

Advancing The Health Aspects of Plumbing





WHO & WPC Collaboration Project

Why does good water & sanitation matter?

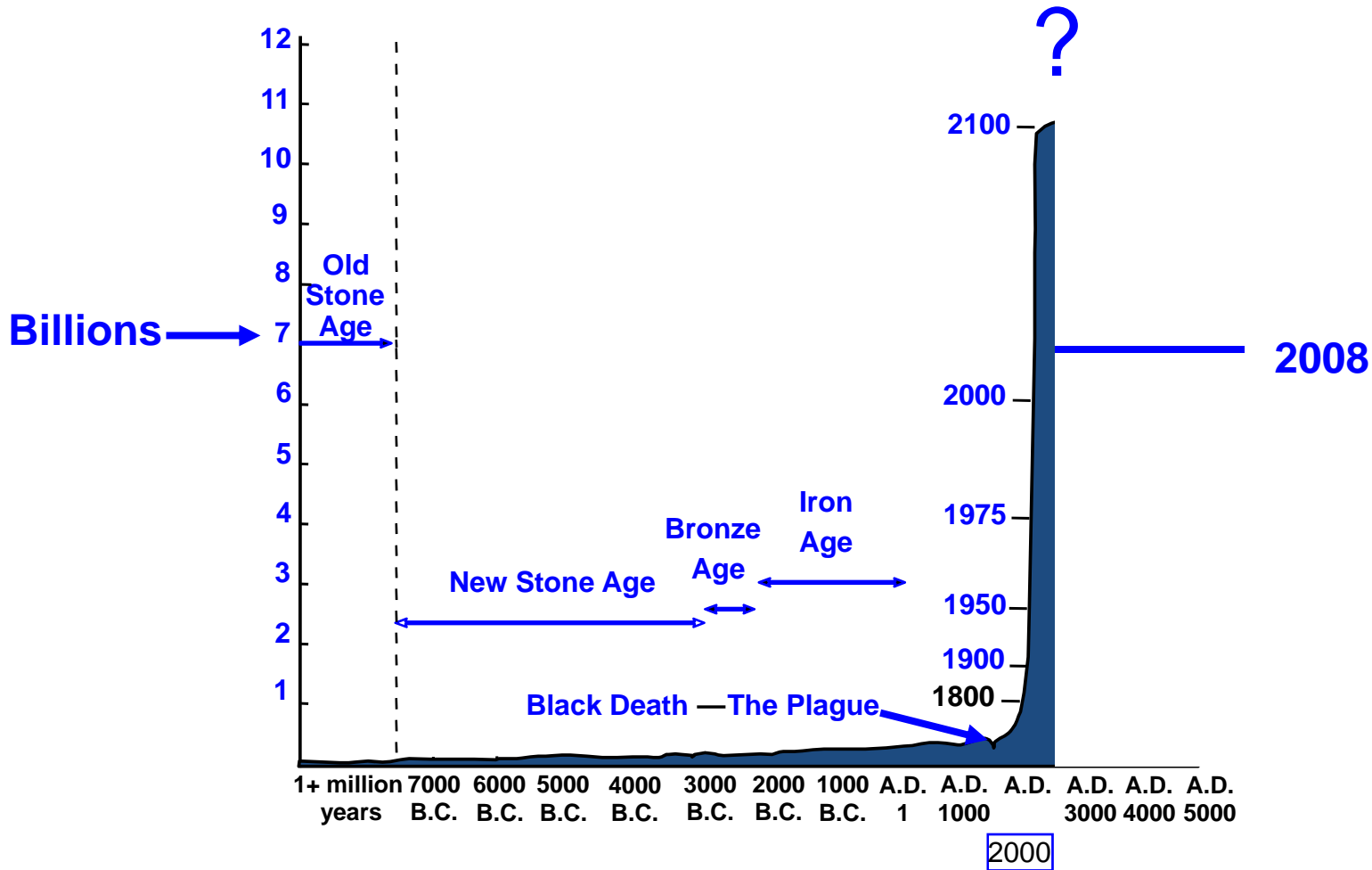
WHO & WPC Collaboration Project

1. Regulators network paper.
2. Training new workers for the plumbing industry.
3. Plumbing terms for the WHO Lexicon.
4. Essential safety measures for plumbing systems in hospital and school buildings.
5. Promotional materials for developed countries.
6. Emergency response.

