SSWM Hardware and Software Tools

Leonellha Barreto Dillon,
cewas Middle East

Sustainable Sanitation and Water Management Toolbox

Linking Up Sustainable Sanitation, Water Management & Agriculture

Get Started

Solution Finder

Browse Perspectives / SSWM Catalogue

Hot Topics:

Factsheet

Safe water. Use drip irrigation.

News

Become a water, sanitation & waste entrepreneur

Factsheet

Understand the Nutrient Cycle
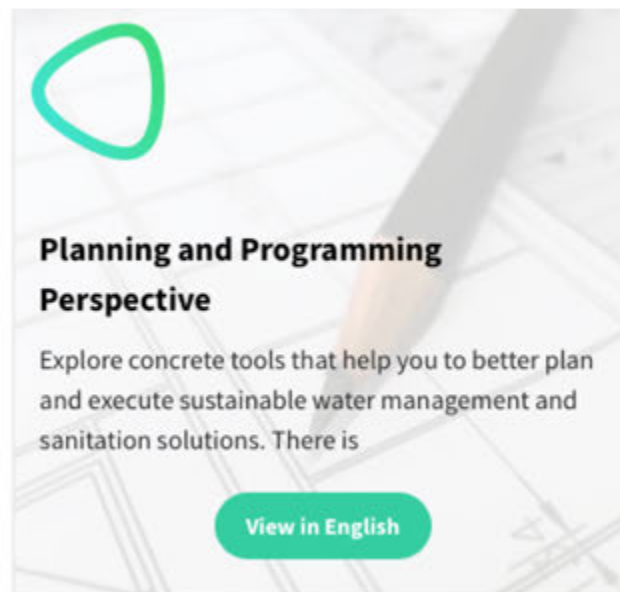
Home » Perspectives

Perspectives

Sanitation Systems Perspective

Find technologies and socio-economic approaches to optimise your local water management and sanitation system. What is the
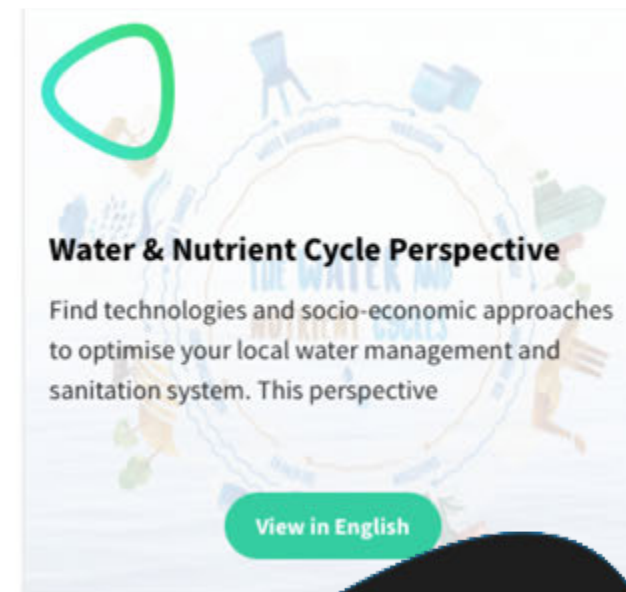
View in English   العربية

Planning and Programming Perspective

Explore concrete tools that help you to better plan and execute sustainable water management and sanitation solutions. There is

