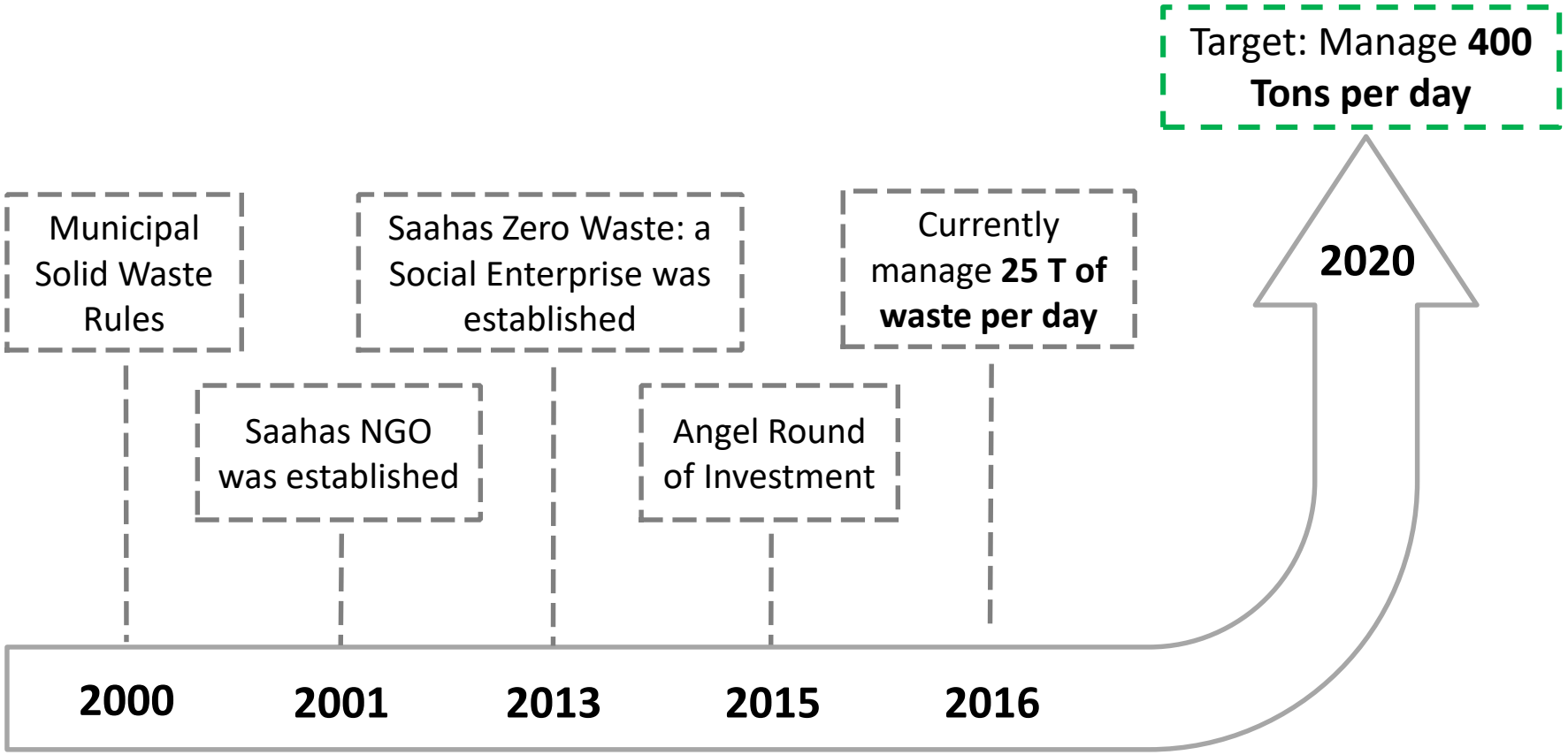
SAAHAS zerowaste

Circular Economy through Nature, People and Technology

EVOLUTION


Target: Manage **400 Tons per day**
2020
Municipal Solid Waste Rules
Saahas NGO was established
Saahas Zero Waste: a Social Enterprise was established
Angel Round of Investment
Currently manage **25 T of waste per day**
2000
2001
2013
2015
2016

ZERO WASTE PROGRAM

Left: A typical waste management unit

Below: Field staff seen sorting, and processing dry waste

ZERO WASTE PROGRAM

Left: Leaf litter management

Below: Wet waste processing using an Organic Waste Converter

MOVING FROM LINEAR TO CIRCULAR

WASTE DISPOSAL

HOLISTIC WASTE MANAGEMENT

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WET WASTE SEGREGATION AND COMPSTING PROCESS

WET WASTE

WET WASTE IS COLLECTED AND BROUGHT TO THE UNIT.

SORTING

INORGANIC CONTENTS ARE REMOVED.

SHREDDING & MIXING

FOOD WASTE + SHREDDED LEAVES ARE PRCOESSED IN THE ORGANIC WASTE CONVERTER UNIT.

