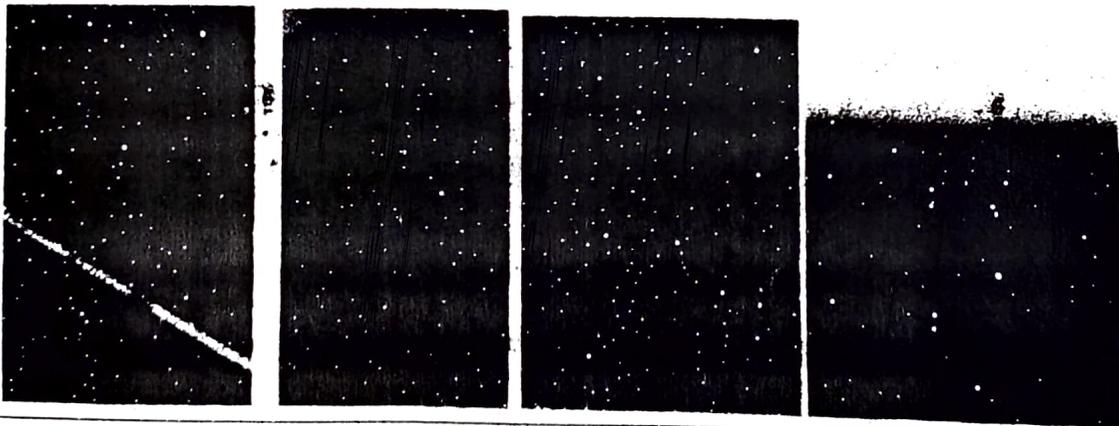
# GREENRICH GROW INDIA PVT LTD



## Rejuvenating Organic cultivation among farmers

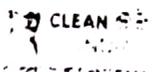
Organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity, and this is accomplished by using on-farm agronomic, biological and mechanical methods in exclusion of all synthetic off-farm inputs.

Chilli, Wheat, Strawberry & Mango Farms using My Green Bin compost and compost tea In Wai Satara, MAHARASHTRA.



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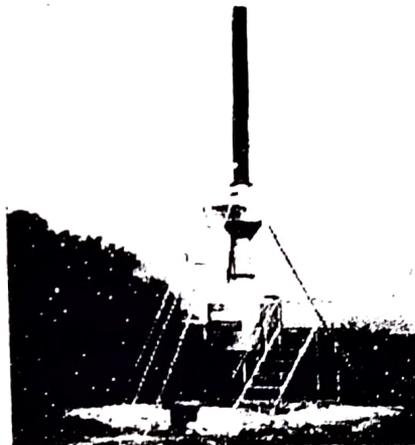
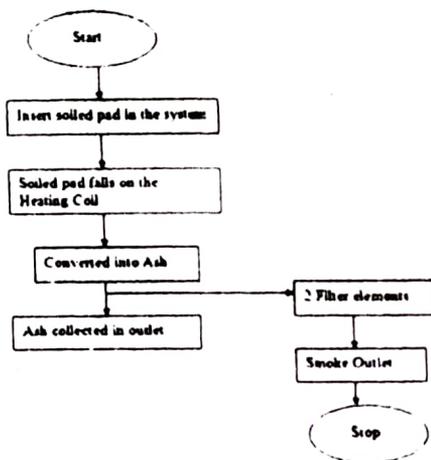


# GREENRICH GROW INDIA PVT LTD

## B. Solution for Hazardous Waste – Sanitary Waste & MSW

Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials. Incineration and other high-temperature waste treatment systems are described as "thermal treatment". Incineration of waste materials converts the waste into ash, flue gas and heat.

Greenrich incinerators are a useful technology available through an economically feasible and environment-friendly method to combust household sanitary waste & medical waste, instead of discharging it in a landfill. Furthermore, heat and energy may be recovered and it helps to avoid open burning of municipal waste which creates much more harmful emissions and endanger human health and environment.



### Unique Features

- Fire & Moisture resistant materials
- Hygienic materials & sturdy build quality
- Faster installations & Environment friendly functioning • Burns solid waste material permitted to be incinerated into pure ash within few of minutes adhering to relevant emission standards.
- Some of our high-end models provide Secondary filtering provision followed by combustion that ensures clean ash free emission in compliance with the emission prescribed under Environmental Protection rules.
- Highly economical in terms of Implementing, Operating and Maintenance compared to fuel-based Incinerators.
- Made with branded raw materials under strict supervision of highly qualified and experienced professionals and Technicians

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## GREENRICH GROW INDIA PVT LTD



### C. MRF - Dry / Plastic Waste Management

A material recovery facility (MRF) receives pre-sorted streams of recyclables for dusting, baling, Conveyor, weighed and shipped to various end users.