View in English

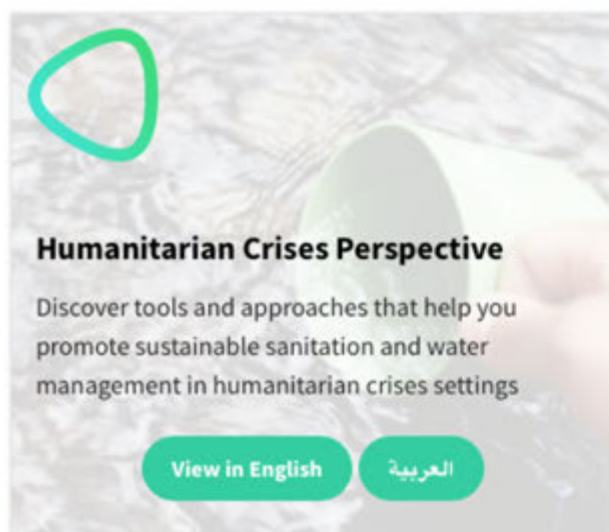### Water & Nutrient Cycle Perspective

Find technologies and socio-economic approaches to optimise your local water management and sanitation system. This perspective

View in English

Humanitarian Crises Perspective

Discover tools and approaches that help you promote sustainable sanitation and water management in humanitarian crises settings
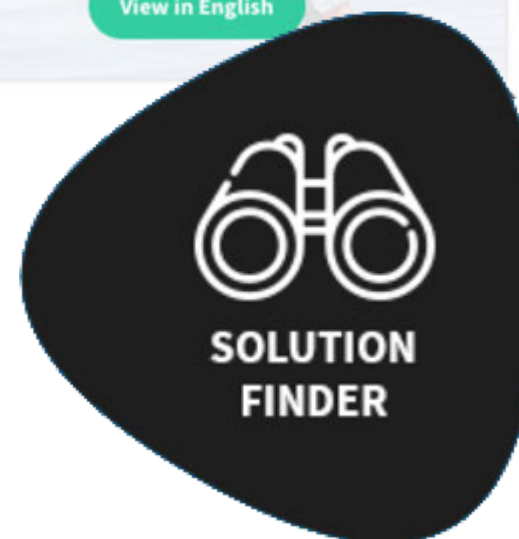
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SOLUTION FINDER

Water & Nutrient Cycle Perspective

Cover Overview

Find technologies and socio-economic approaches to optimise your local water management and sanitation system.

Water Sources

In this section you'll find hardware and software tools for different water sources based on source types (e.g. rainfall, surface water, ground water…

View Section

Water Purification

This section compiles hardware and software tools for water purification before domestic, agricultural and/or industrial use. When selecting…

View Section

Water Distribution

This section contains the hardware and software tools relating to the distribution of water resources to different users. The configuration strongly…

View Section

Reuse and Recharge

In this section you'll find the hardware and softwares approaches for sustainable water and nutrient recharge and reuse. It comprises methods for…

View Section

Water Use

This section is dedicated to water consumption by different water users (households, agriculture, industry) as well as the purposes for water use (…

View Section

Wastewater Collection

Here, you'll find hardware and software tools related the step in the water and nutrient cycle after water has been used. The adequate collection…

View Section

Wastewater Treatment

This section summarises the appropriate hardware and software tools for treating industrial, domestic or agricultural wastewater. Wastewater…

View Section

Hardware   Software

2. Hardware Tools

Hardware tools are...

... **technical tools to optimize your water and nutrient cycle**
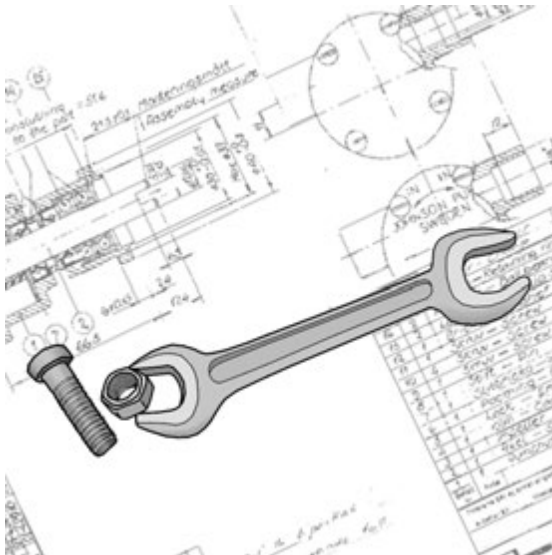
Source: www.sswm.info

- These are physical solutions that you can see and touch with your hands such as water filters, toilets, treatment systems or technologies to recycle water and nutrients.
- Usually, you will need a combination of different hardware and software tools to really make a sustainable impact.

