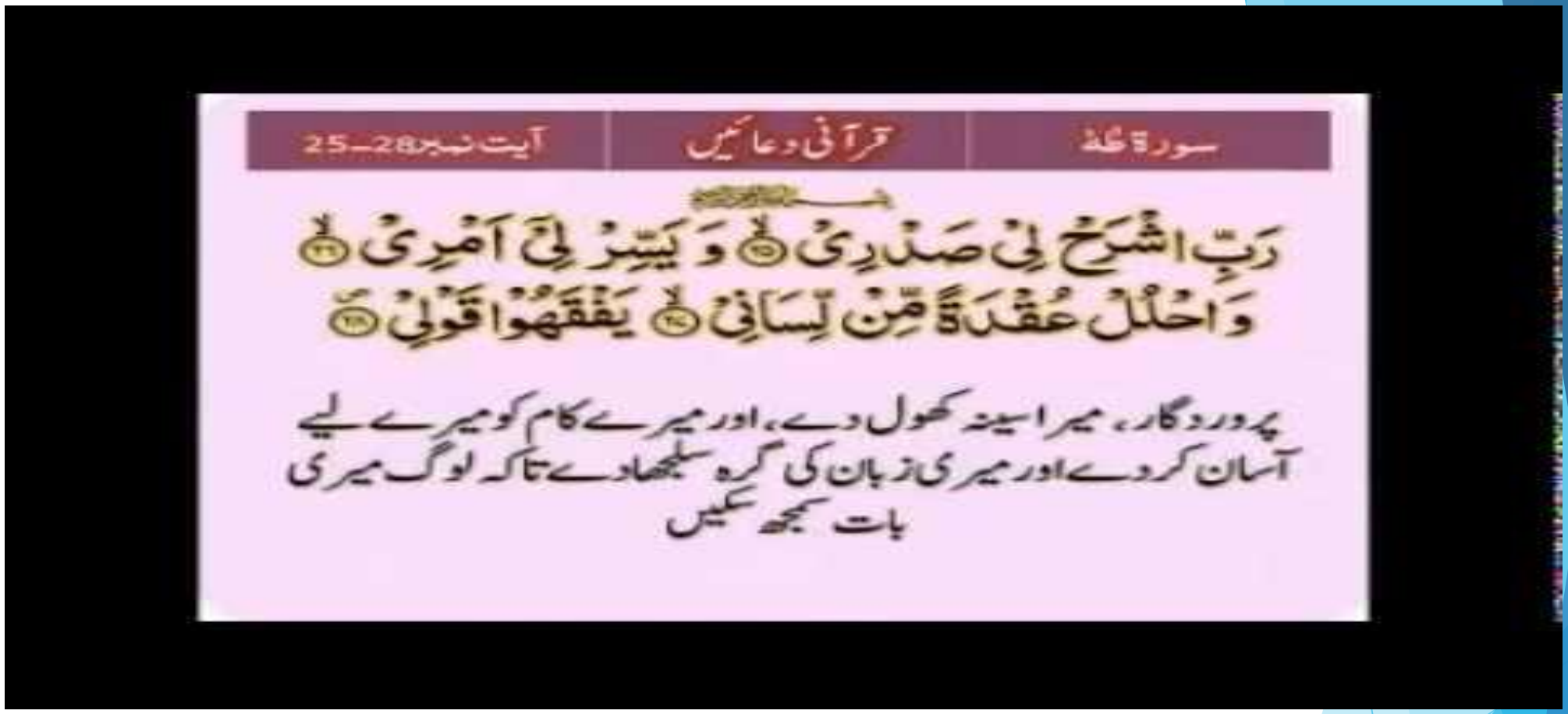

بسم الله الرحمن الرحيم
In The Name Of Allah, The Most Beneficent, The Most Merciful



رَبِّ زِدْنِي عِلْمًا

MY LORD! INCREASE ME IN KNOWLEDGE.

FOOD SAFETY AND QUALITY MANAGEMENT

DHND

YEAR-V

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FSQM L # 47.