Plastic dust remover is used to remove mud and dust from the municipal plastic waste and PET before grinding for recycling process



Baling machine compresses material into a block (bale) which is secured by plastic or wire strapping and sent to recycling.

Weighing Scale is one of the important elements, which is required at transfer stations to measure the waste quantity coming at the transfer station and again transported from the site.



The system comprises of separation of dry waste metal and nonmetal waste; different sensors can be incorporated for detecting the material along the conveyor belt.



A Plastic Shredder is a machine used to cut plastic into smaller pieces.

\* The above product images are indicative

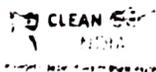
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# GREENRICH GROW INDIA PVT LTD

## COMMERCIAL PROPOSAL for WET, SANITARY & DRY WASTE

### 1. SOLUTION FOR WET WASTE MANAGEMENT - 5 TPD WET WASTE

| Sl. No | Quantity   | Image  | Description of work   | Rate      | Amount    |
|--------|------------|--|---|-----------|-----------|
| 1      | 3.00 Pairs |  | <p>Providing Composting Solution for Wet Waste of capacity from 5 TPD (capacity per day) with 6 nos - 3 pair of My Green Bin MGB 1000 with following specifications as below- Each MGB 1000 of size - L 6.50 m x 2.0 m x 1.20 m made out of FRP Panel of thickness 5mm with the interior of the bin finished with additional FRP ribs of width 200mm with 8mm aerator holes are made inside and outside, top and bottom, joined together with FRP lining and SS fasteners. The bottom tank to be of ht 100mm and covered with FRP plates of thickness 5mm with 8mm holes for the Leachate to be collected. The bottom tank is provided with 20mm Ball Valve -2 nos. The central portion to have FRP channels with 7 nos of 75mm aerator pipes with 8mm holes supported between top and bottom FRP channels with end cap. The sides to have 8 doors of dia 450 mm fixed with SS flat &amp; nut with plastic head. The panels to be supported with hot dip galvanised MS channels of 3mm thickness. The top of the bin provided with 8 doors, all with FRP of thickness 3mm with MS stay. The bin to be engulfed outside with 50mm x 25mm hot dip galvanised MS Section at 2 levels. The bins will be provided with 2 Blowers mounted on FRP channel - Blower of specification: Single Phase, Power Input - 180 watts, Air Flow rate - 460 M<sup>3</sup>/ hr and the blower outlet of 32 mm/PVC pipe &amp; internally with 32mm /PVC pipes with raises of 25 mm/ PVC Pipe of height 150mm at spaced at a distance of 400mm. The bins are provided with SS handle of size 250 mm and SS Hinges complete.</p> | 17,92,000 | 53,76,000 |

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# GREENRICH GROW INDIA PVT LTD



|                  |      |                   |   |  |           |                  |
|------------------|------|-------------------|---|--|-----------|------------------|
| 2                | 1.00 | No                |    | Providing and Supplying of Precomposter with Working Capacity: 800-1000 Kg per hr<br>Motor: 15 HP (7.5HP + 7.5 HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS  | 12,50,000 | 12,50,000        |
| 3                | 3600 | 10 Ltr / 6 months |    | Supply of Greenrich Microbes (10Ltr Capacity)<br>Type of Bio Culture- Aerobic Microbial Composting Culture<br>Specification- Composting agent formulated using cocopeat along with micro & macro nutrients and Cultured with Lignocellulolytic Organisms.<br>Fungal Population Count- In the range 105 to 106<br>Odour-Odour free<br>Electrical Conductivity- Within the range 0.4-3<br>pH- Within the range 5 - 6.5.<br>Composting Process- 30 days | 254       | 9,14,400         |
| 4                | 1.00 | No                |  | Providing and supplying of Siever Machine with the following spec<br>Model MS Steel Manure Siever<br>Body Material MS Steel<br>Capacity 2 to 3 Tons per hour<br>Voltage 240<br>Automation Grade Semi-Automatic<br>Others<br>Screener Size 1500 x 600 mm<br>Usage/Application To Screen Manure<br>Color blue and white<br>Phase Single Phase  | 80,000    | 80,000           |
| <b>SUB TOTAL</b> |      |                   |   |  |           | <b>76,20,400</b> |