Millennium Development Goals

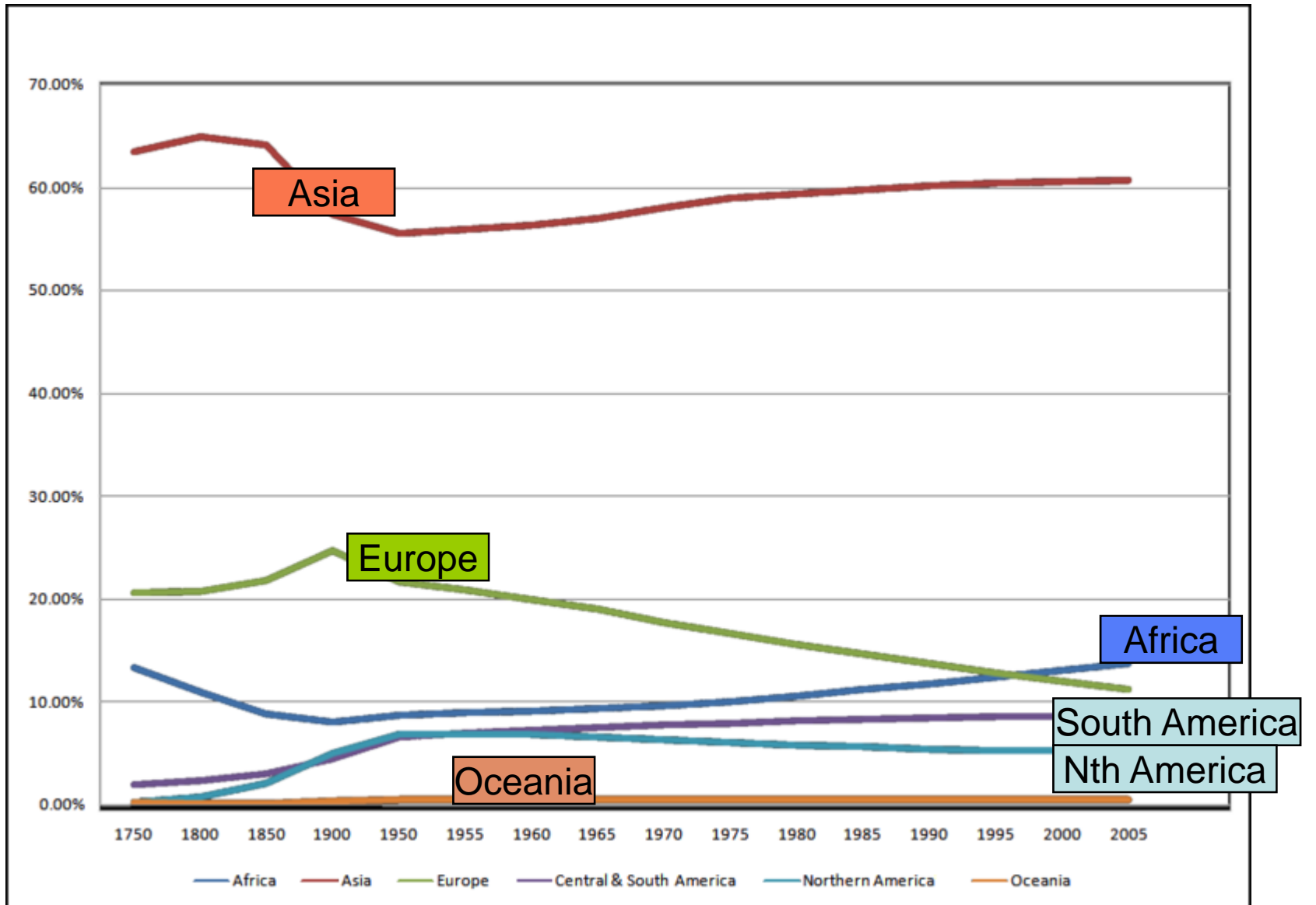
- 2005–2015: “Water for Life” decade. To halve the proportion of people without sustainable access to safe drinking-water and basic sanitation”
- 1.8 million people/year, most of them children < 5, die because of diarrhoeal diseases
- 1.1 billion people still lack access to improved water sources
- 2.6 billion people lack access to improved sanitation
- To achieve this goal 97 million people/year would need to gain access to drinking water
- 138 million people/year would need to gain access to improved sanitation

