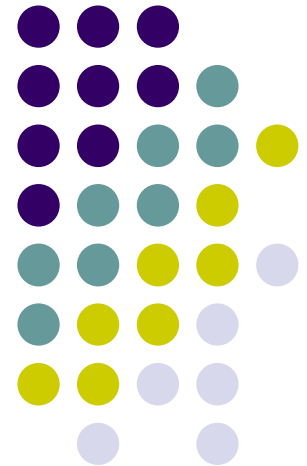




Separate to Save

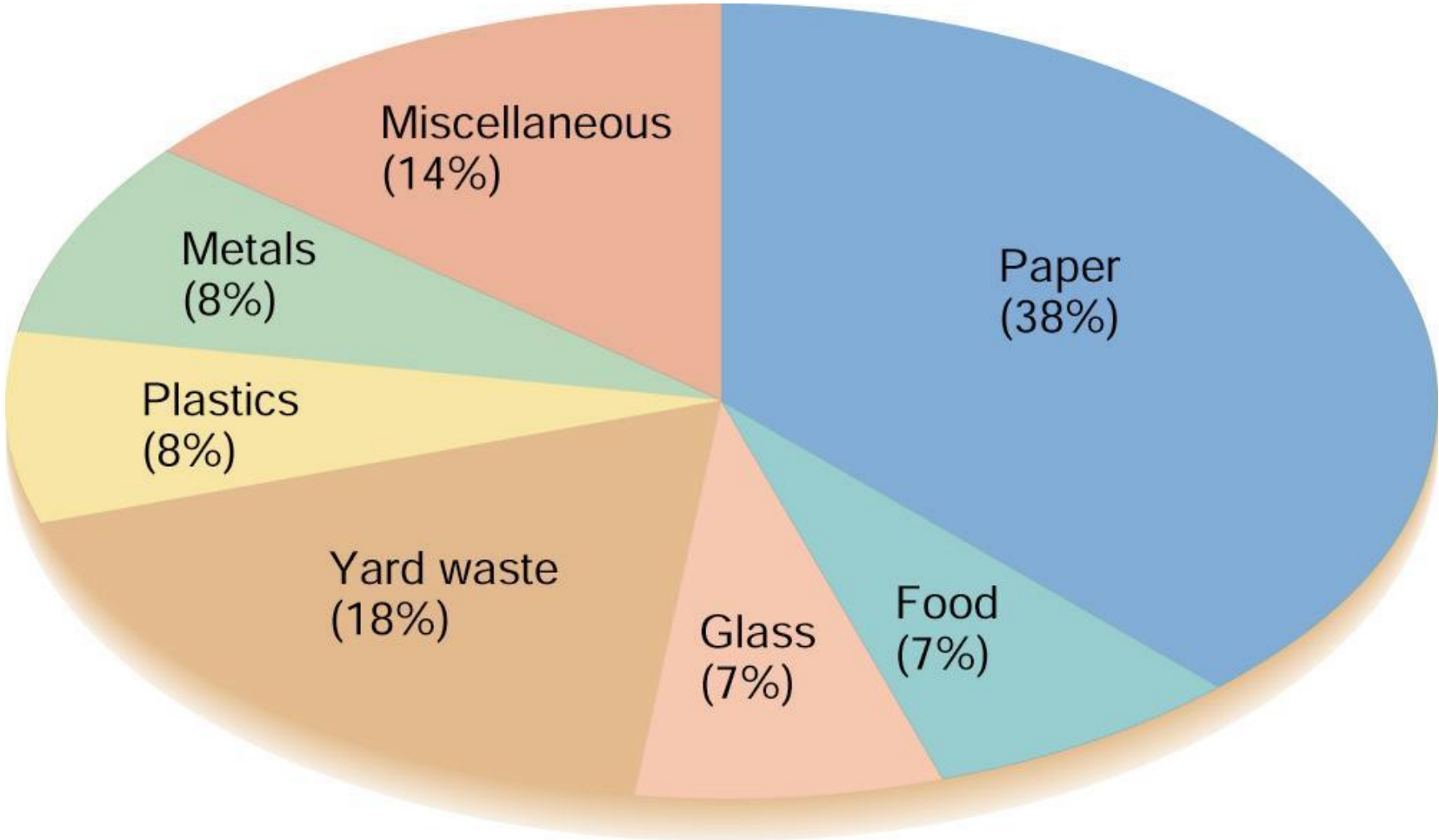
Athanasios Panayiotopoulos
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Introduction to Municipal Solid Waste

- Commonly known as **trash** or **garbage**. It is a waste type consisting of everyday items that are discarded by the public. "Garbage" can also refer specifically to food waste, as in a garbage disposal; the two are sometimes collected separately.
- In the European Union, the semantic definition is 'mixed municipal waste,' given waste code 20 03 01 in the European Waste Catalog. Although the waste may originate from a number of sources that has nothing to do with a municipality, the traditional role of municipalities in collecting and managing these kinds of waste have produced the particular etymology 'municipal.'