**(Rupees: Seventy six lakhs twenty thousand four hundred only)**

**As per Govt Norms the applicable taxes will be extra as below**

|                           |  |  |  |                       |                  |
|---------------------------|--|--|--|-----------------------|------------------|
|                           |  |  |  | GST @ 12% (Item no.1) | 6,45,120         |
|                           |  |  |  | GST @ 12% (Item no.2) | 1,50,000         |
|                           |  |  |  | GST @ 5% (Item no.3)  | 45,720           |
|                           |  |  |  | GST @ 18% (Item no.4) | 14,400           |
| <b>SUB TOTAL WITH GST</b> |  |  |  |                       | <b>84,75,640</b> |

**(Rupees: Eighty four lakhs seventy five thousand six hundred and forty only)**

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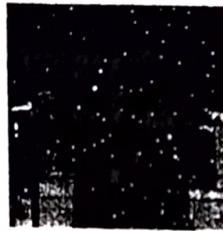




# GREENRICH GROW INDIA PVT LTD



## 2. SOLUTIONS FOR MRF - 2 TPD DRY WASTE

| Sl. No | Quantity |    | Image   | Description of work  | Rate     | Amount   |
|--------|----------|----|---|--|----------|----------|
| 1      | 1.00     | No |    | Providing and Suppling of Dust Remover Machine with the following specification<br>-7.5Hp Motor New Standard Company<br>-6' L x 4' H x 5.5' W<br>-Roll Heavy Duty 115 MM<br>-45 MM Pedestal Bearing Heavy Duty<br>-Heavy Duty Machine Fabrication<br>-Starter Star Delta with on/off Button  | 3,00,000 | 3,00,000 |
| 2      | 1.00     | No |   | Providing and Suppling of Flat Conveyor with the following specification<br>5000mm Length x 750mm Width x 800mm Height<br>Belt : PVC Green Colour<br>Speed : 4m/min<br>Frames : Powder Coated MS<br>Roller : Zinc Coated MS<br>Power Input : Single Phase 230V<br>Speed : Variable through VFD   | 2,50,000 | 2,50,000 |
| 3      | 1.00     | No |  | Providing and Suppling of Baling Machine with the following specification<br>Capacity - 60 Ton Pressure Single Chamber Single Cylinder Baler Machine<br>Bale Size - 34(L)x26(W) In Inch<br>Bale Weight - 80-100 Kg<br>Chamber Size - 72 (L)x34(W)x26(H) In Inch<br>No. of Cylinder - 1 Nos.<br>No. of Glde - 2 Nos.<br>No. Of Door - 2 Nos.<br>No. of Striping - 3 Nos<br>Oil Tank Capacity - 300 Liters.<br>Production Rates - 20 To 25 Minuets<br>Hydraulic System - Vane Pump Systems.<br>Operation - 20 Size Hand levers Operate Systems.<br>Electric Motor - 10 HP Motor 3Phase<br>1440 RPM 50HZ<br>Electric Starter - Provided | 4,00,000 | 4,00,000 |

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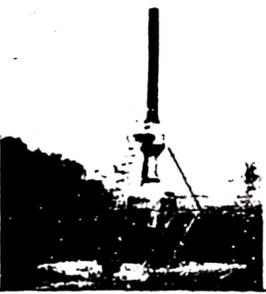


# GREENRICH GROW INDIA PVT LTD



|   |      |    |   |   |          |                  |
|---|------|----|---|---|----------|------------------|
| 4   | 1.00 | No |  | Providing and supplying of Plastic Waste Shredder with the following spec<br>Working Capacity: 1Ton per hr<br>Motor: 20 HP (10HP + 10HP Dual Motor)<br>Material of the Outer Body: MS<br>Material of the Inner Body: SS | 9,00,000 | 9,00,000         |
| 5   | 1.00 | No |  | Supply and erection of Multi Purpose weighing machine having 500 kg capacity weighing scale, commercial weight machine for industry mildsteel having 50g accuracy complying with standard specifications                | 25,000   | 25,000           |
| <b>SUB TOTAL</b>  |      |    |   |   |          | <b>18,75,000</b> |
| (Rupees: Eighteen lakhs seventy five thousand only)               |      |    |   |   |          |                  |
| As per Govt Norms the applicable taxes will be extra as below     |      |    |   |   |          |                  |
|   |      |    |   | GST @ 18% (Item no.1,2,3,5)   |          | 1,75,500         |
|   |      |    |   | GST @ 12% (Item no.4)   |          | 1,08,000         |
| <b>SUB TOTAL WITH GST</b>   |      |    |   |   |          | <b>21,58,500</b> |
| (Rupees: Twenty one lakhs fifty eight thousand five hundred only) |      |    |   |   |          |                  |

