



43rd International Symposium of CIB W062

Opening Symposium by:

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WELCOME AT THIS CONGRESS
‘WATER SUPPLY AND DRAINAGE FOR BUILDINGS’
Jacqueline Cramer

Challenges

- ***Growth of the world population*** which is increasingly concentrating in urban regions (1950: 30% and by 2050 $\pm 70\%$)
- ***Increasing economic prosperity*** leading to overconsumption and scarcity of some key resources
- ***Causing alarming global environmental problems:*** Climate Change, Resource inefficiency and scarcity (including water) and Biodiversity loss
- ***Calls for the necessity to deal prudently with water, energy and raw materials***

Enormous impact on sanitation sector

1. In large parts of the world: basic sanitation is at stake
2. In other parts is robust sanitation in place, but needs to be adjusted to new requirements

Need for novel ways to develop and manage the water chain through research and innovation and cooperation in the water chain and other stakeholders

1. Security of safe sanitation and availability of healthy drinking water: top priority world wide



Need for low-cost, self reliable solutions

Access to healthy drinking water

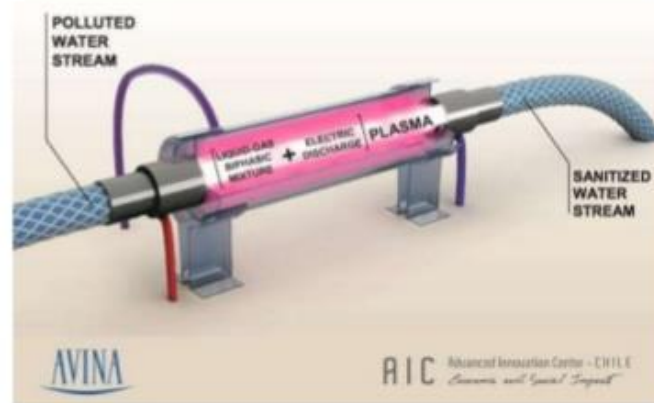
AIC CHILE, PLASMA WATER SANITIZATION SYSTEM

A breakthrough for accelerating global access to drinking water ([link](#))

- First-ever technology to achieve 100% inactivation of bacteria and viruses in a single process
- Low energy consumption: 9.16 Wh/L (vs
- Can sanitize 35 liters of water in 5 minutes at a cost per liter of less than 1/8 of a (U.S.) cent

Comment:

- Great as you can include additional treatment stages (filters...), which is good when you have a water input but not yet ready for off-grid challenges



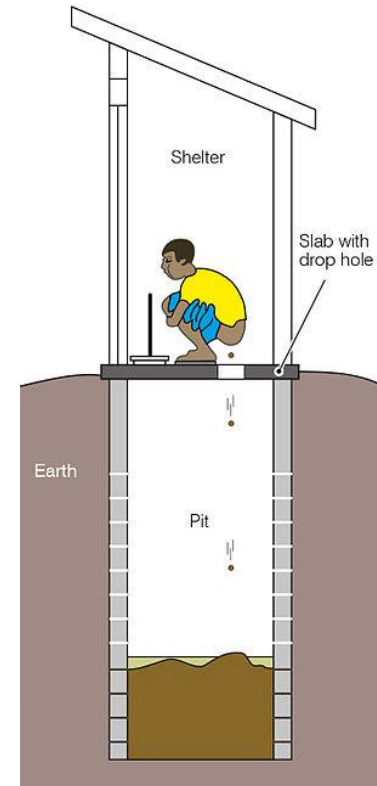
March 23, 2014

Breakthrough technologies for the BOP - Anne-Laure Herrezuelo, Senior Project Manager

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Access to safe sanitation

About 40 percent of the world population without improved sanitation. Therefore urgent need for public sewers, septic systems, pour-flush and improved pit latrines (also at schools).



2. Robust sanitation needs adjustment



Flooding and heat stress call for renewal of water infrastructure



Drought in urban regions calls for new manners of water saving



Climate change necessitates a reorientation of water management

- ***Flooding*** (water retention areas; redirection of water streams; more green instead of pavements in cities, etc.)
- ***Drought*** (developing water reservoirs, more water efficient installations indoors and new water purification techniques, techniques to make from salt water fresh water, etc.)
- ***Adaptation measures can be linked to closing water cycles*** (e.g. water retention)

Closing of water cycles



Source: KWR

Closing of water cycles

- Focus on decentralized water supply aimed at energy neutral and resource efficient production and consumption against low costs and high involvement of users
- Preferably use of local water; less need for water supply from elsewhere and less drainage of waste water
- Better economic and ecological merits through combining water with energy and raw materials



Energy and raw materials

- ***Energy efficiency*** possible in all phases of water chain
- ***Raw materials efficiency***, particularly in:
 - Phase of prevention or reclamation at source of raw materials, including hormones, medicines, cosmetics, wet wipes and metal
 - Phase of waste water treatment aimed at reclaiming valuable substances (e.g. phosphate, nitrogen, cellulose, metals, etc.)

