



## FOOD RECYCLING: AN INNOVATIVE WAY TO REDUCE WASTE

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### **Abstract:**

The best thing that can happen to food is that it makes it to our plates and is enjoyed. Avoiding throwing out food that could have been eaten will save you money and help reduce greenhouse gas emissions. Home composting is a great way to stop this sort of waste ending up in landfill, and our gardens will really thank us for it. If you live in an area that has a local food waste recycling collection service, you can use this to dispose of anything you can't eat, or compost at home. It can be recycled into a good quality soil improver or fertilizer and even generate electricity that can be fed back into the national grid. Recycling food waste is as important as recycling other household rubbish like glass, cans and paper. When organic waste is put in landfill it biodegrades and has serious environmental consequences. Here in this paper we will be looking forward to different ways of food recycling which will help us in reducing the waste.

**Keywords:** *home composting, soil improver, food waste*

### **Introduction:**

Around Rs.44,000 cr of food is thrown away and wasted in the India every year, and most of it could have been eaten. Some of the waste is made up of things like peelings, cores and bones, but the majority is, or once was, perfectly good food. Food waste is recyclable and hence instead of throwing away the leftover coffee grounds, green leafy vegetable wastes, leftover food waste, you can use it in many ways. What happens when you throw it away? It goes to dump yards and they put it in a already overflowing pit. Instead, you can create your own dump pit and make use of these left over foods and create compost or a natural fertilizer for your garden. There are lot many ways one can use fruit peels, vegetable leaves, citrus fruit rinds, shells of fruits, dried up vegetables and more.

### **Why should you recycle food?**

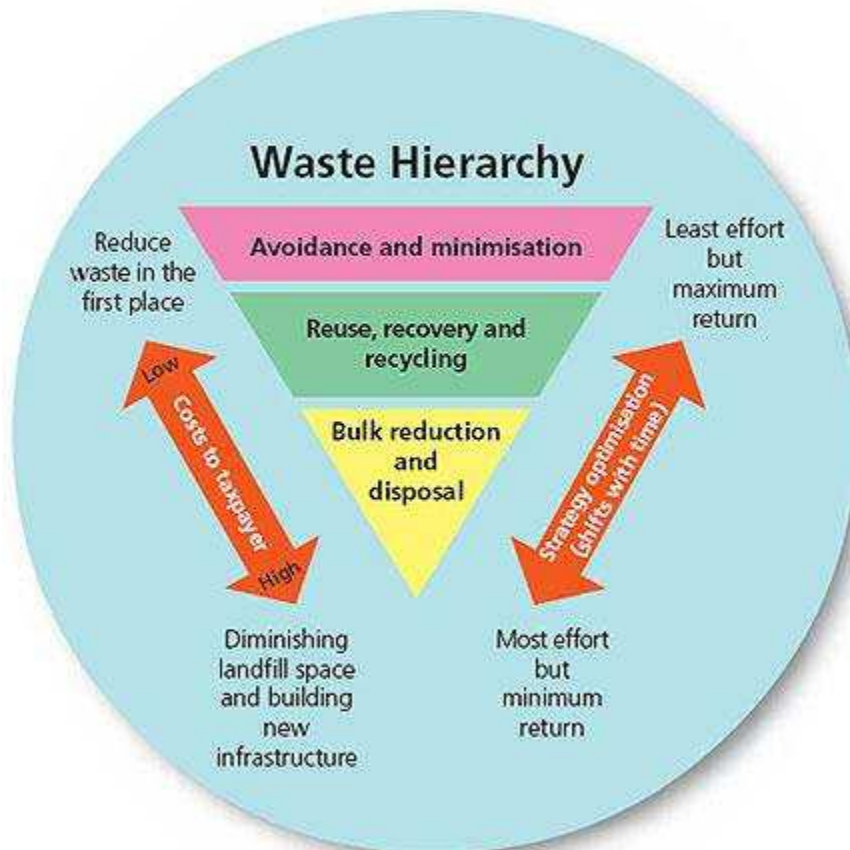
- Methane from food waste is 22 times more damaging to the environment than CO<sub>2</sub>.





