WORLD HEALTH ORGANIZATION
REGIONAL OFFICE
FOR THE EASTERN MEDITERRANEAN

ORGANISATION MONDIALE DE LA SANTÉ
BUREAU RÉGIONAL
POUR LA MÉDITERRANÉE ORIENTALE

SHORT COURSE ON SOLID WASTES
COLLECTION AND DISPOSAL
Damascus, 20-30 May 1968

EMRO 134

Lecture No.17

# On-Site Disposal and Other Methods

A. Incineration
   1. Within the building
      a. Two chamber
      b. Auxiliary fuel
   2. Outside the building (backyard burning)
      a. Smoke nuisance
      b. Fire hazard
   3. Residue and non-combusted material to be disposed of

B. Grinding of Food Wastes to Sewer
   1. Principal advantage in food handling establishments
   2. Non-grindable refuse to be collected by other means
   3. Affects sewage treatment

C. Garchey Systems
   1. Non-ground mixed household refuse (small enough to pass through a 6-inch pipe) flushed to a holding tank below
   2. Water extracted and refuse incinerated
   3. Matthew Hall-Garchey System — eliminates the incinerator— refuse is removed by a pump truck unit for transport to disposal site
   4. Water used is waste water from baths or sinks--finally discharged to sewer

D. Teepee Burners

1. Not acceptable for mixed refuse
2. Must include proper design of air input and fuel feed
3. Source of air pollution
4. Residue needs quenching and disposal
5. Generally not recommended

E. Industrial Solid Wastes

Should be considered the joint responsibility of the industry and the local authorities. Need mutual cooperation in solution of this very important problem both to protect the public from improper disposal methods and to allow the industry to maintain its position in the community. Methods for disposal are as varied as the waste itself.

F. Salvage and Reclamation

1. Waste paper and cardboard
2. Metals
   a. Ferrous
      (1) Bale
      (2) Fragmentize
   b. Non-ferrous
      (1) Must be cleansed of other material
      (2) Separated into different metals
3. Textiles
4. Glass
   a. Usually needs to be separated
   b. Needs to be well washed
5. Bones
6. Rubber - watch out for synthetics
7. Food wastes
   a. Hog feeding
      (1) Requires cooking to prevent disease transmission
      (2) Residue to be disposed of
   b. Composting.

8. Incinerator residue
   a. Fly ash
      (1) Additive for concrete
      (2) Base for fertilizer
   b. Grate residue
      (1) Source of metal scrap
      (2) Can be used for fill material

G. Pulverization
1. Refuse becomes practically odorless and dustless
2. Flies and vermin not attracted to it
3. Low manurial value
4. Unless removed, contains particles of glass and metal
5. Particle size dependent on size of aperture in discharge
6. Pre-separation of materials which may cause damage is important
7. Reduction in volume may vary from 40-60% (except with light flocculent material which may be increased in volume)
8. Final consolidation more complete and settlement time much reduced and requires a minimum of cover material if used as fill
9. May be composted or incinerated as well as used as fill material
10. Equipment
   a. Expensive, very rugged
   b. Requires considerable maintenance
   c. Available in range of capacities
   (photos - "Public Cleansing - Refuse Disposal" by F.L. Stirrup, Pergamon Press, Ltd. 1965 - Figures 17 and 18, pages 66-67 and Figures 15 and 16 - pages 62 - 63)

H. Grinding
1. Garbage and Food Wastes
   a. To sewers
      A. Household
      B. Commercial

b. At sewage treatment plants

A. Into sludge digestor

B. Into incoming sewage

2. Combined Refuse - Into Sewers

3. Effect on sewage treatment

4. Effect on receiving water

I. Special applications of pulverizers or grinders

1. Old automobiles

2. Tree limbs and brush