PROPOSAL FOR SOLID WASTE MANAGEMENT PLANT, MUNICIPAL CORPORATION / COUNCIL

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Presented By,

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• Solid Waste Definition and contents

Definitions of municipal solid waste (MSW) vary between countries.
A working definition is 'wastes generated by households, and wastes of a similar nature generated by commercial and industrial premises, by institutions such as schools, hospitals, care homes and prisons, and from public spaces such as streets, markets, slaughter houses, public toilets, bus stops, parks, and gardens'

This working definition includes most commercial and business wastes as municipal solid waste, with the exception of industrial process and other hazardous wastes. Different countries define municipal solid waste rather differently –for example, depending on which sector does the collecting – so it is important to ask in each city what the definition is and not assume that they are all the same. Some experts suggest that all industrial and construction and demolition(C&D) wastes should be included in the definition of municipal solid waste.

Contents of Solid Waste:-
Solid Waste Contains Vegetable Waste, Kitchen Waste, household waste and similar nature of waste generated at industrial, commercial, public places, slaughter houses, institutions, schools, public toilets, bus stops, parks and gardens etc.

• Solid Waste Generations in India

Municipal Solid Waste Generation in India (State-wise) Last Updated On: 26/08/2015

S. No	Name of the State / UT	(a) Municipal solid Waste MT/ day 1999-2000			(b) Municipal solid Waste MT/ day (2009-12)
		Class - I cities	Class - II Towns	Total	
1.	Andaman & Nicobar	-	-	-	50
2.	Andhra Pradesh	3943	433	4376	11500
3.	Arunachal Pradesh	-	-	-	93.802
4.	Assam	196	89	285	1146.28
5.	Bihar	1479	340	1819	1670
6.	Chandigarh	200	-	200	380
7.	Chhattisgarh	-	-	-	1167
8.	Daman Diu & Dadra	-	-	-	41
9.	Delhi	4000	-	4000	7384
10.	Goa	-	-	-	193
11.	Gujarat	-	-	-	7378.775
12.	Haryana	3805	427	4232	536.85
13.	Himachal Pradesh	623	102	725	304.3
14.	Jammu & Kashmir	35	-	35	1792
15.	Jharkhand	-	-	-	1710
16.	Karnataka	3118	160	3278	6500
17.	Kerala	1220	78	1298	8338
18.	Lakshadweep	-	-	-	21

S. No	Name of the State / UT	(a) Municipal solid Waste MT/ day 1999-2000			(b) Municipal solid Waste MT/ day (2009-12)
		Class - I cities	Class - II Towns	Total	
19.	Maharashtra	8589	510	9099	19.204
20.	Manipur	40	-	40	112.9
21.	Meghalaya	35	-	35	284.6
22.	Mizoram	46	-	46	4742
23.	Madhya Pradesh	2286	398	2684	4500
24.	Nagaland	-	-	-	187.6
25.	Orissa	646	9	655	2239.2
26.	Puducherry	60	9	69	380
27.	Punjab	1001	265	1266	2793.5
28.	Rajasthan	1768	198	1966	5037.3
29.	Sikkim	-	-	-	40
30.	Tamil Nadu	5021	382	5403	12504
31.	Tripura	33	-	33	360
32.	Uttar Pradesh	5515	445	5960	11.585
33.	Uttaranchal	-	-	-	752
34.	West Bengal	4475	146	46211	2557
	Total	**48134**	**3991**	**52125**	**127485.107**

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• Definition of Solid Waste Management

Solid Waste Management may be defined as the discipline associated with the control of generation, collection, storage, transfer and transport, processing and disposal of solid wastes in a manner that is in accord with the best principles of public health, economics, engineering, conservation, aesthetics and other environmental considerations.

• Need Of Solid Waste Management

In India, a proper waste management system is urgent necessary for the following reasons:

(a) To control different types of pollution, i.e., air pollution, soil pollution, water pollution etc.;

(b) To stop the spread of infectious diseases.;

(c) To conserve all our environmental resources, including forest, minerals water etc.;

(f) To recycling of hazardous wastes for further production.

To implement proper wastes management policy, successful and safe disposal of solid and liquid wastes are very necessary.