Are Hardware Tools enough?

Why do we need Software Tools?

- **Because we need a combination of hardware and software to make a sustainable impact!**

Why?

- The technology works but is not adapted to the local context

- Community might not accept an intervention

- The authorities might not be willing to invest (finances and regulation)

- Ensuring sustainability

Society

Hard-ware

Environment

Economy
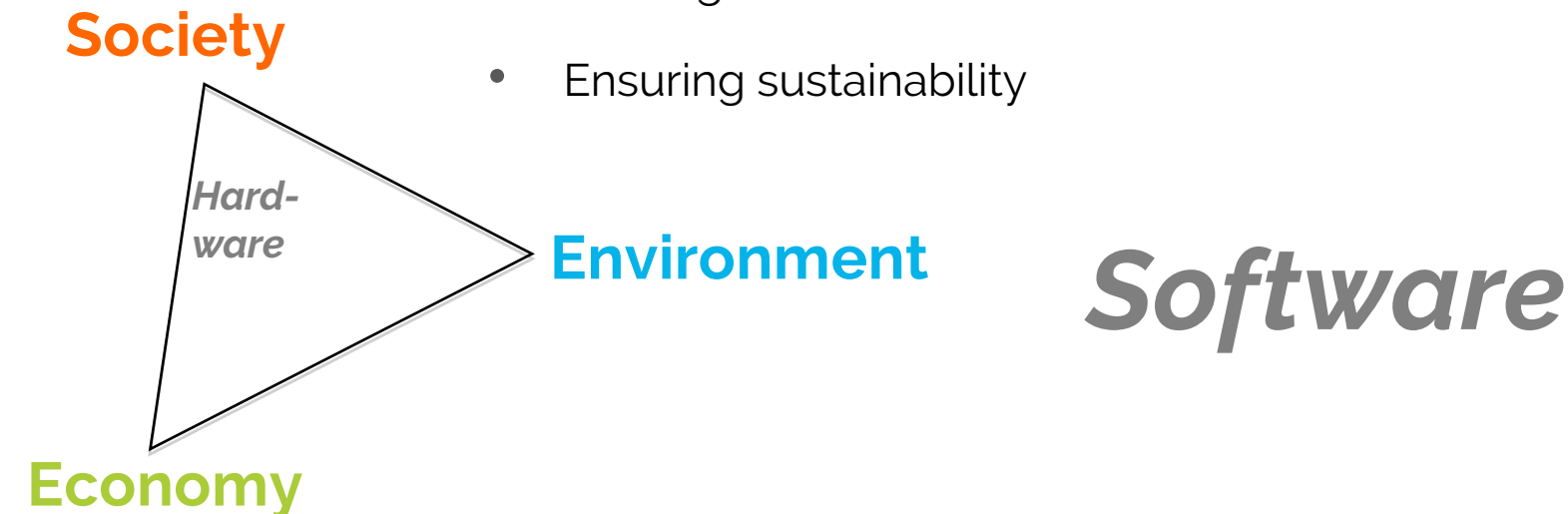
Software

3. Software

Software tools are...

... **behavioural change approaches** to optimise your water and nutrient cycle

... a set of tools and set-ups that are necessary to achieve changes in the behaviour and attitudes of different actors involved in the water and sanitation system.

Brainstorming

Which Software Tools do you know?