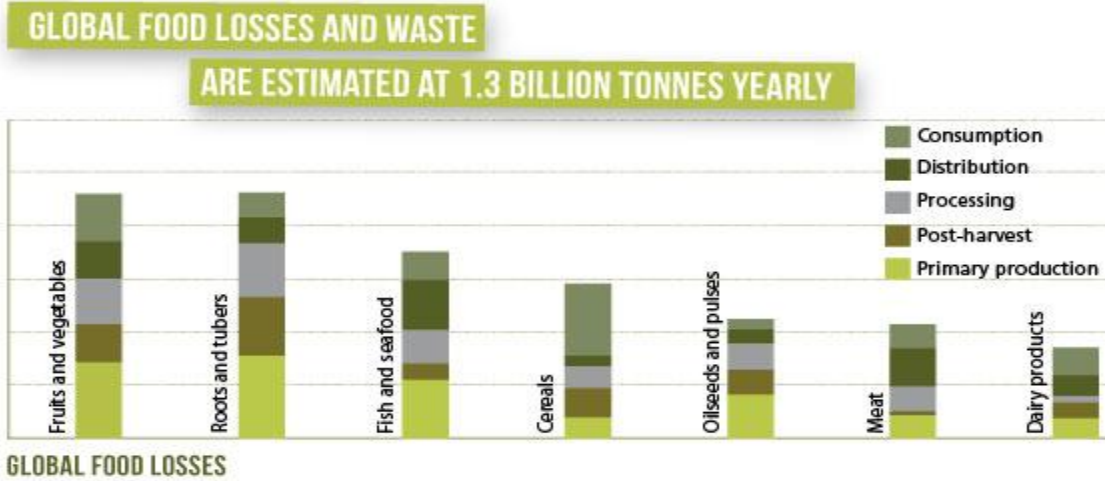
- The recycling process is even better than CO<sub>2</sub> neutral, as it generates renewable energy.
- Be one step further towards 'Zero Waste to Landfill'.
- Your general waste containers will be cleaner and lighter, therefore recycling your general waste is easier and cheaper.

Following diagram will show the effective way is to reduce the waste from the source:



Some figure about global food losses and waste:





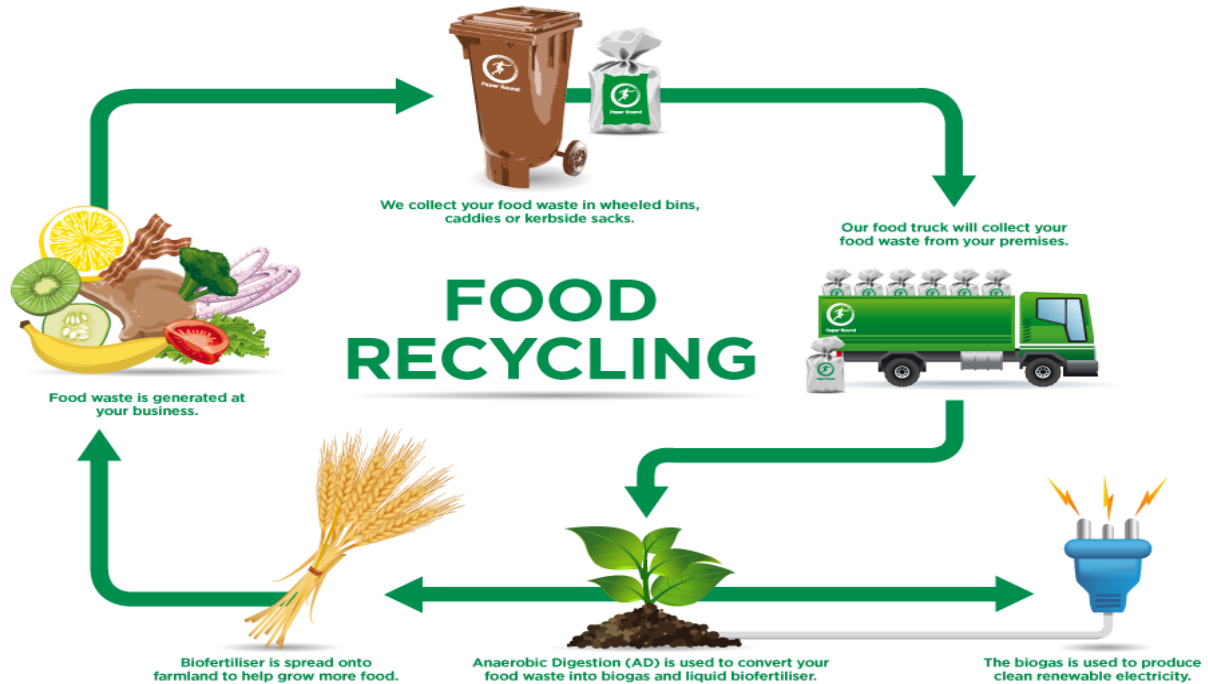
The best thing we can do is make the most of the food and drink we buy rather than throwing it away - it's best financially and environmentally. Just think about all the energy, water and packaging used in food production, transportation and storage. This all goes to waste when we throw away perfectly good food and here's why. But what to do if you do have food that can't be eaten or stored for later?



When waste is sent to landfill, air cannot get to the organic waste. Therefore as the waste breaks down it creates a harmful greenhouse gas,

methane, which damages the Earth's atmosphere. However, when this same waste is composted above ground at home, oxygen helps the waste to decompose aerobically which means hardly any methane is produced, which is good news for the planet.