World Population Growth

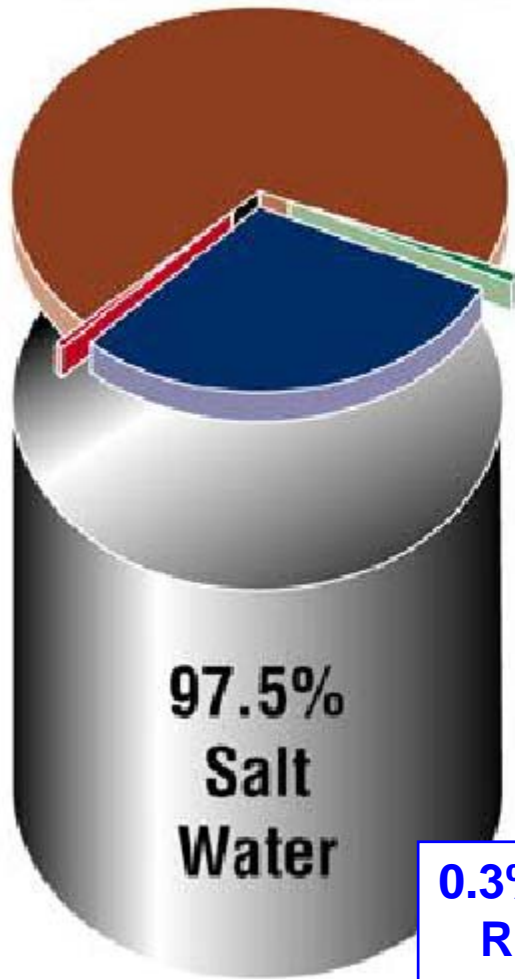


Source: Population Reference Bureau; and United Nations, *World Population Projections to 2100* (1998).

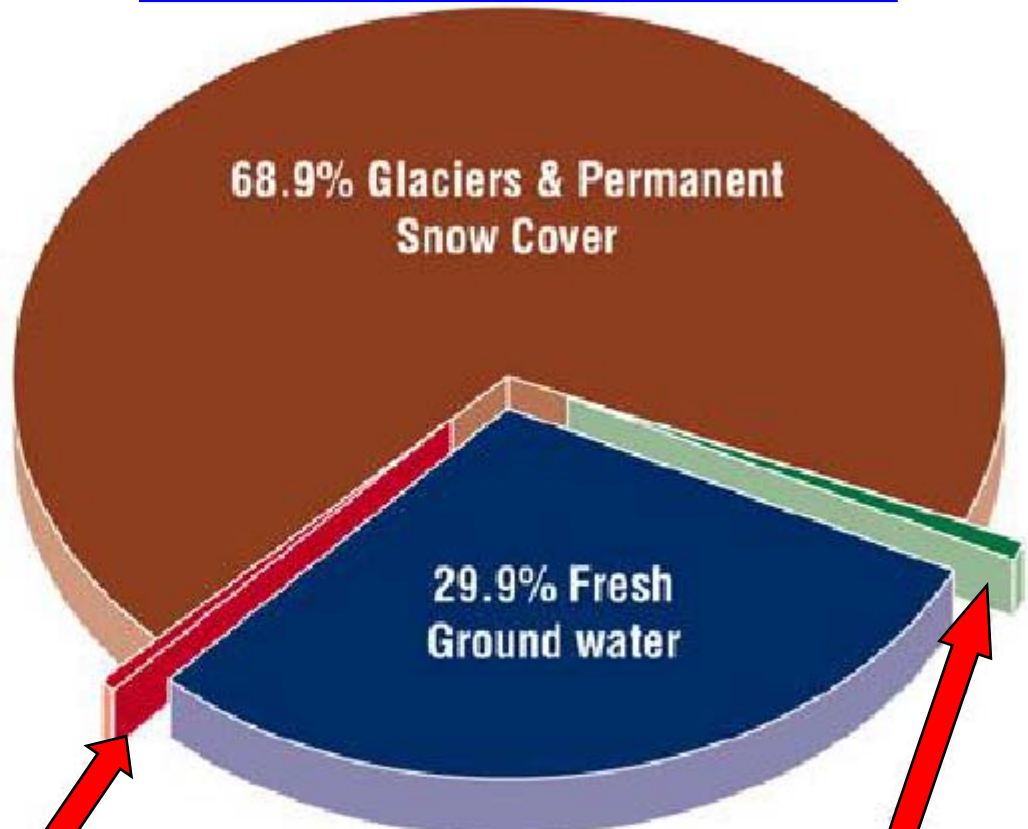
Population 1750 -2005



Total Global Water



2.5% Of Total Global Water is Freshwater



0.3% Freshwater Lakes and River Storage. Only this portion is renewable

0.9% Other Including Soil moisture, swamp Water and permafrost



Project 1. A Water Regulators Paper

Task: Develop a guidance paper advancing plumbing regulation as a critical tool for the protection of public health.