COMPOSTING

THE MIX IS ALLOWED TO CURE WITH PROPER MATERIALS, LAYERING AND TURNING. GOOD COMPOST REQUIRES 3 BASIC INGREDIENTS - BROWNS, GREENS AND WATER.

BROWNS
PROVIDE CARBON (DRIED LEAVES, SAW DUST)

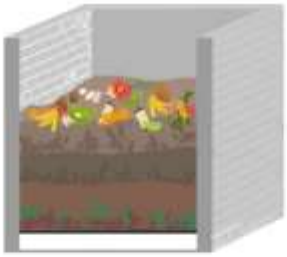
GREENS
PROVIDE NITROGEN (FOOD WASTE)

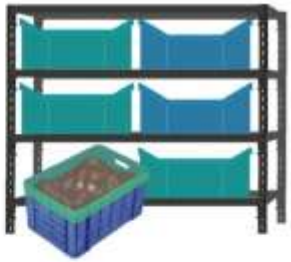
WATER & AIR
FOR BREAK-DOWN OF PARTICLES (SPRINKLERS & AIR-BLOWER)

TROUGH
FOR SECONDARY SORTING

SHREDDER
FOR SHREDDING LEAVES

OWC UNIT
TO MAKE SEMI-COMPOST

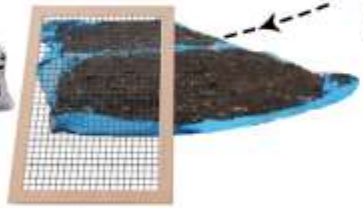




TANK SYSTEM OR CRATE SYSTEM
~ 30 DAYS TO MAKE COMPOST

FOOD FROM FARM TO TABLE!

COMPOST
NUTRIENT RICH COMPOST IS GOOD FOR SOIL.



SIEVE
DRY & SIEVE FRESH COMPOST

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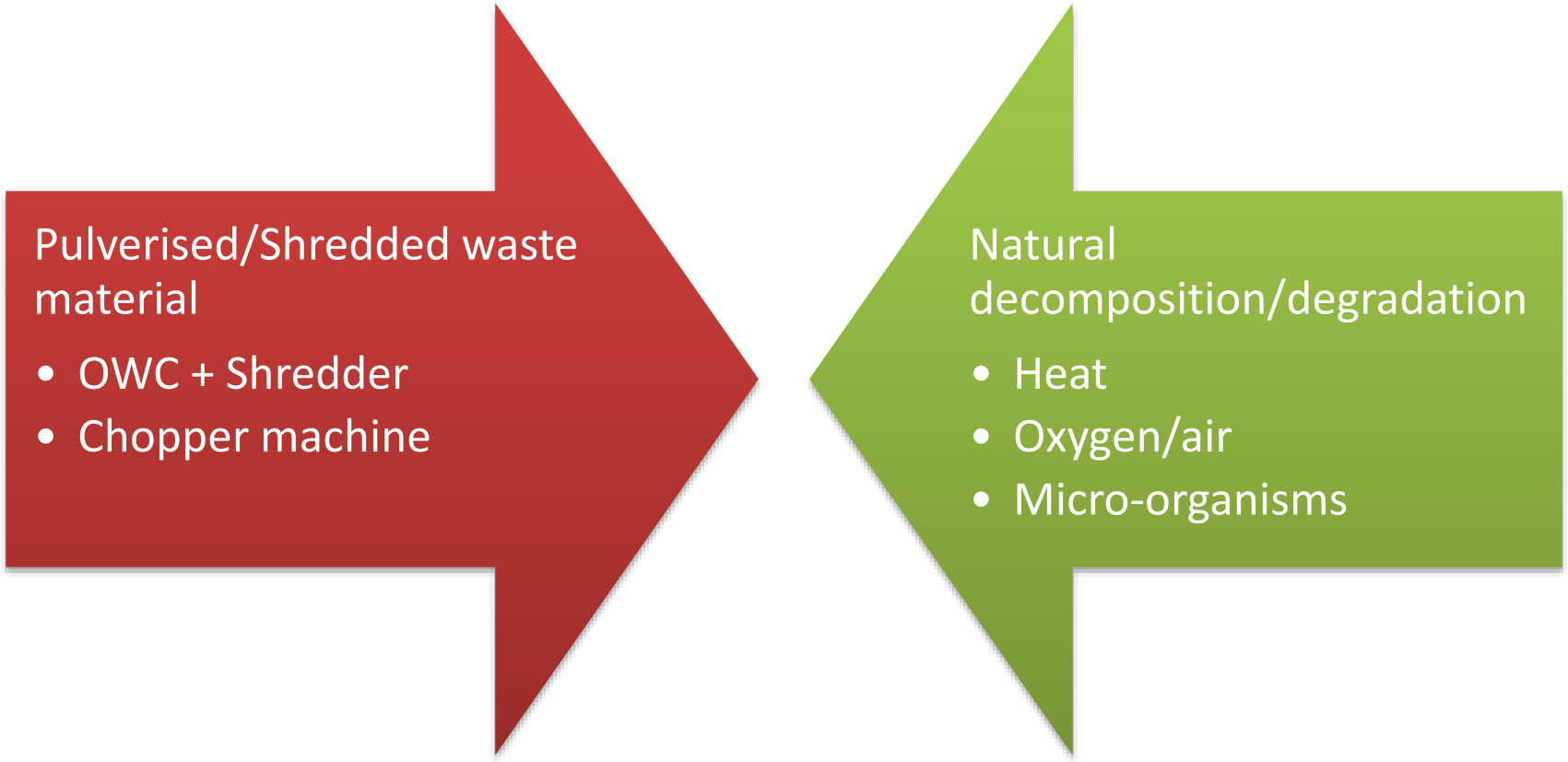
COMPOSTING