3. Software

Creating an Enabling Environment

Source: INKCINCT (2007)

3. Software

Creating an Enabling Environment
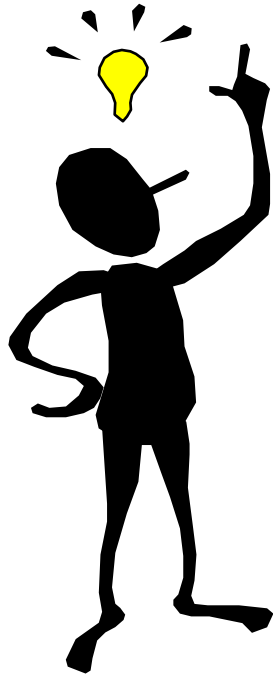
Developing Human Resources (WS)

Decentralisation

Nationalisation (WS)

Strengthening Enforcement Bodies

rivatisation

Creating Policies and a Legal Framework

Bundling and Unbundling of Functions (WS)

Building an Institutional Framework (WS)

Public Private Partnerships (WS)

3. Software

Awareness Raising

805 N1 OB Af MARINE DR

135 DAYS
WATER LEFT
SAVE WATER NOW

2017/02/16 02:22:38 PM

Source https://www.sapeople.com/2017/02/16/cape-town-gets-serious-water-restrictions/
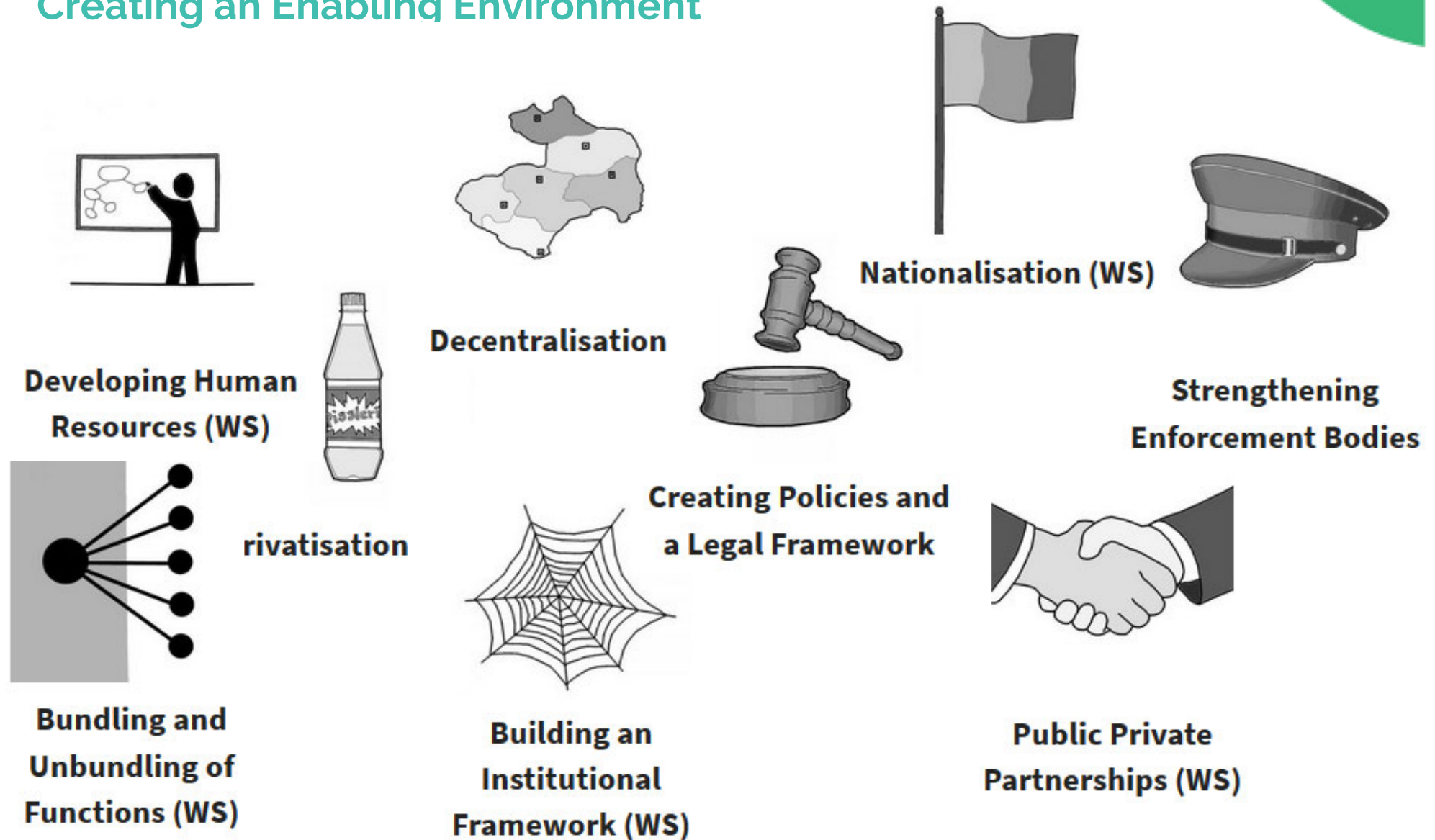
3. Software