Regulators Paper Objectives

1. Support the development of internationally-recognised guidance on the regulation of drinking-water to improve public health protection.
2. Advocate for the improvement of regulations.
3. Provide support to regulators wishing to establish, update or amend regulatory frameworks.
4. Provide advice on the rolling revision of the WHO *Guidelines on Drinking-water Quality*.
5. Provide a discussion forum to address challenges and share good practice

Key Steps for Effective Plumbing Regulation

- **Enabling legislation designed with the primary objective of protecting public health and safety**
- **Establishing minimum best practice codes and standards for water, waste water and drainage systems**
- **Establish minimum occupational training qualifications**
- **Establish enforcement powers for audit of work, disciplinary action and the rectification of any faulty work**

Regulatory options

- A quasi regulatory approach
- A prescriptive regulatory approach
- A performance based regulatory approach
- A combination of performance and deemed to comply regulatory approach

Quasi Regulatory Approach

- Requires limited or no regulatory support
- Based on loose non mandatory rules
- Can be expressed in a form of practice notes or guides of good practice
- Or it can be based on industry best practice developed in conjunction with the authority
- The quasi approach is best suited as a first incremental step where no regulation exists



Project 2. Training Development

Task: Develop a range of training materials which will help build plumbing capacity and contribute to improved health in countries where little formal training exists

This trainer support material is for administrators, supervisors and trainers who have the responsibility of supervising & improving the knowledge and skills of workers in plumbing.

What we expect from drinking water systems

- A drinking water supply that is safe
- A water pipe system that will not contaminate the water
- A water supply of sufficient pressure and flow
- A water supply that is reliable
- A water supply that is water tight
- A water supply that can be maintained
- A water point of use which is drained