Typical Municipal Solid Waste Composition



Disposable Decades

- Mid-1970s – emphasis on a disposable lifestyle
 - Wave of the future
 - Way to reduce household duties.
- Convenience was sold to prosperous consumers.
 - Convenience quickly changed to necessity.
 - TV dinners first marketed in 1975.
 - In 1980's a new lifestyle occurred in Greece



Methods of Waste Disposal

- Landfills
- Incineration
- Source reduction
- Composting
- Recycling



Nature of the Problem

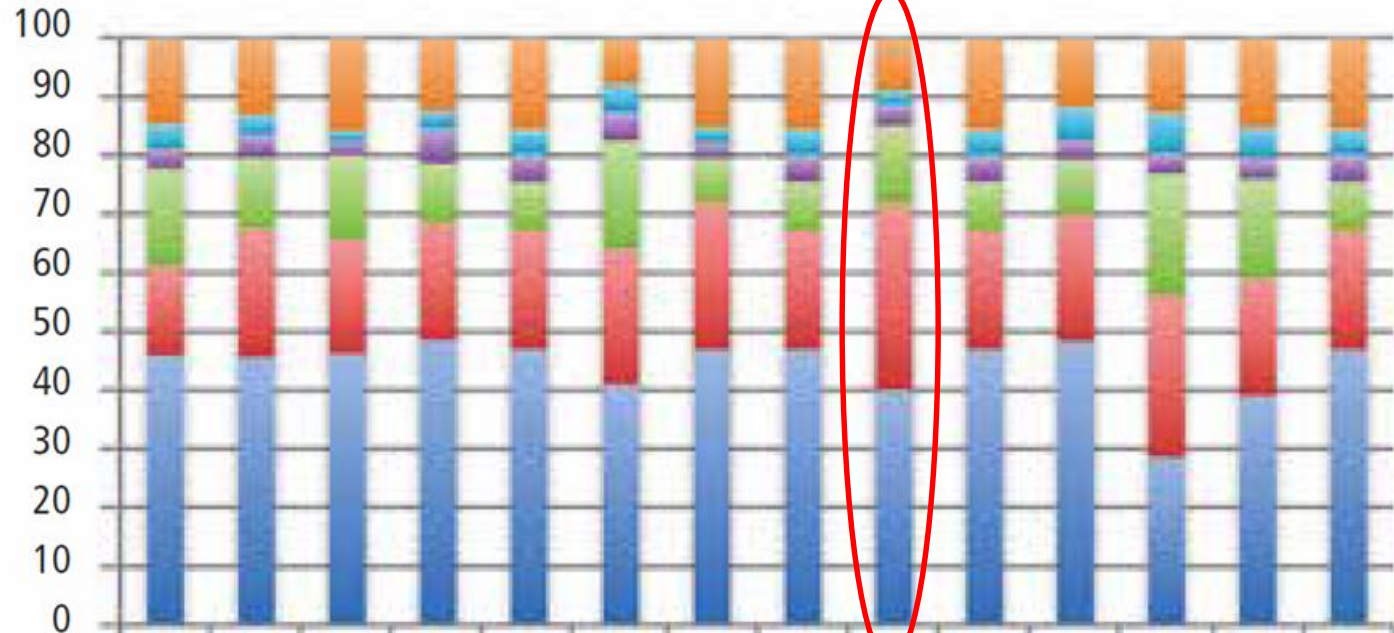
- The volume of garbage has increased more than 50% since 1975.
- Countries with higher standard of living produce more waste.
- Traditional Methods (dumping and burning) are no longer accepted.
- Urban areas running out of places to put garbage.



Composition of Greek Municipal Solid Waste

Composition of Greek MSW

%



East Macedonia and Thrace
 Central Macedonia
 West Macedonia
 Epirus
 Thessaly
 Ionian Islands
 West Greece
 Central Greece
 Attica
 Peloponnese
 North Aegean
 South Aegean
 Crete
 Greece

Others Glass Metals Plastics Paper Organics

Landfill Problems

- Most municipal solid waste is deposited in landfills
- Source of groundwater pollution
- Production of Greenhouse gases (methane, CO₂)
- Number of municipal landfills is declining
 - Some closed for violations, other because of saturation
 - New landfills are costly and often resisted from locals



Incineration Problems

- Creates air pollution
- Concentrates toxins in ash
- More costly than landfills, as long as space is available



Solutions

- Source Reduction

Source Reduction Benefits

- Most fundamental method of reducing waste is to prevent it from being produced (Waste Prevention).
- Reduce and reuse.
- Saves natural resources.
- Reduces costs

Solutions

- Source Reduction
- Reduce – Reuse - Recycle



Recycling Benefits

- Saves money, raw materials, and land.
- Encourages individual responsibility.
- Reduces pressure on disposal systems.
- Lowers demand for raw resources.
- Reduces energy consumption and air pollution.

Solutions

- Source Reduction
- Reduce – Reuse - Recycle



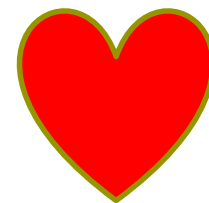
Options for Organic Waste

- **Composting:** Harnessing natural decomposition to transform organic material into compost- **soil enhancer/fertilizer**
- **Substrate for fermentation:** After drying and size reduction, municipal organic waste represents a high protein/ fat/ carbohydrate material that can be used as substrate for various microbial fermentation (bioethanol, organic acids, etc.)
- **Biogas production:** Anaerobic digestion for the controlled production of biogas (methane)



Public Awareness Challenge!

- Buy durable items and repair them
- Buy recycled goods and recycle them
- Buy beverages in refillable containers
- Rechargeable batteries
- Reduce junk mail
- **Education-Training and Motivation for trash separation and recycling**
- Choose items with minimal packaging & reduce number of bags used
- Minimize food waste



Thank you for your attention!