NATIONAL AND INTERNATIONAL CRITERIA AND STANDARDS ON WATER QUALITY

CRITERIA AND STANDARDS

Criteria

A rule or principle for evaluating or testing something

Standards

Something used as a measure, norm, ormodel in comparative evaluations

WHO - DRINKING WATER STANDARDS		
PHYSICO-CHEMICAL PARAMETER	UNIT	LIMIT
Aluminium	mg / L	0.2
Arsenic	mg / L	0.05
Barium	mg / L	0.05
Berylium	µg / L	0.2
Cadmium	µg / L	5.0
Calcium	mg / L	200.0
Chromium	mg / L	0.05
Copper	mg / L	1.0
Iron Total	mg / L	0.3
Lead	mg / L	0.01
Magnesium	mg / L	150.0
Manganese	mg / L	0.1
Mercury	µg / L	1.0
Selenium	mg / L	0.01
Sodium	mg / L	200.0
Zinc	mg / L	5.0
Chlorides	mg / L	250.0
Cyanide	mg / L	0.1
Fluorides	mg / L	1.5
Nitrates	mg / L	10.0
Nitrites	mg / L	-
Sulphates	mg / L	400.0
Suphides	mg / L	0
Hydrocarbons	mg / L	0.1
Anionic Detergents	mg / L	0
pH		9.2
Total Dissolved Solids	mg / L	1500
Total Hardness	mg / L	500
Alkalinity	mg / L	500
MICROBIOLOGICAL PARAMETERS		
Total Bacteria	Count / mL	100
Coliform	Count / 100 mL	0
E. Coli	Count / 100 mL	0
Salmonella	Count / 100 mL	0
µg = microgram or ppb	mg = milligram or ppm	

CRITERIA AND STANDARDS FOR DRINKING WATER

Color

- The colour of drinking water may change due to **Tannins**, **Iron, Copper**, **Manganese**, natural **Deposits.** This decreases the acceptance of drinking water.
- It is measure in **Hazen (Hz) Unit**

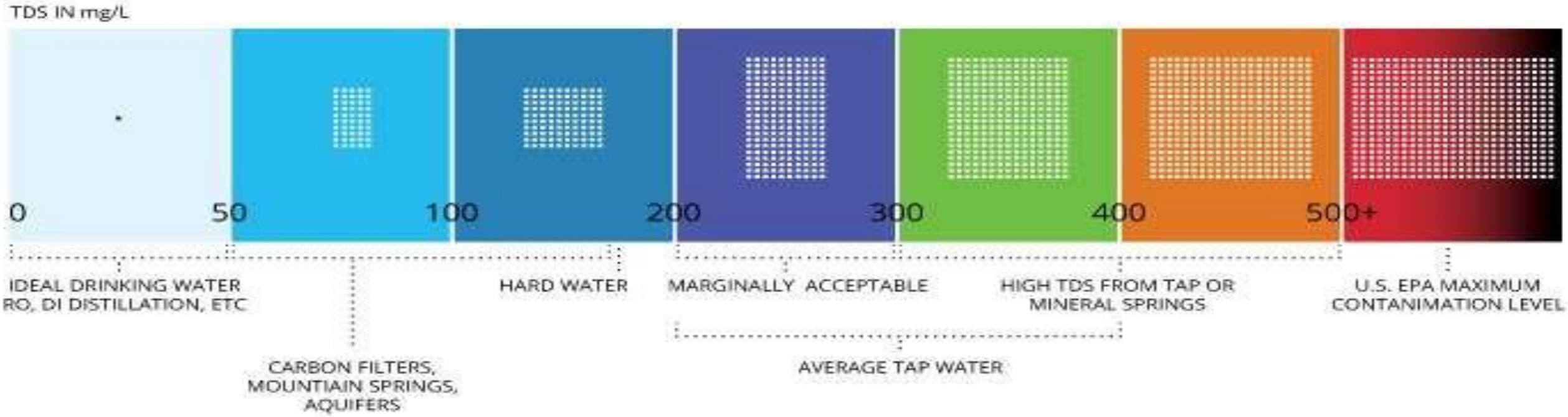
pH

- The desirable limit of pH is **6.5-8.5**
- The lower pH may cause corrosion and metallic taste of water on the other hand higher pH cause bitter taste

CRITERIA AND STANDARDS FOR DRINKING WATER

TDS (Total dissolved solids)

- The desirable limit of TDS is **500 mg/L**
- The higher concentration cause hardness of water, corrosion of pipes.
- The source of dissolve solids in water from livestock waste, hazardous waste landfills