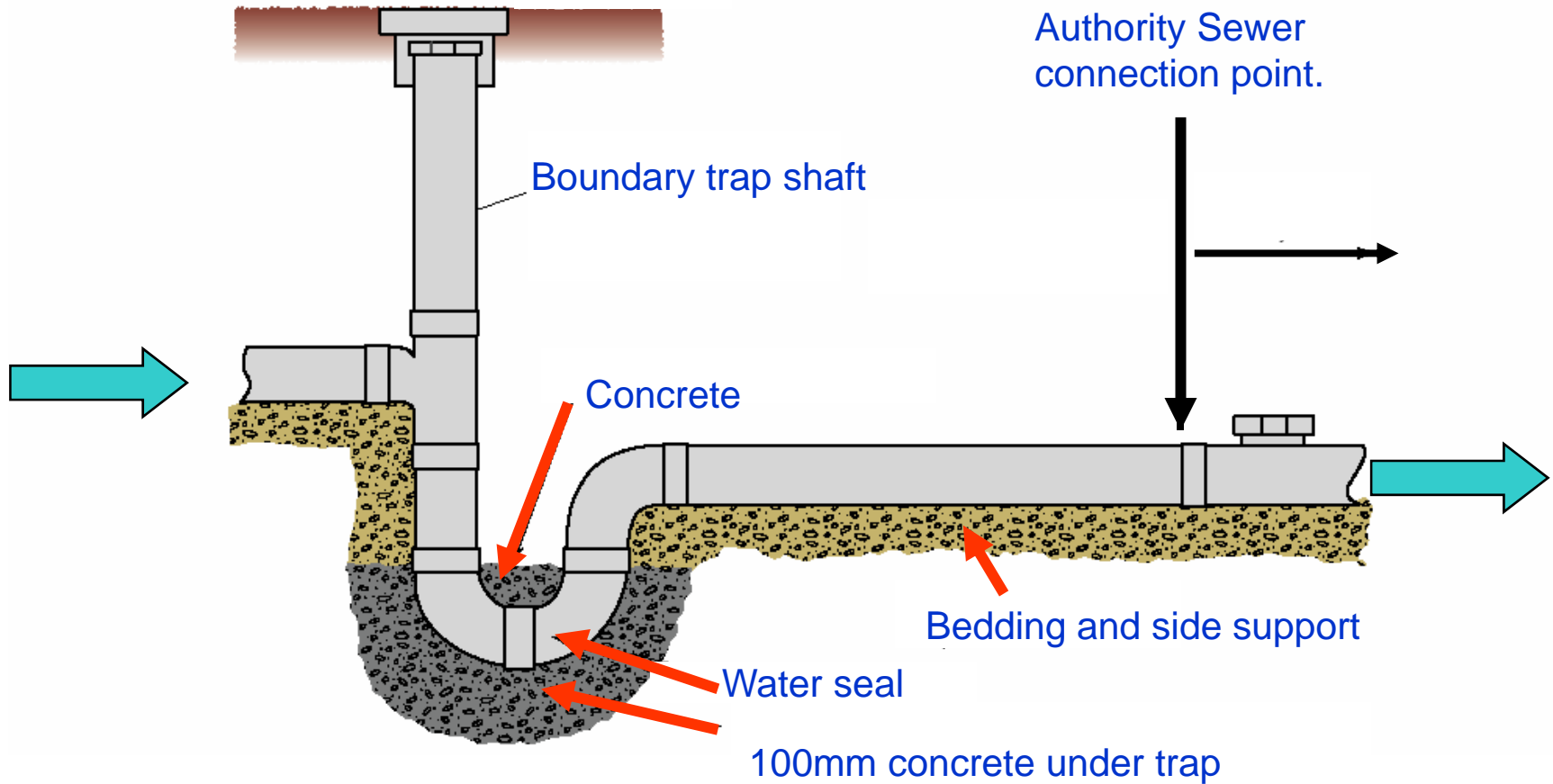
What we expect from drainage systems

- Removal of wastewater
- Removal of foul odours
- Self-cleansing
- Watertight
- Able to be maintained
- A safe habitable space
- Provide a safe and hygienic environment

Responsibilities and accountabilities of Plumbers

- He must comply to the codes at all times
- He must be aware of the consequences for any faulty, non complying plumbing work
- He must always deliver safe, durable water and waste water systems

Wet Sanitation Systems



Dry Sanitation Systems Composting toilet

← Vent Terminal

← Pan

← Waste Shute

← 12 Volt Fan

← Moisture Trap

← Composting Chamber

Field Trialling

- **Australia**, Holmesglen College of Technical and Further Education
Melbourne
- **New Zealand**, Plumbing, Gas fitting and Drain laying ITO Ltd
Wellington New Zealand
- **Rarotonga in partnership with** ITO Ltd Wellington New
Zealand
- **Fiji** Building and Civil Engineering Fiji Institute of Technology Samabula
Suva.
- **Solomon Islands** Solomon Islands College of Higher Education
School of Industrial Development Honiara.
- **India Pune.**



Project 3. Health and Environment Lexicon

Task: To contribute plumbing related definitions to an international lexicon of water and sanitation terms being developed by the WHO.

www.who.int/the/lexicon

Health and Environment Lexicon

- **What it is:** On-line searchable database of terms with definitions and / or multi-language terminology equivalence
- **Purpose:** To promote a common understanding of technical terms related to health and environment issues
- **Scope:** Intended to cover a number of themes or topics under the umbrella of health and environment

WPC Working Group

Australia

India

New Zealand

Solomon Islands

United States of America


United Kingdom

Languages of the Lexicon

- English
- French
- Spanish
- Portuguese
- Arabic
- German
- Chinese
- Russian

The definition of Plumbing.

(WHO Health and Environmental Lexicon)

 **Plumbing** is the piping, fixtures and appliances within a property, and all of the work associated with the design, installation, removal, alteration or repair of piping, fixtures and appliances in connection with drinking water supply, non-drinking water supply and drainage systems, which flow in and out of buildings and between given connection points to points of use and/or disposal.

A broader meaning of plumbing includes

- Drinking water supplies and non-drinking water supplies**
- Sanitary disposal systems**
- Sanitary dry vault disposal systems**
- Drainage**
- Gas-fitting**
- Medical gases**
- Roof and roof drainage systems**
- Mechanical services**

The Health and Environmental Lexicon. Cross Connection (Water Supply Plumbing.)