Pulverised/Shredded waste material
• OWC + Shredder
• Chopper machine
Natural decomposition/degradation
• Heat
• Oxygen/air
• Micro-organisms

OWC

Process Flow

50% wet waste
+
50% dry garden waste
+
1 gm/Kg Bioculum*

OWC
15 minutes

Raw compost

compost curing system
2 weeks

Compost ready for garden

*Bioculum is microbial culture to accelarate decomposition.
For odour-free and smooth fertilizer, mix Bioculum uniformly.

Excel's Organic Waste Converter
Distributed and serviced by Vennar Organic Fertilizer Pvt. Ltd.
www.vennarorganic.com

Features of OWC system

- Huge Capital Investment
- Vertical space utilisation
- Labour intensive process
- Requires a shed
- Crates are prone to rodents, wear and tear
- Modular and customisable as per quantity of waste
- No curing solution after Day 10

Option 1: Chopper + Tank

Features of Tank system

- Tanks are modular, customisable size
- Typically of the size 5 ft. x 4 ft. x 3 ft.
- Low-cost
- Takes higher volume of waste
- Uncovered
- Labour required for turning
- Tanks can be modified to handle more number of houses
- Capacity – 1 tonne
- Robust, easy to maintain
- Inbuilt blower

Option 2: Chopper + Aaga

Features of Aaga bins

- Aesthetics
- Typically 3ft x 38 inch
- High-cost
- Takes lesser volume of waste
- Covered
- Can be operated manually
- 1 set can accommodate 20-25 houses
- Capacity – 20 kg per day

Benefits of using a Chopper machine

- Reduces composting time significantly
- Homogeneous output
- Single stop solution for Garden litter and food waste
- Continuous feed machine
- Higher capacity motor (5 H.P)

Option 3: Pit Composting

- Underground composting is slower than above ground.
- Shredding helps
- Pit Size: 1-2 m depth; 1-1.5 m width, 4-5 m long
- Cycle time: 6 months to 1 year
- Additives: Dry Leaves and Cow Dung Slurry (5-10 kgs of cow dung in 2.5-5 ltrs of water); Bone Meal
- Packing Density:
- Process: Coimbatore and Bangalore method refer: http://agritech.tnau.ac.in/org_farm/orgfarm_composting.html

DRY WASTE SEGREGATION AND RECYCLING PROCESS

DRY WASTE

*only EMPTY food containers

is SEGREGATED into 15 - 17 categories

& RECYCLED into

PAPER

PRINTING & WRITING PAPER, TOILET PAPER, PACKAGING, AND NEWSPRINTS

PLASTIC (PET)

NEW PET BOTTLES, GARMENTS AND BAGS

TETRA PACK

POLYAL ROOFING SHEETS & CHIPBOARDS, FOR BUILDINGS AND FURNITURE

GLASS

BROKEN, MELTED AND MOULDED INTO NEW GLASS BOTTLES

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WASTE STREAM PROCESSES

Sl No.	Waste Category	Waste Stream	Processing Method	End Result
1	WET	Food Waste	Composted	Compost
2	DRY	Tissues, not soiled with food or human fluids	Recycling	Paper
3	DRY	Carton	Recycling	Paper
4	DRY	Kadak plastic	Recycled	Plastic pellets
5	DRY	Plastic	Recycled	Plastic pellets
6	DRY	PET	Recycled	Products
7	DRY	Super		
8	DRY	Colour paper	Recycled	Paper
9	DRY	TetraPak	Recycled	Notebooks, Roofing sheets
10	DRY	Laminates	Incinerated	Energy extraction at cement kilns
11	DRY	White paper	Recycled	Paper
12	DRY	Thermocole	Recycled	Plastic pellets
13	DRY	Styrofoam	Recycled	Plastic pellets
14	REJECTS	Rejects (Wet and Dry Mixed Waste)	Landfilled	-
15	REJECTS	Tissues, Contaminated with human fluids	Incinerated	At a certified bio-medical incinerator

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