• Effects on Public Health

Adverse Effects of improper management of MSW on Environment and human being

• Skin Disorders – fungal infection, allergic dermatitis, pruritis and skin cancer

• Respiratory Abnormalities – bacterial upper respiratory tract infections (pharyngitis, laryngitis and rhinitis), chronic bronchitis and asthma

• Abdominal and Intestinal Problems – bacterial enteritis, helminthiasis, amoebiasis, liver cancer, kidney and renal failure

• Dental Disorders – dental carries and dental pain Ear Infections – otitis media and bacterial infections Skeletal Muscular Systems – back pain

• Central Nervous System – impairment of neurological development, peripheral nerve damage and headaches

• Eye Infections – allergic conjunctivitis, bacterial eye infections Blood Disorders – Iron deficiency anemia Others – malaria, chicken pox, septic wounds and congenital abnormalities, cardiovascular diseases and lung cancer .

• Effects on Enivironment

How Does Waste Affect the Environment?

Accumulation of wastes due to its improper disposal is a major problem in our country. Population in India has been growing at a rapid rate. With this increase, there has also been an increase in the amount of wastes being produced especially in the cities. Every person, on an average generates about 400 to 500 grams of wastes per day. At this rate, in a city of about 10 lakh people around 500 tonnes of wastes is being produced every day.

In the absence of proper waste management, this waste lies littered on our streets, road corners and improperly disposed of in vacant land. All of these are serious health hazards apart from being eyesores. If they are not cleared regularly at the earliest, they invite host of problems like increasing numbers of insect vectors like flies, mosquitoes, etc., scavengers such as stray dogs, pigs and rats which spread dangerous diseases. It also generates bad odour and causes pollution.





• Swachh Bharat Abhiyan

- Eliminate open defecation by constructing toilets for households communities
- Eradicate manual scavenging
- **Introduce modern and scientific municipal solid waste management practice**
- Enable private sector participation in the sanitation awareness
- Capacity augmentation for Urban Local Bodies
- Create enabling environment for private sector participation on (Capex & Opex)

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• Government Policies

Our Prime Minister has declared the Swachh Bharat Mission for Clean India and healthy India. In which solid waste management is prime focus and we all have to participate in it for cleaner and greener India. We are also actively Participating in this mission with our capacity.

- Government of India Supports Urban local bodies for solid waste management as follows:-

1. Funds given to ULB's under swachh bharat abhiyan
2. Funds given under 14th Finance commission for solid waste management
3. State Governments also started these abhiyans for there states, giving more funds to local bodies for solid waste management
4. Under smart cities scheme central government also giving funds for this work

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• Examples of Well Settled MSW Plants

Bhoomi Green, Pune
P.H.Jadhav, Ahmednagar
MSW Plant of Saswad Municipal Council
Plants at Banglore Corporation etc.

• Examples of failed plants or plants running with less capacity of MSW :-

1200 TPD capacity plant of Pune
500 TPD plant of Pune
350 TPD Plant at Aurangabad
Plants having capcities more than 500TPD installed capacity were found to be running with less capacity or stopped.

M/S. P. H. JADHAV, PUNE

- Company was founded in 2002.
- Leading experts in solid waste processing and engineering.
- We provide total environmental management solution for
  - Cities , townships and municipal corporations
  - Industrial estates , commercial and industrial customers.

MANAGEMENT PROFILE

Managed by a group of highly qualified business professionals and technocrats with vast and varied experience in the field of infrastructure and environment.

Mr. Pradeep Jadhav

B.E. Civil with more than 14 years of experience in Project Development and Implementation, Corporate Strategy, Project Finance, Policy Advocacy and Business Expansion.

Mr. Ganesh Jadhav

Msc. Chemistry with more than 8 years of experience in Project Planing, Execution and Contract Management.

Mr. Kamlesh Singh

M. A. With 15 years experience in erection, operation and Maintenance in solid waste Management and textile / Chemical manufacturing companies.

• Proposal Content

- Objective
- Approach-Integrated Waste Management.
- Integrated Solid Waste Management.
- Waste Reception & Segregation.
- MSW Pathway Options.
- Waste Management Solutions.
- Technical Proposal.
  - Scope of Work.
  - Our Proposal .
  - Process Description.
- Composting of MSW.
- RDF Plant.
- Landfill for non-biodegradable waste.
- Leachate Treatment.