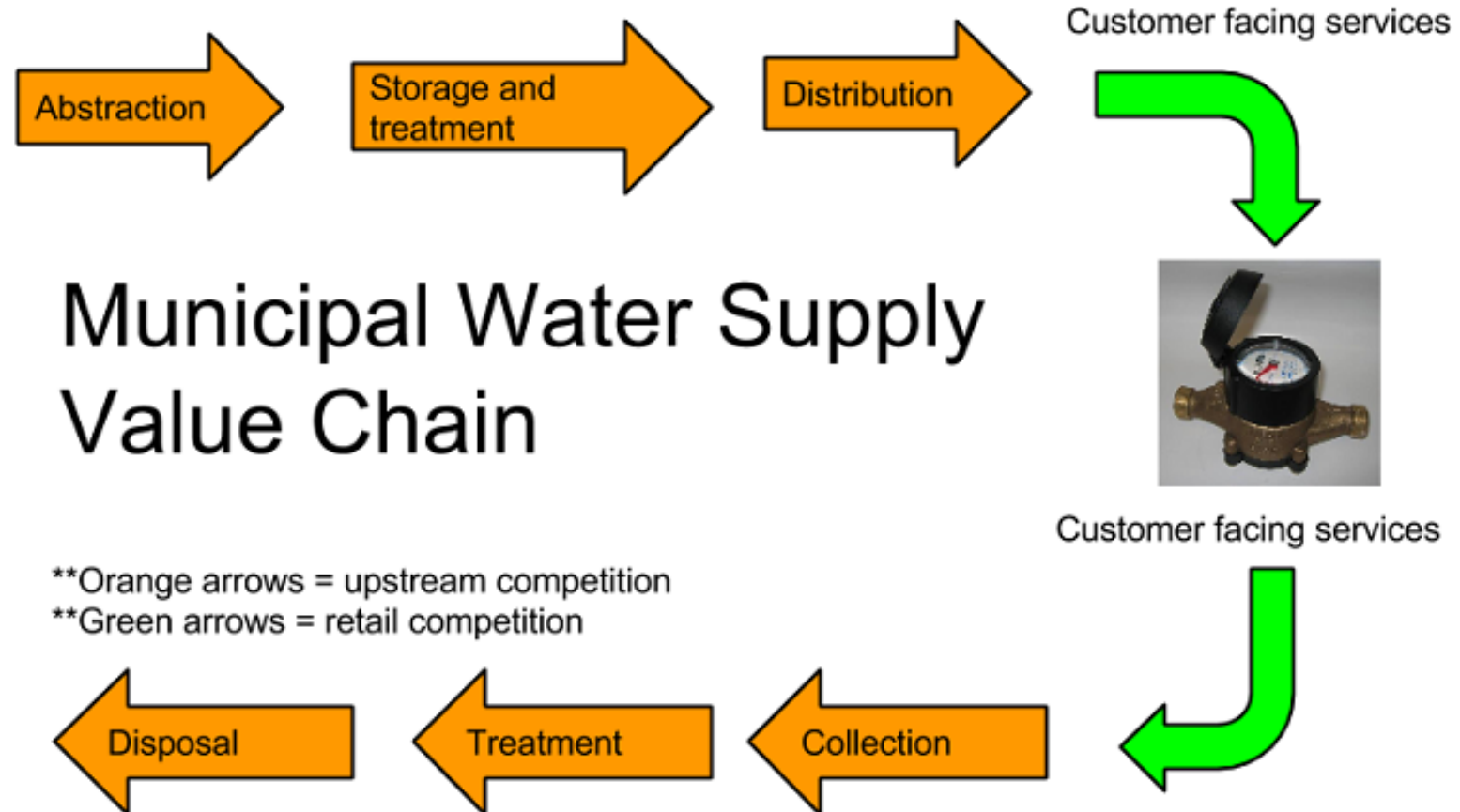
Water treatment plant as energy and resource factory



Great impacts on sanitation sector

- New sanitation practices require complex changes in all sanitation provisions (waterworks, sanitary and sewerage) in buildings and in all infrastructural provisions for drinking and waste water.
- Research and innovations need to underpin these developments to avoid health and hygienic risks (e.g. Legionella, Pseudomonas) and improve comfort for customers.
- Conventional sanitation should not be replaced by new sanitation before R&D has underpinned the validity of new techniques in terms of health, robustness and quality assurance.

