

## Water quality:

Characteristics (physical chemical biological) that influence suitability for a specific use

Acceptability: personal preference: taste

Irrigation: physical and chemical characteristics considered

## Water quality standards:

Criteria approved by specialized authorities

## Water contamination:

Geological or anthropogenic

Chronic health effects that occur after long exposure to small amounts of a chemical

### Natural contamination:

Groundwater moving through sedimentary rocks and soils may pick up a wide range of components

### Anthropogenic contamination:

By products of industry – agriculture – fertilizers – insecticides – dyes – heavy metals (mercury – copper chromium - lead)

Improper disposing of household chemicals: paint detergents oil medicine pool chemical

## Types of contaminants:

### Physical contaminants:

Water molecules themselves and chemical sub dissolved in water

Indicator: temperature odor taste turbidity viscosity electric conductivity

Temp inc oxygen dec rate inc

Optical properties: sediments turbidity

### Chemical contaminants:

Substances dissolved in water – hardness (calcium magnesium fluoride arsenic lead...)

THM: when chlorine in the treated drinking water combines with naturally occurring organic matter

Indicator: PH

### Biological contaminants:

Presence of living organism

Indicator: E.coli salmonella

### Radiological contaminants:

Cesium – plutonium – uranium

Source: soil rocks industrial waste

### Health impacts:

Direct exposure: drinking– showering – swimming – breathing vapor

Indirect: food meat

(chemical waste: cancer – hormone disruption – altered brain function -immune system – cardiovascular and kidney)

Sewage: diarrhea cholera

Swimming: rashes pink eye

Food sewage: growth retardation – bone fracture - Upper gastrointestinal cancer - Immunological defense

### Drinking water quality standards

no universally recognized and accepted international standards for drinking water

exist and applied but vary widely from one standard to another

guidelines rather than requirements

not imposed legally except for:

EPA: USA environmental protection agency

European Drinking Water Directive

### Irrigation Water Quality:

Adequate – usable affect soil quality and crop production

Salinity affects crop yield

### ISO Standards: terminology and technology 300

International organization for standardization to ensure quality safety and efficiency of products services and systems

### For water:

Cover every water issue

Practical solutions for sustainable water management

Help businesses: tools for measuring water use – ways to optimize it – best practice to treat and use wastewater – irrigation manufacturing construction