Objective

- Eco-Cycle Society
- Use resources judiciously
- Recovery of materials
- Integrated approach
- Sustainable Development

Approach - Integrated Waste Management, Municipal Corporation / Council

- Sorting-Recycling/Reuse…..
- Waste Processing
- Composting-Aerobic (Windrow Composting)
- RDF
- Sanitary Landfill
- Leachate Treatment and Disposal

Integrated Solid Waste Management (ISWM)

- Organic Manure - 55- 60 %
- Inorganic / Fuel - 22- 25%
- Reprocess Plastic (mix)/ - 5 - 6%

  coconut remains/cardboard
- Landfill (unrecycable Material) - 10 %

Waste Reception & Segregation

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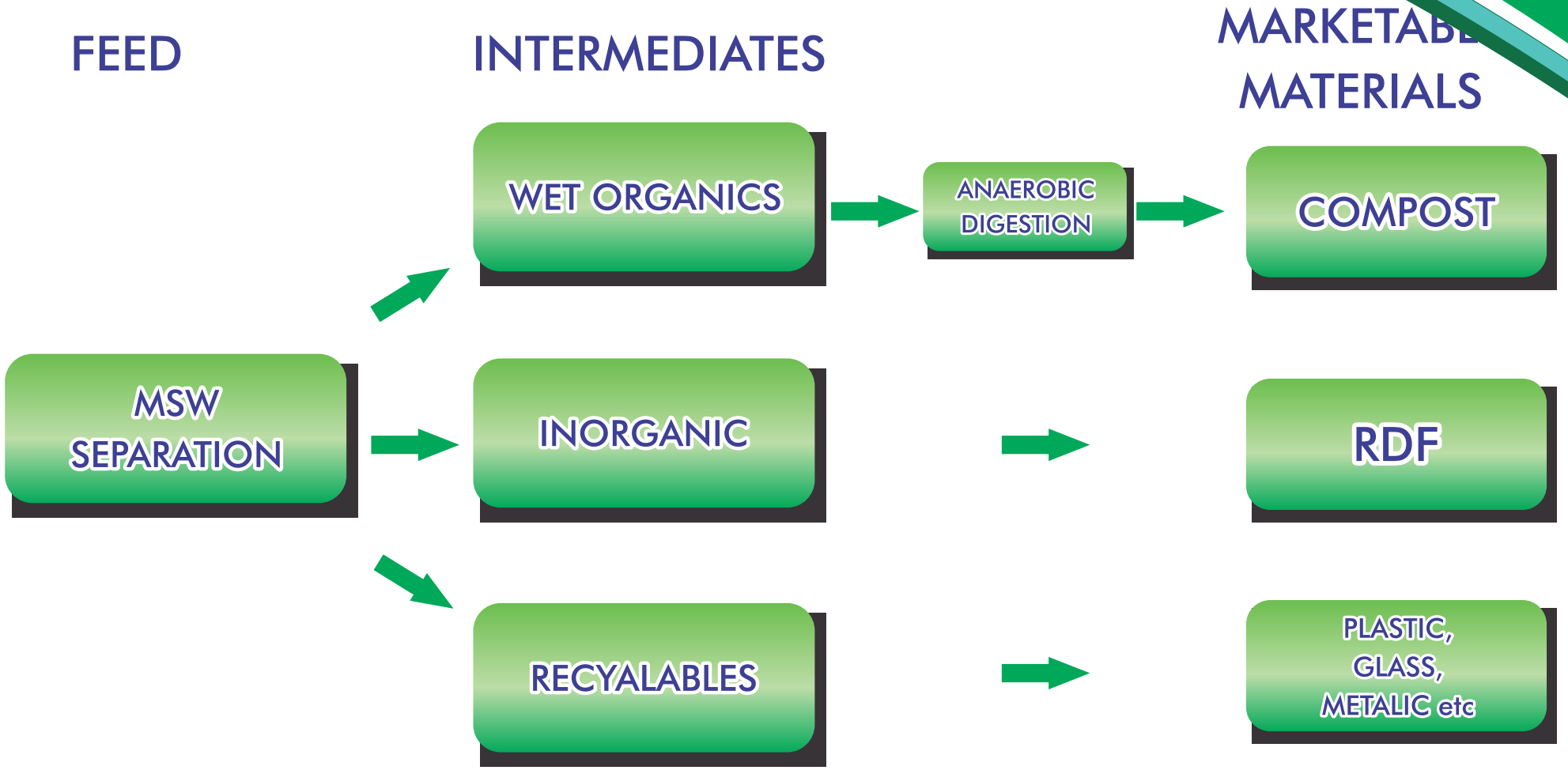
WASTE MANAGEMENT SOLUTIONS