Awareness Raising

Media Campaigns - Video (WS)

Media Campaigns Radio (WS)

Corporate Social Responsibility (WS)

Advocacy - Influencing Leaders (WS)

Media Campaigns - Posters and Flyers
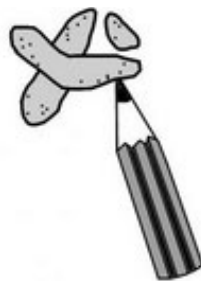
SSWM in School Curriculums (WS)

Empowering Young People as Promoters (WS)

Creating Information Material (WS)

School Campaigns (WS)

Social Marketing (WS)

Media Campaigns - Internet and Email (WS)

Economic Tools

Source: http://www.wsp.org/userfiles/image/november2002.jpg [Accessed: 23.03.2010]

3. Software

Economic Tools
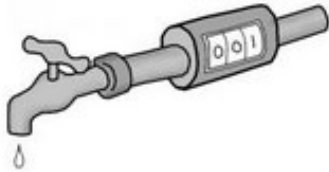
Water Pricing - General

Tradable Water Rights

Subsidies (WS)
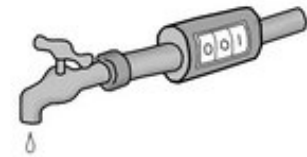
Water Charges
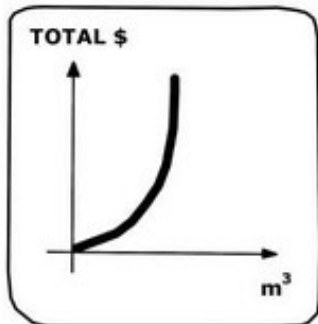
Water Pricing - Increasing Block Tariffs
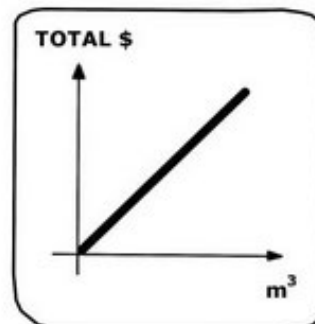
Water Pricing - Uniform Volumetric Charge
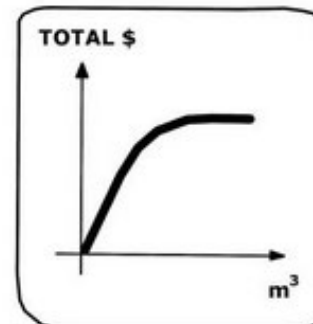
Water Pricing - Decreasing Block Tariffs
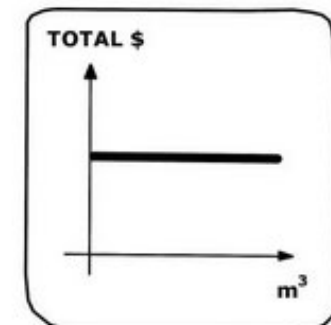
Water Pricing - Fixed Water Charge

3. Software

Command and Control Tools

3. Software

Command and Control Tools

- Standards
- Restrictions

Standards (WD)

Restrictions (WD)

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sustainable sanitation and water management
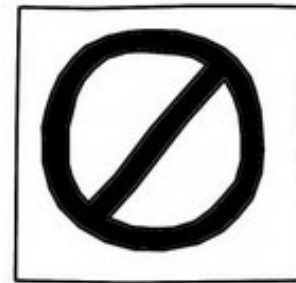
Search SSWM...