### What happens to your food waste?



### Food Waste Recycling:

#### Five reasons to recycle your food waste



- 1) It's easy
- 2) Contains food smells
- 3) Caddies lock to stop pests getting access
- 4) It's collected once a week
- 5) Turned into electricity

#### Recyclable and Non-recyclable Food Waste:



✓ Recyclable	× Non-recyclable
Fruits: Fruits, fruit peels	Liquid: such as soup and juice
Vegetables: Vegetable leaves, roots and seeds, and peels of melon	Wood/ bamboo: Wooden chopsticks, toothpicks
Grains: Rice and other grain products	Cardboards: Paper packagings
Noodles: Noodles, bread and other wheat products	Metal Products
Beans: All kind of beans	Glass products
Meats: Raw or Cooked chicken, duck, fish and meats etc.	Plastic products: such as plastic bags, plastic table cloths and nylon ropes
Gardening: Floral, leaves and herbs	Household chemicals: such as detergents and insecticides
Residues: Residues of cane, tea leaves, Chinese medicines and coffee residual	Bones <sup>2</sup>
Snack: Biscuits	Seed of fruits: Seeds of mangoes and durians, etc.
Shells: Egg shells, shrimp shells, etc.	Hard shell: Conches, shell of crabs, etc.
	Dense fibre: Peels and core of corns, dried leaves for grabbing dumplings
	Others: Absorbent pads

If you don't have a garden or don't want to compost then find out if your local Council offers a food waste recycling service. These collections will allow you to recycle your cooked and raw food scraps which will then go off to be commercially composted at a local facility. There are two ways is can be recycled.

The first, **In-vessel composting**, involves mixing food waste with garden waste, shredding it and composting it in a tunnel or container for around two to four weeks. Temperatures of up to 70 degrees C speed up the process and kill any harmful microbes. It is then left for a further 1-3 months with regular turning and checks to ensure quality, before going on to be used as soil conditioner.

The second method, **Anaerobic Digestion**, uses micro-organisms called 'methanogens' to break down food waste, animal manures and energy crops in the absence of oxygen, inside an enclosed tank. As it breaks down, it gives off 'bio-gas' that is collected and used to generate electricity, heat or





transport fuels. It also creates biofertiliser, which can be used in farming and land regeneration.

### **Environmental Impact:**

Reducing food waste is a major issue and not just about good food going to waste; wasting food costs the average family with children almost £60 a month and has serious environmental implications too.

The amount of food we throw away is a waste of resources. Just think about all the energy, water and packaging used in food production, transportation and storage. This all goes to waste when we throw away perfectly good food.

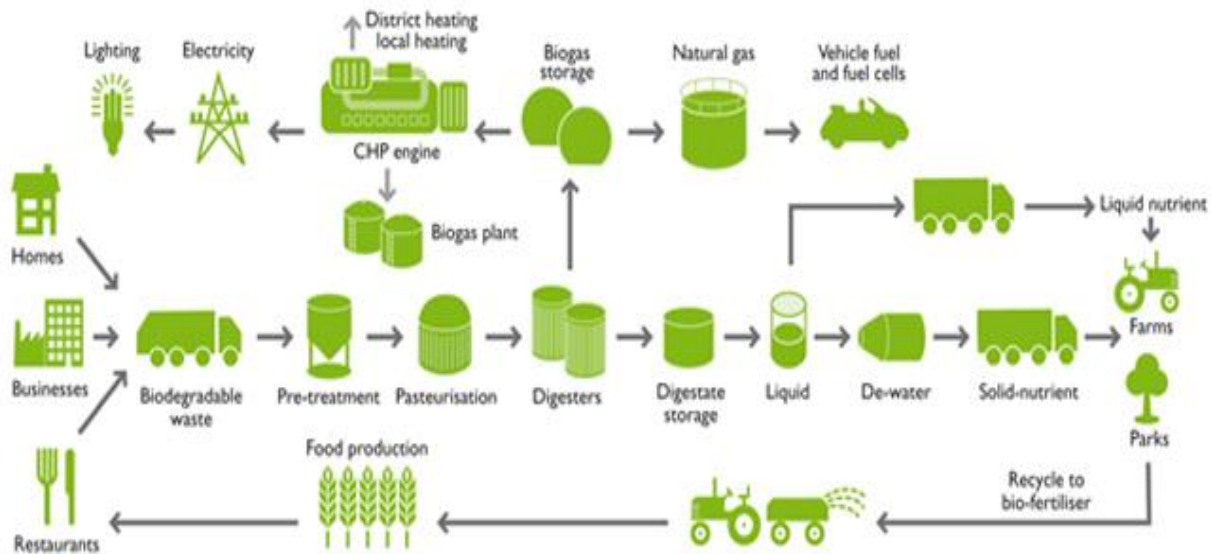
Cheese is a good example – feeding and milking the cows, cooling and transporting the milk, processing it in to cheese, packing it, getting it to the shops, keeping it at the right temperature all the time. If it then gets thrown away it will most likely end up in a landfill site, where, rather than harmlessly decomposing as many people think, it rots and actually releases methane, a powerful greenhouse gas.