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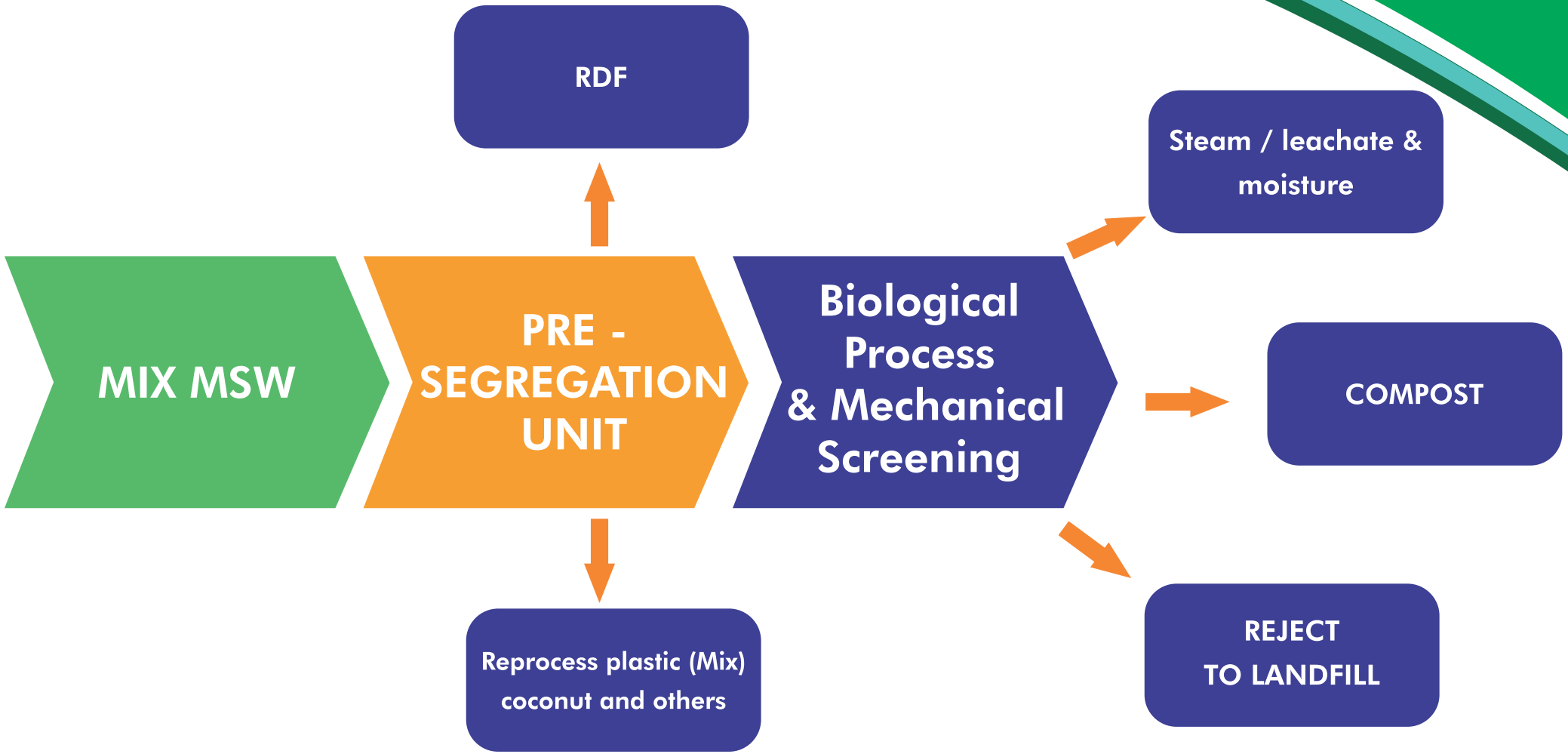
WASTE MANAGEMENT SOLUTION



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TECHNICAL PROPOSAL

Scope of Work - Erection, Operation & Maintainance

- Waste to be treated: 30 - 500 TPD
- Site : As Per Municipal Corporation / Council Requirement
- Technology : Composting & RDF
- Current Proposal
    - To handle Up to 500 TPD
    - Execution Duration : 9 Months.
    - Site Extent: 1 - 6 Acres.