Definition

A Cross Connection is any connection, physical or otherwise between a drinking water system and non drinking water, where contamination can enter the drinking water supply lines by, back pressure, back-syphonage, and back flow occurring in the water supply system. (1)

Explanation

A Cross Connection is a direct connection between a drinking water supply system which can allow contaminated water or any other substance entering the drinking water system.

Example

A Cross Connection can be found where a storage tank is without the required air gap for protection to prevent back syphoning. A cross connection will also occur when a non drinking water supply pipe is connected with a drinking water supply pipe without the correct backflow devices installed.



Project 4. Essential Safety Measures for Plumbing Systems in Hospitals and Schools

**Task. Identify minimum maintenance requirements
in high risk locations such as health care
facilities and schools**

The Scope of the project:

- Cold water from a public supply.
- On site cold water from a ground or surface water supply.
- On site rain water harvesting.
- Heated water supply.
- Non Drinking Water Supply.
- Off site sanitation.
- On site sanitation.
- On site treatment systems.
- Medical gas systems in hospitals.
- Isolation facilities in hospitals.

Outcomes

- To identify a risk managed approach for the essential plumbing services of a building.
- Identify the plumbing to be classified as an essential service.
- Identify preventative maintenance requirements.
- Identify the surveillance and testing requirements.
- Identify any documentation and recording required to maintain the building at a safe operational level.

Drinking Water Supply

- Public off site water supply
- Private on site water supply
- Ground Water Supply
- Roof catchment rain water supply

Heated Water Supply

- Storage heated water
- Instantaneous heated water supply
- Uncontrolled heat source supply
- Re Circulated heated water supply

Non Drinking Water Supply

- On site grey water reuse
- Public recycled water supply
- Non potable surface water supply
- Non potable ground water supply

Surveillance and maintaining
water systems in buildings

Purpose

Essential safety plumbing requirement

Nature and frequency of test or inspection

Off site Sanitation

- Building waste water systems
- Building drainage systems
- Sub building drainage systems
- Drainage venting systems

On site Sanitation

- Building waste water systems
- Building drainage systems
- Sub building drainage systems
- Drainage/treatment systems venting
- Composting systems venting

On site Treatment Systems

- Composting type systems
- Septic tank systems
- Water water primary and secondary treatment systems
- Water water on site disposal

Surveillance and maintaining
waste water systems in buildings

Purpose

Essential safety plumbing requirement

Nature and frequency of test or inspection

Medical Gases

Gas storage protection and identification.
Gas pipe line testing and certification.
Medical gas purity verification.
Certification and documentation.
Anaesthetist oversight and verification

Isolation Rooms

Negative and/or positive pressure rooms.
Ventilation systems and alarms.
Indirect water supply systems.
Waste water trap seal protection.
Clinical washing fixtures.

Surveillance and maintaining
waste water systems in buildings

Purpose

Essential safety plumbing requirement

Nature and frequency of test or inspection



Project 5. Promotional materials for developed countries.

Task: To investigate promotional materials that can be used to promote the WPC and reinforce the link between plumbing and public health in developed countries.

Establish the WPC as a web based global resource for government, policy makers and others on matters relating to plumbing including:

1. Develop a global depository of plumbing failures and the consequences.
2. Develop a global map of plumbing qualifications.
3. Develop a global directory of regulators and their legislative coverage.
4. Develop a global depository for new emerging sustainable plumbing technologies and any new smart sustainable regulatory reform.



Project 6. Emergency response.

Task: To put in place an emergency response profile to facilitate the identification of plumbing experts who might be able to join the WHO's roster of experts to be mobilised in emergency situations.

Summary of WHO & WPC Collaboration Project

- The regulators network paper will help build capacity for developing countries and deliver improved public health through smarter plumbing regulation.
- The training initiative will continue to reinforce the sometimes lost connection between public health and good plumbing practice.
- The depository of plumbing terms in the Lexicon, will build a cohesive more responsive global plumbing industry.
- The need to identify the critical health risks through surveillance and maintenance provisions for high risk buildings in developing countries.
- The global resource of plumbing data to ensure plumbing in a global context remains progressive and relevant.
- The global emergency response project.



The Challenges for the Global Plumbing Industry

- *To continue to promote plumbing to global policy makers as a key profession, its relevance in public health protection and its important contribution to global health policy initiatives*
- *To continue to 'voice' the plumbing profession' through participation in networks such as the UNESCO, the WHO and place plumbing in the emerging global sustainability debate*



Thank You