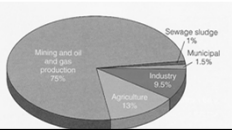


SOLID AND HAZARDOUS WASTE

Chapter 22

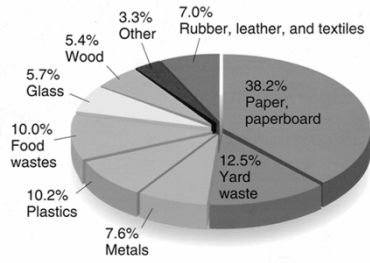
The United States produces



The Average American produces
over

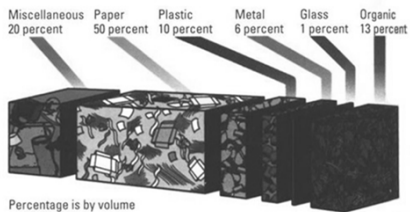
70% more than in 1960

Average Composition of MSW



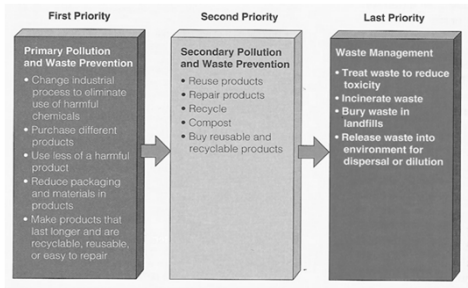
What happens to the MSW?

Composition of Refuse in Landfill



COMPOSITION VARIES BY AREA AND PROGRAMS THAT ARE IN PLACE

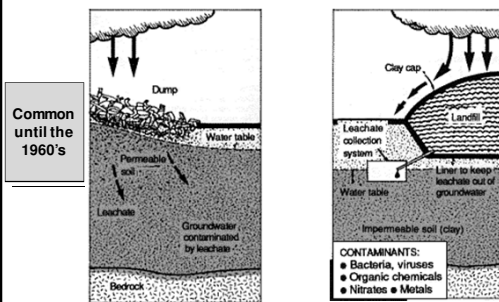
Integrated Waste Management



Integrated Waste Management

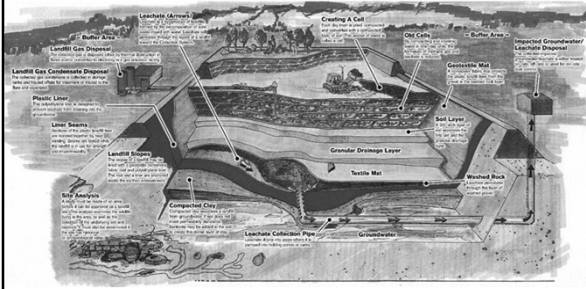
- A set of management alternatives to manage waste.
- **Reduce, reuse, recycle**-reduce waste by better packaging
- **Landfill** refuse and hazardous waste separated in different areas.
- **Incineration** used in some areas to reduce landfill space,

Old Landfill vs. New Landfill



What is Leachate?