OUR PROPOSAL

- Recycling
- Composting
    - Windrow Composting
    - Mechanical Screening
    - Compost / Manure
- RDF
- Sanitary Landfills , Leachate Treatment Plant & its O&M

END PRODUCTS AND REJECTS HANDALING

- Compost Manure marketed to local farmers and fertilizer Industries.
- RDF sent to nearby power plant as fuel.
- Recyclables sent to recycling units
- Inert waste send to Proposed Landfill by Corporation

MSW PROCESSING

Machines utilized to process the waste

Shredder

Windrow Platform

SCREENING AND PACKAGING

Machines utilized to process the waste

Trommel Unit

Auto Packaging Unit

Composting of MSW – Biodegradable Waste

- Composting is the process of producing compost through aerobic decomposition of biodegradable organic matter.
- Compost produced at the end of the process can be used in farming, gardening to improve soil quality.
- Various micro-organisms like bacteria , fungi breakdown organic matter into simpler substances.
- For composting to occur in an optimum manner five key factors need to be controlled ; temperature , moisture ,oxygen , material porosity and carbon : nitrogen ratio.

COMPOST PLANT PROCESSING

- The Composting Process
- Waste Receiving Platform
- Segregation/Presorting
- Windrow Platform
- Preparatory Section
- Refinement Section
- Final Manure

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COMPOST FOR MSW PROCESSING
(Biodegadable Waste)

- **Windrow Platform** :
  Covered R.C.C platform with leachate collection drains will be provided. Windrow turners are proposed for turning of waste.

- **Monsoon Shed** :
  Designed as a covered area for accommodating 07 days waste.

COMPOST FOR MSW PROCESSING
(Biodegadable Waste)

- **Preparatory Section** :

  The compost will be passed through the trommel.

  The rejects will be disposed off into the landfill

- **Curing Section** :

  4/6 mm Compost will be stored further 14 day for maturation before packing in 50 kg HDPE bags

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COMPOST FOR MSW PROCESSING
(Biodegadable Waste)

- Environmentally sound
  - Natural recycling of organic materials
  - No odors generated when properly composted
  - Good soil conditioner
  - Elimination of Pathogens and weed seeds
  - Problem of rodents and insect pests is avoided
  - Suppresses soil-borne diseases and plant pathogens
- **Improve Soil Quality by:**
  - Moisture Retention
  - Increased Aeration
  - Heat Absorption Increased
  - Acts as a glue and makes soil resistant to erosion

REFUSE DERIVED FUEL (RDF)

- Non biodegradable material obtained from segregation system is then crushed using various cutters.

- RDF is used upto 30 % with coal or biomass as a fuel in power plants / various types of boilers.

Landfill for non-recyclable and inert

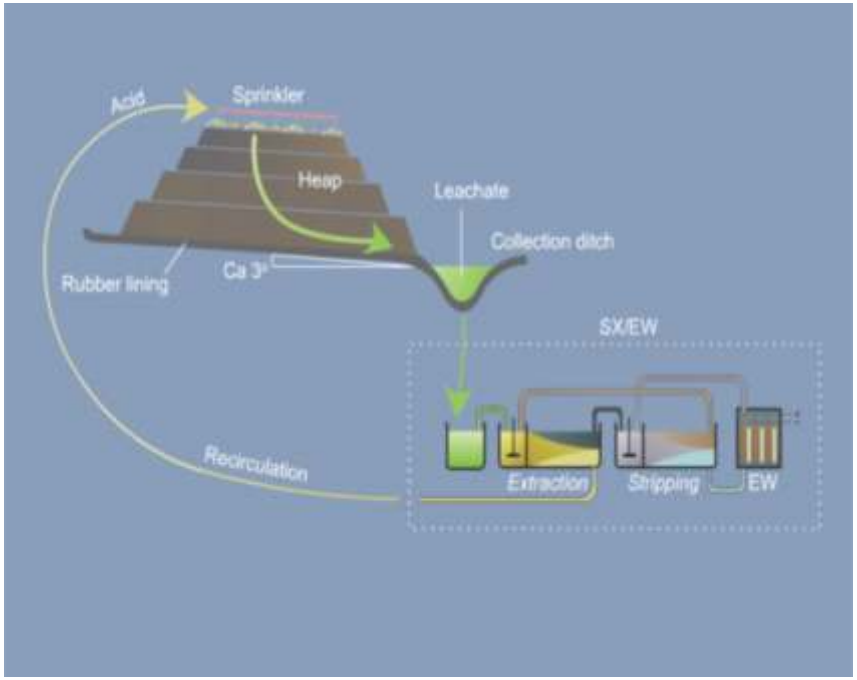
- Existing Sanitary landfill will be used to dispose of solid waste that cannot be recycled, composted or converted into energy through the waste to energy facility.