### **Food Waste Process:**

Once food waste is delivered to recycling facility it passes through a stringent acceptance criteria. The food waste is then depackaged, screened and pasteurized before being fed into the anaerobic digesters. The pasteurization stage ensures that the resulting fertilizer output from the digesters is safe for application to farm land. The anaerobic digesters transform the food waste into biogas and nutrient rich fertilizer.

Anaerobic digestion is a completely natural process through which micro-organisms break down the food waste in the absence of oxygen to produce methane.





The biogas produced from the digestion process undergoes processing in our gas to grid plant to convert it into enriched biomethane. This can be used to provide vehicle transport fuel for our Bio-Bus and Bio-Bug or supply homes.

The liquid from our digesters is rich in nutrients and is a great source of organic fertilizer. It is either recycled to farm land as a liquid or alternatively it is dewatered to produce a solid cake which is used as a fertilizer.

You can also get creative and invent your own ideas to reuse food waste and one of the most important of that is food recycling. Here are some ways you can use your food waste in the most green way and reuse it for good purposes and which will lead us to reduce the waste:

### 1. Make compost

Leftover food waste and vegetable throw away can make great compost for your garden. All you need to do is make a pit for putting this compost in, in your garden and throw all food waste in it everyday. Make sure you don't add meat leftovers as that can call for animals in your garden. As food waste is biodegradable, it will rot and mix with the soil to make great compost. This compost is very good for growing vegetables and even other plants in



your garden. Add small portions of this compost to your garden soil and mix well. See how your garden flourishes in no time.

## **2. Give to neighbors compost pit**

If you have a small house and cannot make a compost pit yourself, you can hand the waste to your neighbors compost pit. Again no meat should be thrown in. Some farmers also have large compost pits, they can pick it up from you or you can hand it over to them once a week.

## **3. Organic waste recyclers**

You can take your grass cuttings, dried leaves, food wastes to the organic waste recyclers in the town. These are places in the town which collect all the organic waste and recycle them. You can even have a recyclers bin installed in your house, where you can throw all the food waste and the authorities responsible for recycling will collect it once or twice a week.

## **4. Fruit peels pots**

When you like gardening, you would have to sow the seeds to make a seedling. These seedlings need to be taken care off while growing. Use fruit peels like the shell of the watermelon or avocado peels with the pulp removed, etc to plant your seeds in. Once the seedling grows, the peels can be used as the compost when you plant it in the garden.

## **5. Make potpourri**

Why waste money on buying potpourri from the market when you can make it at home? Use all the possible fruit peels and rinds which remain after you have consumed the fruit and dry them either in the sun or a food dryer. Then crush it and add the flavor of your choice. Your homemade potpourri is ready.

## **6. Keep slugs away**

Garden slugs tend to eat up your favorite plants and their roots. Hence instead of throwing away groundnut shells or egg shells, you can place them around your plants stem on the soil. garden slugs cannot climb them due to the rough surface and hence won't affect your plants.







### 7. Polish brass and copper

Lemon and lime contain citric acid and the peel contains more of it. You can use the leftover peels to rub copper or brass items. They will bring a great shine and clean these things very well.

### 8. Easter Eggs dye

Easter eggs are always colored with artificial colors which can be harmful for your body. Instead boil the eggs with a few onion skins. The eggs will get a dark yellow or orange color. No need of those artificial food colors and your throw away onion skins got used as well.

### 9. Peanut Shells for grilling

Barbeque grilling needs a lot of coal and fuel to keep it burning for long. Instead use peanut shells. Soak them in water in advance and dry them a bit before use and put them over your coal in the grill. They burn for a long time and keep the fire going.

### 10. Bird houses from gourds

You can use left over large sized gourds. Dry them and treat them for smell. Make them hollow and use as bird houses in your garden.

### Conclusion:

The most effective strategy for food waste management is avoidance and minimization of food waste. Don't forget to make the most of your food and drink and try to avoid wasting food in the first place. **Love Food But Hate Waste.** You could also try to compost at home. A food waste caddy in your kitchen can help you to separate out your food waste for recycling and composting. This can be emptied into your compost bin or council food waste bin every couple of days. Your council may recommend that you line your food waste caddy with a liner or newspaper. Only use liners that are recommended by your council as some may not break down in the composting process. Where possible keep your bins out of direct sunlight and keep the bin lid closed.

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