

ENVIRONMENTAL SANITATION

"Environmental sanitation" means the art and science of applying sanitary, biological and physical science principles and knowledge to improve and control the environment and factors therein for the protection of the health and welfare of the public.

COMPONENTS OF ENVIRONMENTAL SANITATION:-

- WATER SANITATION
- FOOD AND MILK SANITATION
- EXCRETA DISPOSAL
- SEWAGE DISPOSAL
- REFUSE DISPOSAL
- VECTOR AND VERMIN CONTROL
- HOUSING
- AIR SANITATION

Water Sanitation:- WATER ANALYSIS CONSISTS OF:

- PHYSICAL
- CHEMICAL
- RADIOLOGICAL
- BIOLOGICAL
- BACTERIOLOGICAL
- **PUBLIC WATER SUPPLY MUST BE-**
 - SAFE
 - REASONABLY SOFT
 - PLENTIFUL
 - CHEAP
- **HOUSEHOLD TREATMENT OF WATER**
 - BOILING, i.e., beyond 2 minutes
 - CHLORINATION- 1-5ppm
 - IODINE TREATMENT- 10 drops per gallon
 - FILTRATION and _ AERATION

BACTERIOLOGICAL EXAMINATION OF WATER SAMPLES:

POP'n served	Max. Interval between sampling	Min # of samples/per pop'n/month
Up to 20,000	One month	One sample/5,000
20,001-50,000	Two weeks	One sample/5,000
50,001- 100,000	Four days	One sample/10,000
More than 100,000	One day	One sample/10,000

WATER SANITATION – CHEMICAL QUALITY:

CHEMICAL	CONCENTRATION[mg/L]
Arsenic	0.2
Barium	1.0
Cadmium	0.01
Chromium	0.05
Cyanide	0.01
Lead	0.1
Selenium	0.05
Silver	0.05

FOOD AND MILK SANITATION:-

- The GOLDEN RULE of food sanitation is:

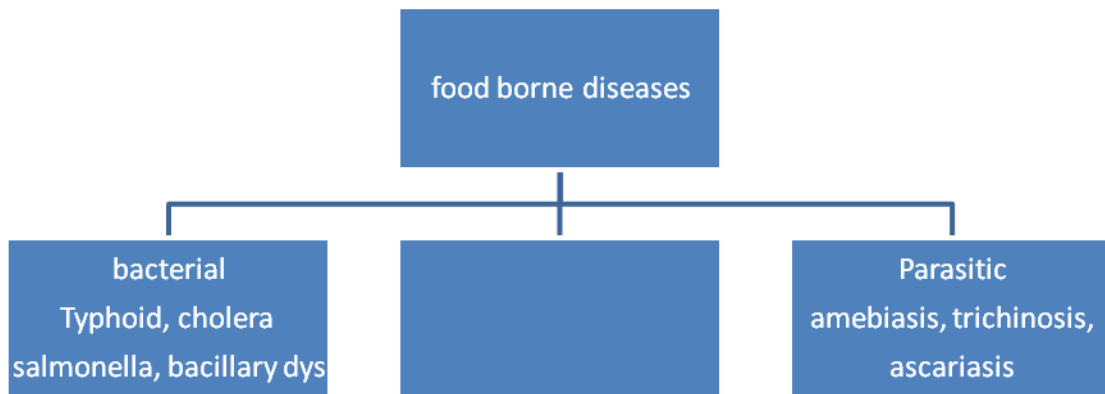
“Keep it cold or hot, and keep it covered”

Food Sanitation:

- **3 ENEMIES OF FOOD STORAGE:**

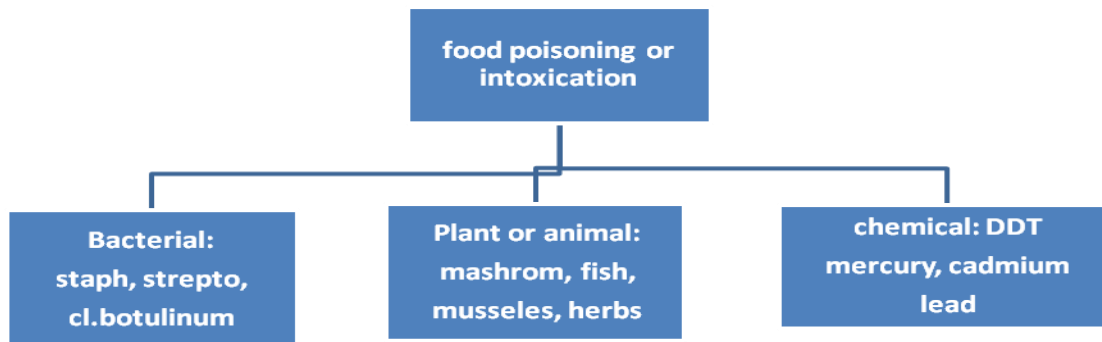
- HIGH TEMPERATURE
- HIGH HUMIDITY
- CONTAMINATION BY STRONG ODORS

FOOD SANITATION: FOOD BORNE



DISEASES

FOOD SANITATION: FOOD BORNE



DISEASE:

Milk Sanitation:

- STERILIZATION- The application of high temperature for the purpose of destroying all types of microorganisms.
- pathogenic microorganisms with minimum injury to the substance
- TYPES OF PASTEURIZATION:
 - HOLDING OR VAT PASTEURIZATION: 142—143 F FOR 30 MINS.
 - HIGH TEMPERATURE, SHORT TIME [HTST]- 160-162 F FOR 15 MINS.