CRITERIA AND STANDARDS FOR DRINKING WATER

Iron(Fe)

- The higher concentration of it makes the water brackish in color, bitter or metallic in taste, brown-green stains
- The permissible limit is 1.0 mg/L

Arsenic (As)

- Some epidemiological studies have suggested that arsenic is carcinogenic but no real proof of the carcinogenicity to man of arsenic in drinking-water has been forthcoming.
- It causes a disease called Black foot disease

CRITERIA AND STANDARDS FOR DRINKING WATER QUALITY

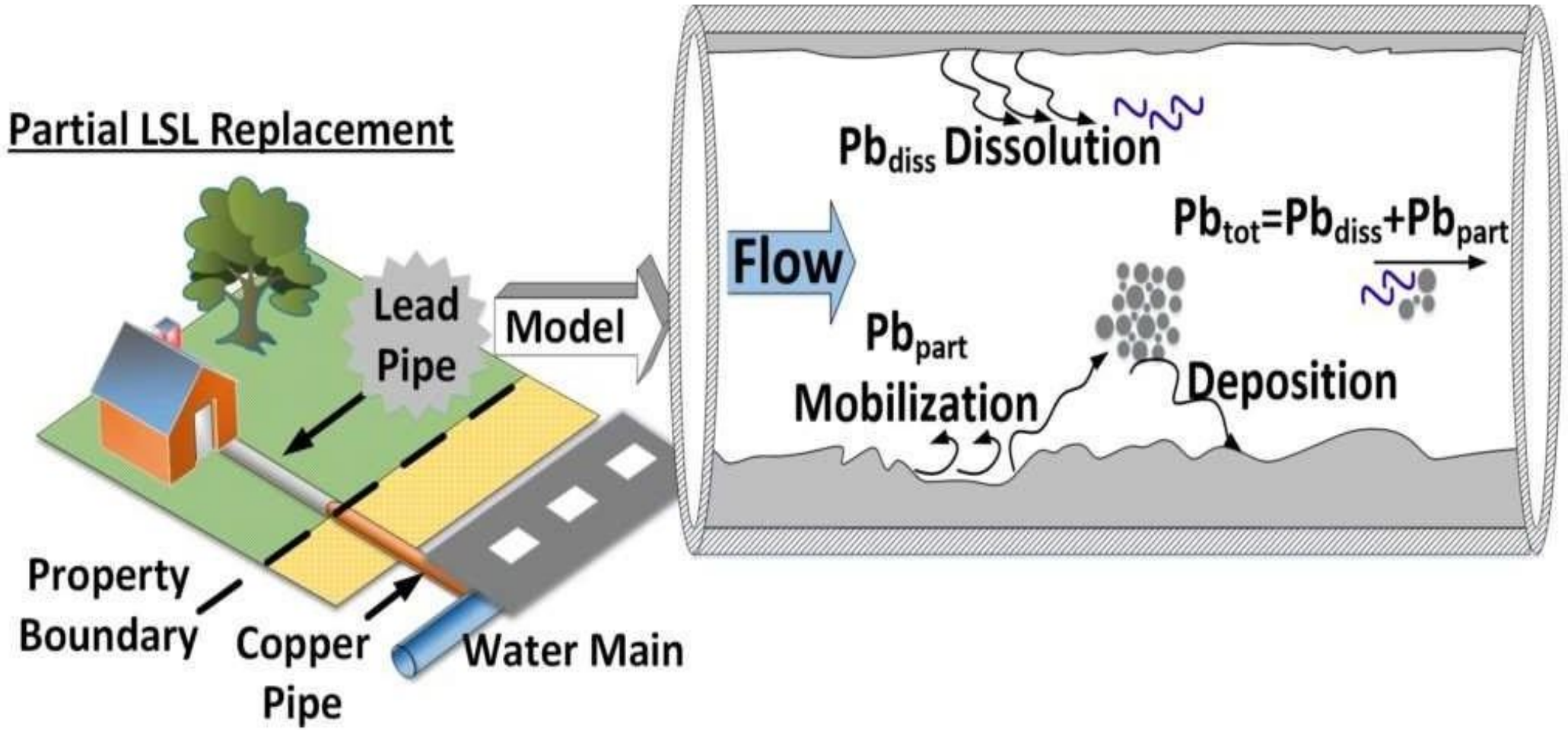
Cadmium

- The results of animal studies suggest that very small amounts of cadmium can produce nephrotoxic and cardiovascular effects, Itai-Itai disease
- Cadmium may be derived from natural or industrial sources, or from cadmium compounds used in the production of plastic water pipes