### 3. SOLUTION FOR DOMESTIC HAZARDOUS WASTE AND MSW

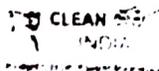
| Sl. No  | Quantity |    | Image   | Description of work  | Rate      | Amount           |
|---|----------|----|---|--|-----------|------------------|
| 1   | 1.00     | No |  | Providing and supplying of "GREENRICH" zero fuel General Solid Waste Burner (Model No: GRE200PCS) - 2.2 cubic meter (200kg/hr.) with pollution control system. Dispensing Time: 200kgs/45 mins<br>Chamber size: Dia x Ht: 1250 x 1650 mm, Weight: 2.7 ton<br>Chimney Size: 6 mts | 12,50,000 | 12,50,000        |
| <b>SUB TOTAL</b>  |          |    |   |  |           | <b>12,50,000</b> |
| (Rupees: Twelve lakhs fifty thousand only)                    |          |    |   |  |           |                  |
| As per Govt Norms the applicable taxes will be extra as below |          |    |   |  |           |                  |
|   |          |    |   | GST @ 18% (Item no.1)  |           | 2,25,000         |
| <b>SUB TOTAL WITH GST</b>                                     |          |    |   |  |           | <b>14,75,000</b> |
| (Rupees: Fourteen lakhs seventy five thousand only)           |          |    |   |  |           |                  |

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# GREENRICH GROW INDIA PVT LTD

| SUMMARY   |                            |                         |
|---|----------------------------|-------------------------|
|   | Amount (Rs)<br>without GST | Amount (Rs)<br>Incl.GST |
| Cost for MCC (for Wet waste management)                     | 76,20,400.00               | 84,75,640.00            |
| Cost for MRF (for dry waste management)                     | 18,75,000.00               | 21,58,500.00            |
| Cost for Incinerator (for Domestic hazardous waste and MSW) | 12,50,000.00               | 14,75,000.00            |
| <b>TOTAL</b>  | <b>1,07,45,400.00</b>      | <b>1,21,09,140.00</b>   |

## • TRANSPORTATION CHARGES EXTRA

### Terms:

|            |  |
|------------|--|
| Payment :  | 50 % as advance along with the confirmed order<br>40% on delivery<br>10% on installation |
| Delivery : | 40 days from the date of Work Order and Advance  |
| Validity : | 1 month from date of proposal.   |

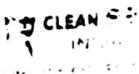
### Conclusion

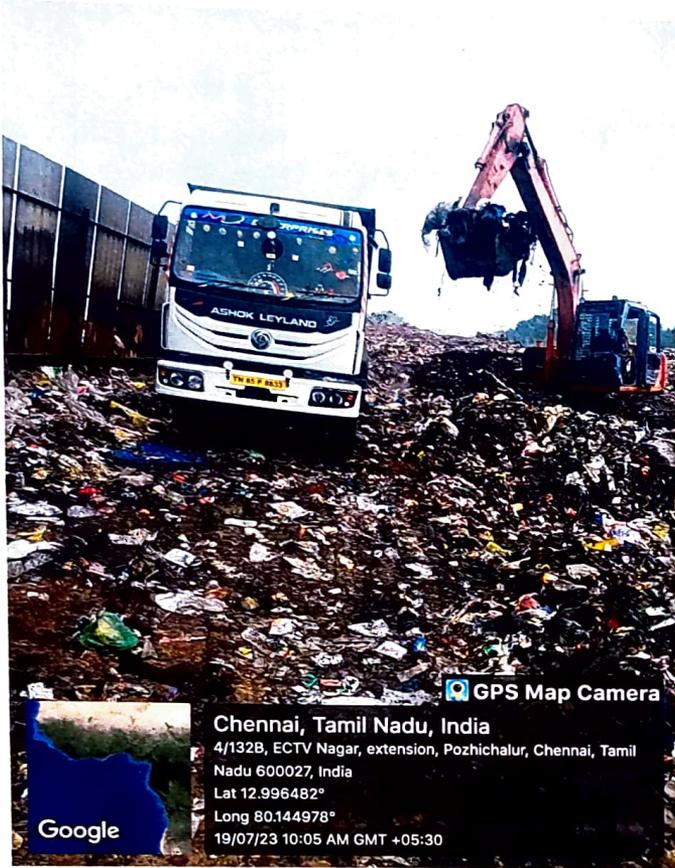
With our strong expertise we guarantee to provide you an end to end solution for solid waste management for wet, dry and hazardous waste. We can design an optimum solution with our home composting and onsite composting system, a decentralized system for effectively handling the wet waste and utilizing the byproducts compost or biogas or electricity for production. The rest of the dry and hazardous waste can be recycled or incinerated.