FLASH PASTEURIZATION- 190 F FOR FEW SECONDS

EXCRETA DISPOSAL:-

● METHODS :

1. WITH WATER CARRIAGE
2. WITHOUT WATER CARRIAGE

. WITHOUT WATER CARRIAGE:-

- CAT-HOLE
- STRADDLE TRENCH
- SANITARY PIT PRIVY
- BORED-HOLE
- CHEMICAL TOILET
- PAIL SYSTEM

OVERHUNG LATRINE -"POUR-FLUSH"

. WITH WATER CARRIAGE:-

- WATER SEALED
- SEPTIC TOILET/AQUA PRIVY
- IMHOFF TANK SYSTEM

● CHARACTERISTICS OF ADEQUATE EXCRETA DISPOSAL FACILITIES FOR RURAL AREAS.

- SIMPLE, CHEAP AND EASY TO CONSTRUCT
- EASY TO MAINTAIN
- AFFORDS EASY PROTECTION AGAINST THE ELEMENTS AND PROVIDE DESIRED PRIVACY
- ACCEPTABLE TO THE USERS

REFUSE/WASTE DISPOSAL:

- **REFUSE** IS A GENERAL TERM APPLIED TO SOLID AND SEMI SOLID WASTE MATERIALS OTHER THAN HUMAN EXCRETA
- PUBLIC HEALTH REASONS FOR PROPER DISPOSAL OF WASTES
 - BREEDING PLACE FOR INSECTS AND RATS
 - GIVES OUT FOUL SMELL
 - "EYE SORE"

- FIRE HAZARD
- TYPES OF REFUSE
 - **GARBAGE:** LEFT-OVER VEGETABLES, ANIMAL AND FISH MATERIAL FROM KITCHENS AND FOOD ESTABLISHMENTS.
 - **RUBBISH:** WASTE MATERIAL SUCH AS BOTTLES, BROKEN GLASS, TIN CANS, WASTE PAPERS, DISCARDED PORCELAINWARE, PIECES OF METAL, WRAPPING PAPERS ETC.
- TYPE OF REFUSE:.. Con't..
 - ASHES: LEFT-OVER FROM BURNING OF WOOD AND COAL.
 - DEAD ANIMALS/ CARCASSES
 - STABLE MANURE
 - STREET SWEEPING: DUST, MANURE, LEAVES, CIGARETTE BUTTS, WASTE PAPER AND OTHER MATERIALS THAT ARE SWEEPED FROM THE STREETS
 - NIGHT SOIL: HUMAN WASTE WRAPPED AND THROWN INTO SIDEWALKS AND STREETS
 - YARD CUTTINGS: LEAVES, BRANCHES, GRASS
- **CHARACTERISTICS OF CONTAINERS:**
 - SMALL ENOUGH TO BE EASILY CARRIED
 - SUFFICIENT IN NUMBER
 - PROVIDED WITH TIGHT-FITTING COVERS
 - MADE OF STURDY MATERIAL
 - STEADY
 - PLACED IN AN ACCESSIBLE LOCATION
- **COMMUNITY REFUSE DISPOSAL METHODS:**
 - DUMPING ON LAND
 - SANITARY LANDFILL
 - COMPOSTING
 - INCINERATION
 - REDUCTION AND SALVAGE

- **REFUSE DISPOSAL METHODS FOR HOUSEHOLDS:**

- BURIAL
- BURNING
- FEEDING TO ANIMALS
- COMPOSTING
- GRINDING AND DISPOSAL TO SEWER

- **REFUSE COLLECTION:**

١. FREQUENT COLLECTION OF REFUSE, SPECIALLY GARBAGE, IS NECESSARY FOR GOOD SANITATION
٢. A LONGER INTERVAL BETWEEN COLLECTION CREATES PROBLEM OF STORAGE AND FOUL ODOR FOR THE HOMEOWNER

٣. REFUSE COLLECTION:

3. It is necessary to cover the refuse in the vehicles during transportation to final disposal sites to prevent flies, minimize odors or remove traveling “eye sores”.

4. It is important to have adequate and properly maintained collection carts, trucks and other vehicles to eliminate collection delays and complaints from residents.

VERMIN CONTROL [RODENT AND INSECTS]

- TYPES

- PHYSICAL OR MECHANICAL, CHEMICAL, BIOLOGICAL, ENVIRONMENTAL & EDUCATIONAL

HOUSING SANITATION:-

- CHARACTERISTICS OF AN ACCEPTABLE HOUSE

- ADEQUATE SPACE: AT LEAST 50 SQ.FT./PERSON FOR BEDROOM
- ADEQUATE LIGHTING: AT LEAST 100 FT.CANDLES FOR READING
- ADEQUATE WATER SUPPLY: 15-20 GALLONS PER CAPITA PER DAY

- CHARACTERISTICS OF AN ACCEPTABLE HOUSE...[cont]...