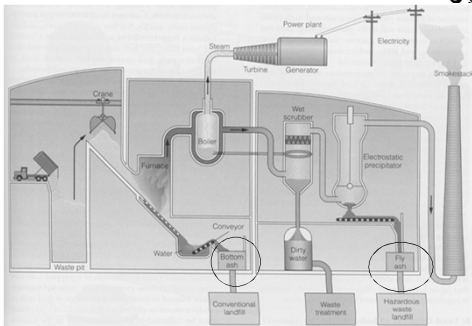
Current Landfill design



Important parts of a Landfill

■ Site analysis-

Incineration- Waste to Energy



WASTE REDUCTION THE 5 R'S

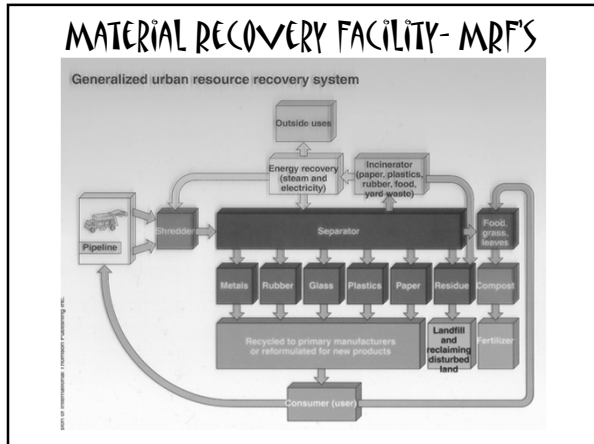
- REFUSE
- REDUCE
- REUSE
- REPURPOSE
- RECYCLE

Recycling-Primary vs. Secondary

- Primary (closed-loop)- products are recycled to produce new products of the same type
- Newspaper- 41%
- Aluminum and steel cans- 38%, requires less energy to use recycled material than mine for new
- Glass-26%
- Yard waste- 39%- forms compost

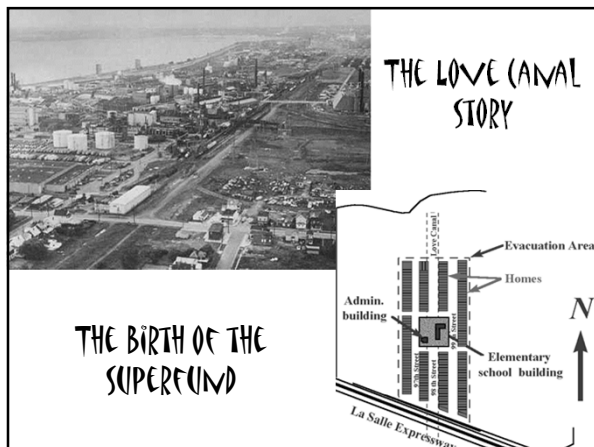
Secondary

- Converted into different products
- Tires become rubberized road surfaces
- Plastic drink bottles are remanufactured into fleece, polyester, carpet, and automobile parts



HAZARDOUS WASTE

*How do we treat it differently
and Why?*



LOVE CANAL

- **From 1920 to 1950 20,000 tons of chemicals were dumped into the canal**
- In 1953 Hooker Chemicals filled the canal and covered it with clay
- **Sold it for \$1 to the Niagara Falls School District.**
- By 1959, an elementary school, playing fields and almost 1,000 homes had been built!
- **In 1977 an informal health survey showed birth defects, miscarriages (4x higher), cancer, and nerve, kidney and respiratory disorders**
- In 1980 President Carter declared it a federal disaster area, cost \$129 million to clean up
- **In 1990 renamed the Black Creek Village and began selling homes again, is it safe?**

RCRA

Resource Conservation and Recovery Act 1976

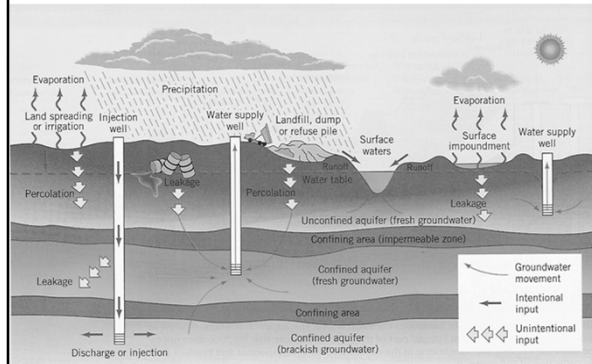
- *EPA identifies hazardous waste and governs the location, design, construction, operation and final closure of the landfill*

CERCLA

Comprehensive Environmental Response Compensation and Liability Act 1980

- Defines policies and procedures for release of hazardous substances into the environment.

Waste Contaminants from Waste Storage



The contaminants of e-waste