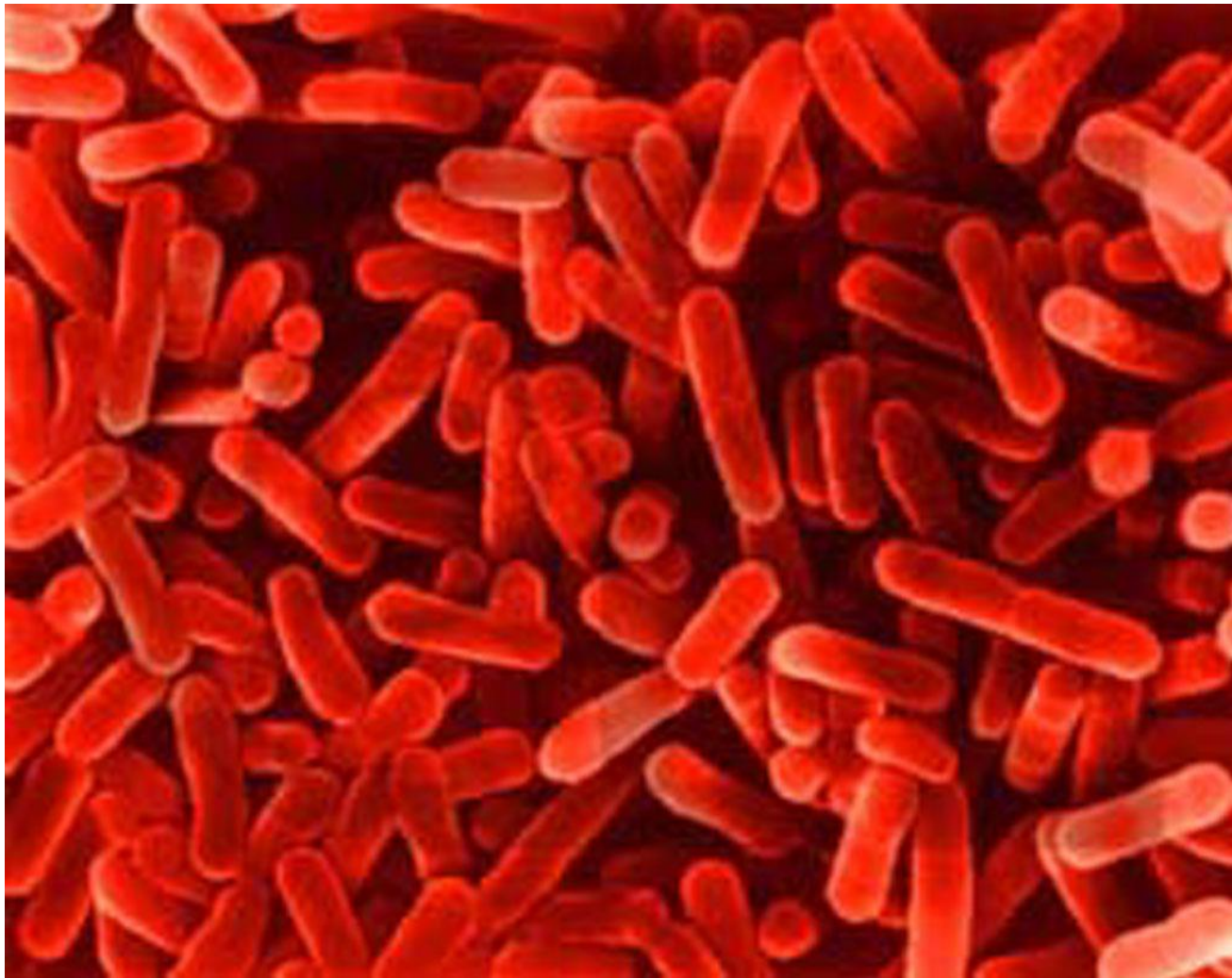
Precondition: cooperation in the water chain



And with other stakeholders



Example: Legionella



Conclusions

- The increasing pressure on the basic resources (water, energy and raw materials) triggers the need for novel ways to develop and manage sanitation practices
- Research and innovation are needed to cope with these complex challenges and avoid hygienic and health risks
- Preconditions is cooperation in the water chain and with other stakeholders
- Don't wait for others to act but be pro-active