Lead (Pb)

- It is difficult to reach a lower level in countries where lead pipes are used. Lead compounds are used as stabilizers in some plastic pipes and may leach out.
- The total body-load of lead should be reduced to a level at which equilibrium between absorption and elimination can be maintained.
- The maximum acceptable load of lead from food and beverages has been tentatively placed at 0.05 mg per kg per day.

Source of Lead in Drinking Water



Health Impacts of Lead

CLEAN WATER ACTION
CLEAN WATER FUND

Exposure to high levels of lead can cause severe damage to the brain, blood and kidneys. Children under six are most at risk from lead poisoning. Even low levels of lead exposure have been found to permanently reduce cognitive ability and cause hyperactivity in children.

ADULTS

Brain
Memory loss, lack of concentration, headaches, irritability, depression.

Body
Fatigue, joint and muscle pain

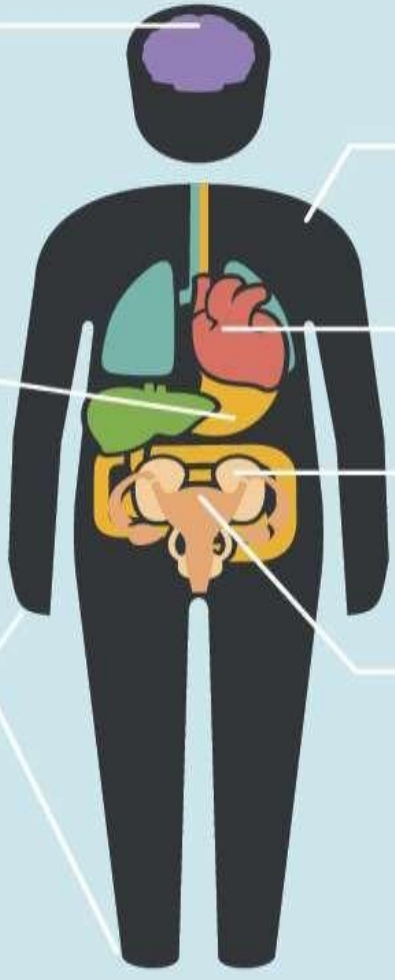
Cardiovascular
High blood pressure

Digestive System
Constipation, nausea and poor appetite

Kidneys
Abnormal function and damage

Nervous System
Damage including numbness and pain in the extremities

Reproductive System
Men: Decreased sex drive and sperm count, and sperm anomalies. Women: Spontaneous miscarriage



CHILDREN

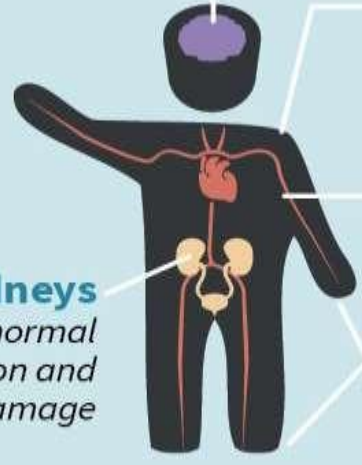
Brain
Behavior problems, lower IQ, hearing loss, learning disabilities

Body
decreased bone and muscle growth

Blood
Anemia

Kidneys
Abnormal function and damage

Nervous System
Damage



CRITERIA AND STANDARDS FOR DRINKING WATER QUALITY

Fluorides (F)

- Fluorides presence in excessive amounts may give rise to dental fluorosis in some children. When present in much higher concentrations, they may eventually cause endemic cumulative fluorosis with resulting skeletal damage in both children and adult.
- If the fluoride concentration in the drinking- water of a community is less than O.5 mg/l the incidence of dental caries is likely to be high