- This waste category consists of non combustible materials which are not suitable for recycling or processing.

LEACHATE TREATMENT

- Leachate is the liquid residue resulting from the various chemical, physical and biological processes taking place within the landfill.
- A combination of physical, chemical and microbial processes in the waste transfer pollutants from the waste material to the percolating water

- Generally, leachate may contain large amounts of organic matter (biodegradable, but also refractory to biodegradation), as well as ammonia- nitrogen, heavy metals, chlorinated organic and inorganic salts, which are a great threat to the surrounding soil, groundwater and even surface water.



ADVANTAGE OF COMPOSTING

- Composting of organic MSW brings low-cost soil fertility and also helps in
- Reducing load of land fill site
- Food self-sustainability
- Improving Economy
- Generate Employment Opportunity

SALIENT FEATURES OF COMPOSTING

- Cost Effective Implementation
- Low/Moderate start up costs
- Minimal operating costs
- Environmentally sound
- Natural recycling of organic material
- Good soil conditioner
- Suppresses air-borne diseases and plant pathogens

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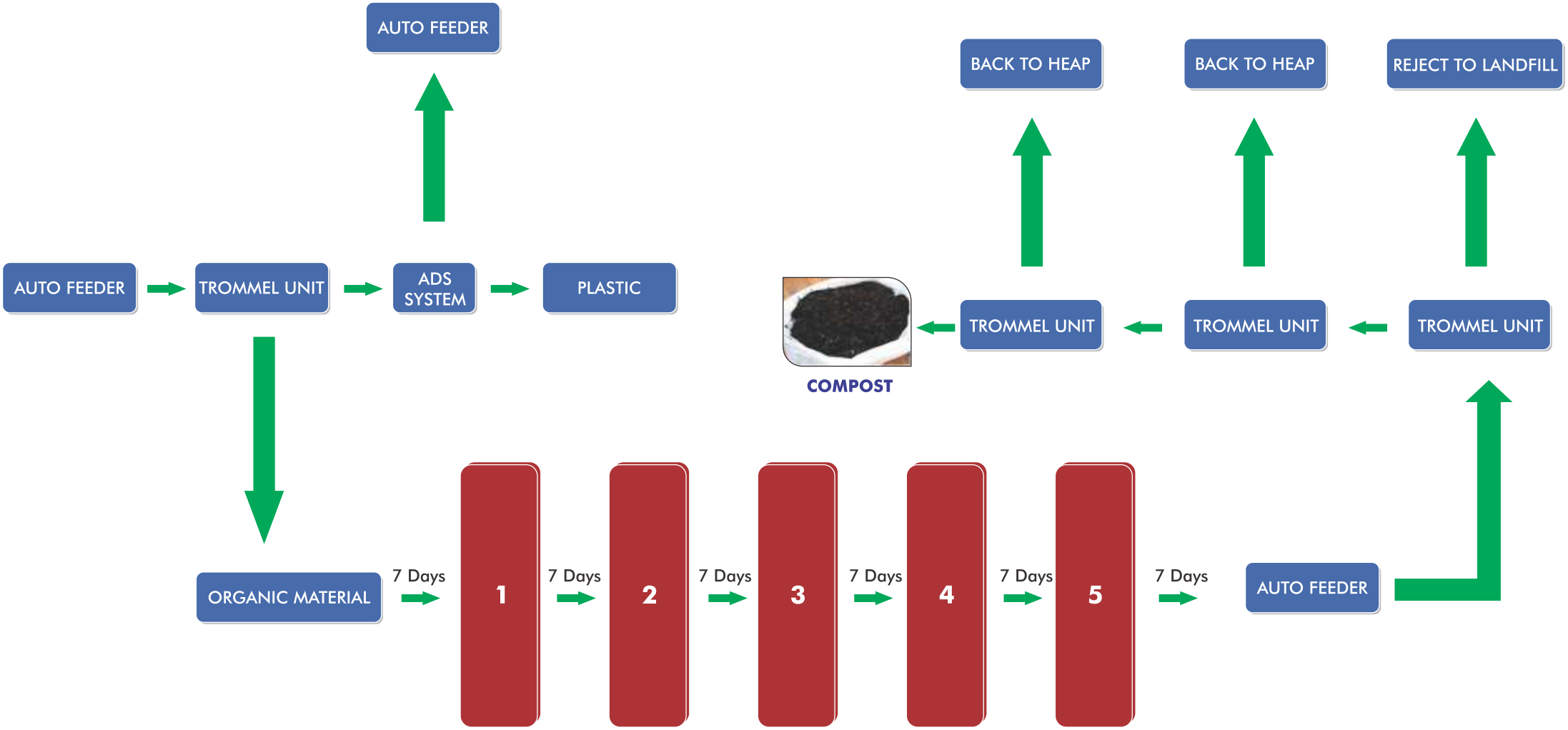
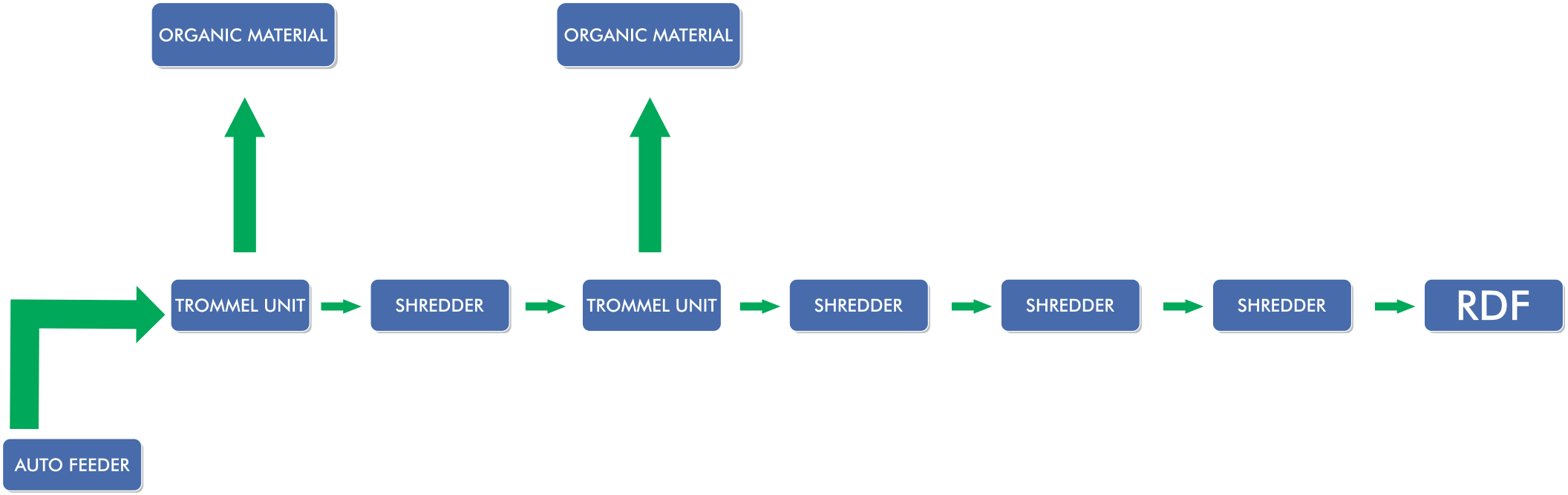
FLOW CHART FOR COMPOSTING



RDF UNIT


ORGANIC MATERIAL
ORGANIC MATERIAL
TROMMEL UNIT
SHREDDER
TROMMEL UNIT
SHREDDER
SHREDDER
SHREDDER
RDF
AUTO FEEDER

Thanking You...

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