With Warm Regards  
For Greenrich Grow India Pvt Ltd

**S. Saravanaraj**  
Director  
98404 75000

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GPS Map Camera



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 Long 80.144978°  
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**Chennai, Tamil Nadu, India**

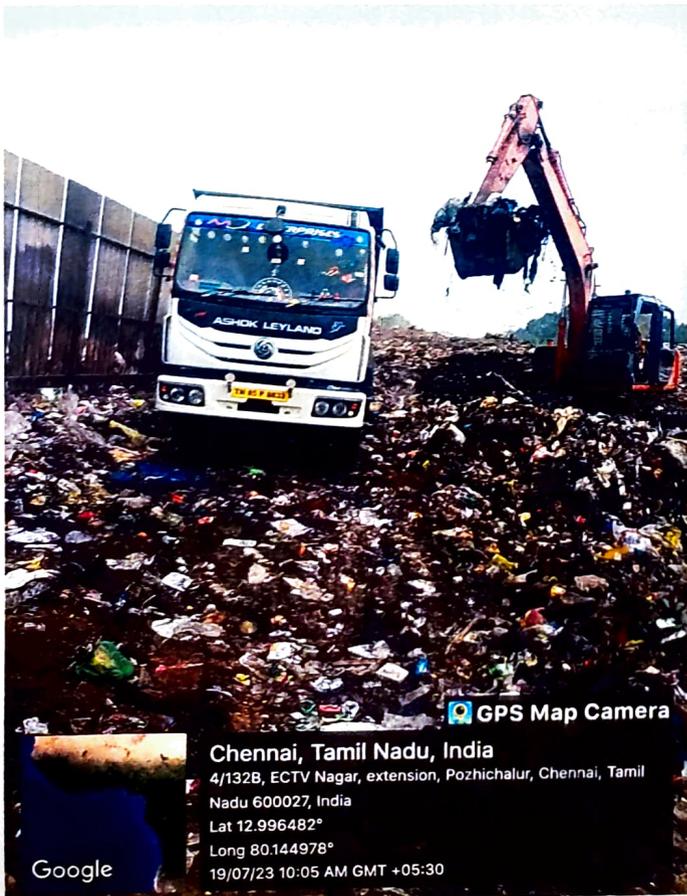
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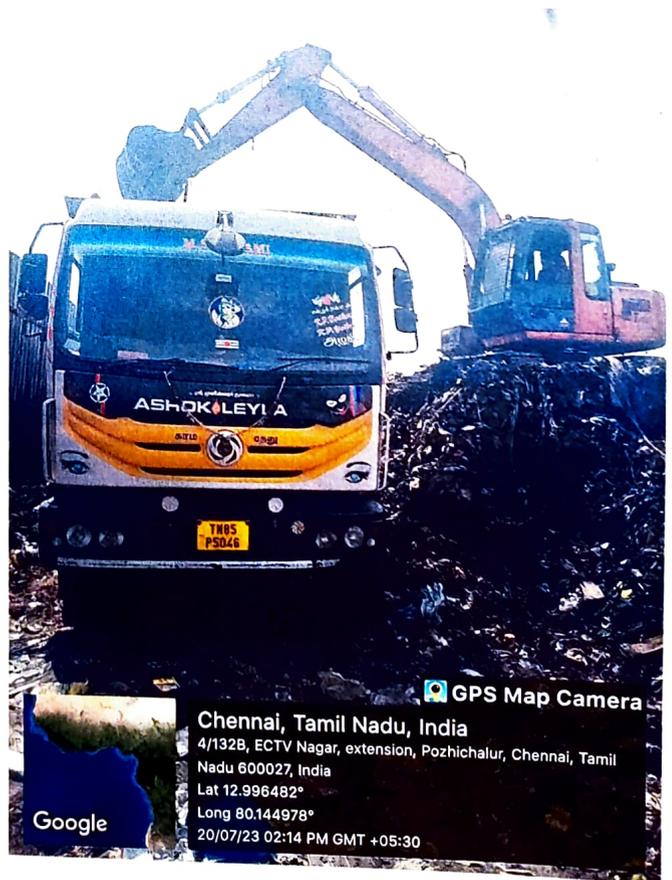
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