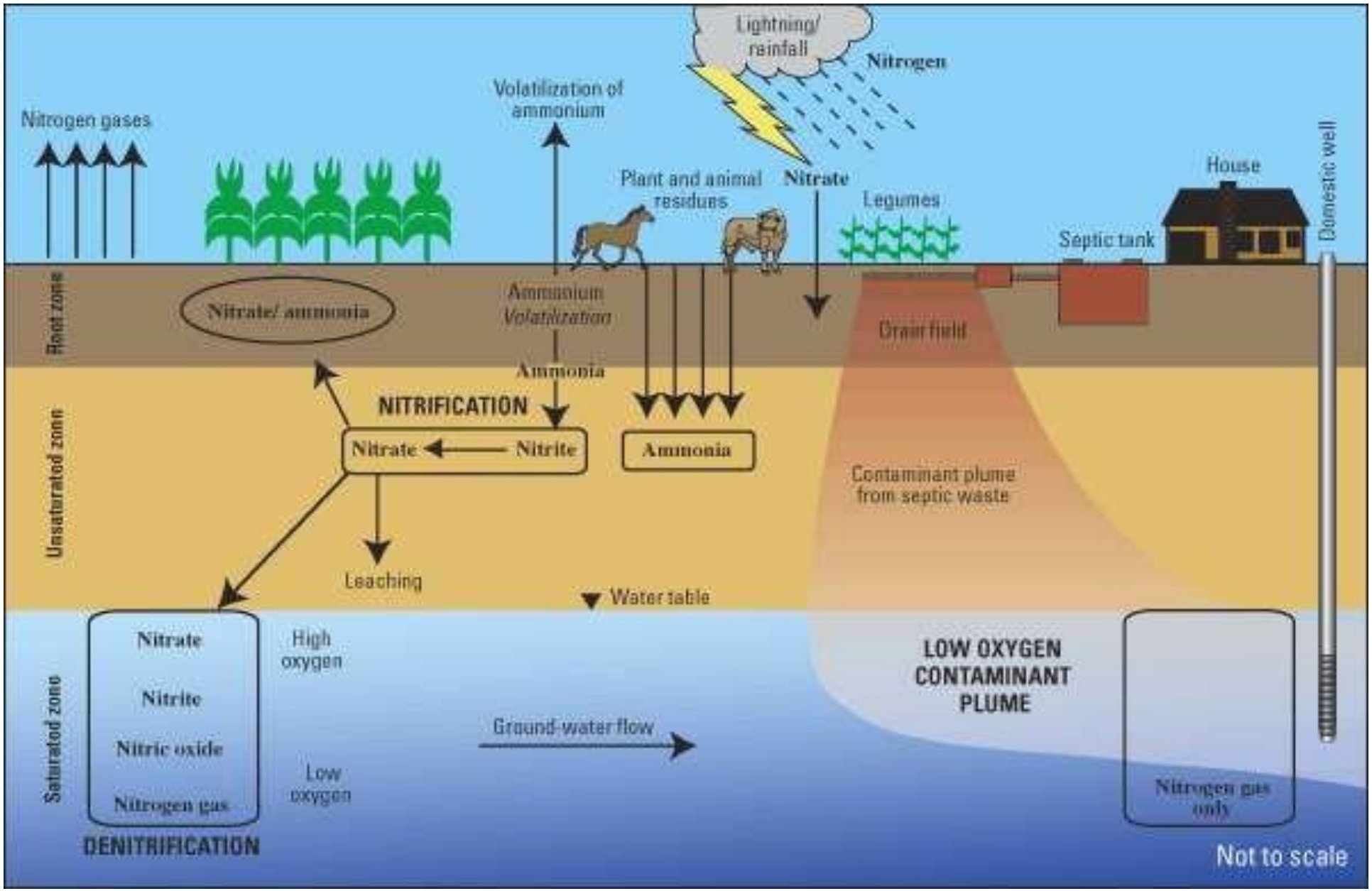
The enamel surfaces of the teeth show marked wear and brown stain is frequently a disfiguring feature.

Moderate

Nitrite

- In some circumstances, nitrates have been shown to present a health hazard to infants, and possibly older children, if they are present in drinking-water at concentrations greater than 45 mg/l (expressed as NO3) because, after reduction to nitrite, they may give rise to methaemoglobinaemia (Blue baby syndrome)

Source of Nitrate in Drinking Water



THANK YOU