- NOISE: SHOULD NOT BE MORE THAN 30 DECIBELS
- ADEQUATE HEAT AND VENTILATION
- EQUIPPED WITH SANITARY TOILET, FOOD STORAGE AND PROPER REFUSE DISPOSAL

SANITATION REQUIREMENTS IN EMERGENCY SITUATIONS

- WATER

- 1. MINIMUM DEMAND PER PERSON PER DAY

- A. 2 LTS FOR DRINKING
- B. 10 LTS FOR FOOD PREPARATION AND COOKING
- C. 15 LTS FOR BATHING
- D. 15 LTS FOR LAUNDRY
- E. 10 LTS FOR SANITATION AND HYGEINE

1.MINIMUM REQUIREMENTS [..CONT..]

HOSPITALS AND CLINICS

A. OUT-PATIENT: 5 LTS / PATIENT/ DAY.

B.IN-PATIENT: 40-60 LTS/ PATIENT/ DAY

FEEDING CENTERS: 20-30 LTS/PERSON/DAY

2. QUALITY CONTROL

-TO PRESERVE PUBLIC HEALTH, A LARGE AMOUNT OF REASONABLY SAFE WATER IS PREFERRED OVER A SMALL AMOUNT OF PURIFIED WATER.

-BACTERIOLOGICAL, BIOLOGICAL, CHEMICAL, PHYSICAL AND RADIOLOGICAL QUALITY OF WATER MUST BE DEEMED SAFE. ..[CONT...]

- THERE MUST BE NO FECAL COLIFORMS

PER 100 ML. AT THE POINT OF DELIVERY

- PEOPLE DRINK WATER FROM A

PROTECTED OR TREATED SOURCE IN

PREFERENCE TO OTHER READILY

AVAILABLE WATER SOURCES.

- STEPS ARE TAKEN TO MINIMIZE POST

DELIVERY CONTAMINATION

- NO NEGATIVE HEALTH EFFECT is DETECTED.

3. DECONTAMINATION AND DISINFECTION:

- WATER PURIFIER: 2TABS/PERSON/DAY
- HTH [HIGH TEST HYPOCHLORIDE]: STOCK SOLN: 1LT/20 FAMILIES/5 DAYS
- SHOCK DISINFECTION: 50-100 PPM OF 70% AVAILABLE CHLORINE

4. OTHERS REQUIREMENTS

- DRINKING WATER CONTAINER: ONE CONTAINER OF 10 LTS PER FAMILY
- COMMUNAL WATER STORAGE TANK: 10 LTS PER PERSON /DAY. VOLUME OF TANK MUST BE GOOD FOR TWO DAYS
- SHALLOW WELL: FOR TOILET FLUSHING AND CLEANING ONLY
- **OTHER SANITARY REQUIREMENTS:**
 - LATRINE
 - ___ONE /FAMILY
 - ----MIN. 1 SEAT/20 PERSONS
 - --- 50 METERS AWAY FROM HOUSES
 - WASTE DISPOSAL
 - ONE COMMUNAL PIT/500 PERSONS [2X5X2 M]
 - SOAP
 - 250G/PERSON/MO

● OTHER REQUIREMENTS... cont...

- SHELTER
 - INDIVIDUAL: 4 SQ.M./PERSON
 - COLLECTIVE: 30 SQ,M,/PERSON [INCLUDING SHELTER, SANITATION SERVICES, COMMUNITY ACTIVITIES, WAREHOUSING, ACCESS ETC]

ENVIRONMENTAL SANITATION

SAMPLE QUESTIONS:-

- THE MOST COMMON AND MOST PRACTICAL DISINFECTING AGENT FOR DRINKING WATER:
 - A. OZONE
 - B. SILVER

C. UV RAYS D.Chlorine

- THE MOST PREFERRED GARBAGE DISPOSAL SYSTEM IN THE PHILIPPINES:

- A. BURRYING
- B. SANITARY LAND FILL
- C. BURNING
- D. INCINERATION

- THE MOST IMPORTANT AIR POLLUTION PROBLEM IN URBAN AREAS are those that come from:

- A. Acid rain
- B. Automobiles
- C. Factories
- D. Burning of trash

A gas produced by the biodegradation of organic waste:-

- A. Oxygen
- B. Methane
- C. Carbon monoxide
- D. Carbon dioxide

- The most widely practiced sanitary control measure for milk quality

- A. Bacterial count
- B. Coliform count
- C. Pasteurization
- D. Chlorination

Chlorination of water removes:

- A. Odor
- B. Bacteria
- C. Bad taste
- D. Turbidity

Turbidity of water can be removed by:

- A. Boiling C. Chlorination
- B. Coagulation D. Filtration

The control of the environment to prevent communicable disease is:

- A. Disinfection. B. Sterilization
- B. C. Sanitation D. Surveillance