Home   Perspectives   About the Toolbox   Product & Services   Catalogue

Water & Nutrient Cycle » Wastewater Treatment

Wastewater Treatment

Category Overview

This section summarises the appropriate hardware and software tools for treating industrial, domestic or agricultural wastewater. Wastewater treatment may be centralised or take place on an individual level. Wastewater treatment directly influences the quality of water for further use. If wastewater is discharged without treatment, it negatively impacts on the quality of the water available for those downstream. Hence it determines their purification methods, limits the purposes that water can be used for and influences the availability of nutrients for agriculture.

Hardware   **Software**

Creating and Enabling Environment ∨

Privacy settings

Perspective Structure ∨

Trainings

Sustainable Sanitation and Water Management Training

18 November to 22 November in Mosul, Iraq

25 November to 29 November in Baghdad, Iraq

Find out more and apply here

Announcements

We've launched our new "Safe Water Business Perspective" at the World Water Week in Stockholm!

Take a look!

SOLUTION FINDER

www.SSWM.info

Hardware   **Software**

Creating and Enabling Environment ⌄

Awareness Raising ⌄

Economic Tools ⌄

Command and Control Tools ⌄

Creating and Enabling Environment ∧

Creating Policies and a Legal Framework (WP)

A core governmental role is to formulate policies, through which the government can delimit the activities of all sanitation and water management…

View Factsheet

Building an Institutional Framework (WP)

The term "institutional framework" refers to a set of formal organisational structures, rules and informal norms for service provision. Such a…

View Factsheet

Bundling and Unbundling of Functions (WP)

The clear allocation of functions for the implementation of sustainable sanitation and water management is crucial for its outcomes. Overlapping…

View Factsheet

Strengthening Enforcement Bodies (WP)

Enforcement bodies have a very important role in establishing and ensuring the effective application of other software tools in sustainable…

View Factsheet

Decentralisation (WP)

In order to increase sanitation and water management efficiency and improve equity and justice for local people, a participatory and community-based…

View Factsheet

Public Private Partnerships (WP)

The public sector might not be able to cope with the challenges regarding sanitation and water management and therefore cooperates with the private…

View Factsheet

Empowering Young People as Promoters (WU)

Empowering young people as promoters in the field of water and sanitation is a way of assuring that a project or programme has a greater effect and…

View Factsheet

Media Campaigns - Internet and Email (WU)

The media (television, radio, print media, internet and email) play a significant role in spreading information and raising awareness on water and…

View Factsheet

Media Campaigns - Posters and Flyers (WU)

The media (television, radio, print media, internet and email) play a significant part in spreading information on Sustainable Sanitation and Water…

View Factsheet

Command and Control Tools ∧

Restrictions in Water Use

Restrictions and prohibitions are a part of command & control tools which are regulatory instruments that are direct and mandatory. Restrictions…

View Factsheet

Standards (WU)

Standards are requirements based on risk limits. They are often established by authorities to impose levels of pollution control by determining…

View Factsheet

Creating and Enabling Environment ⌃

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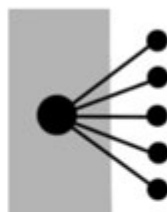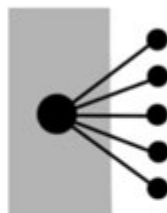
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Group Work: Finalize your project tree

- In the previous session, you have identified your hardware output:

> **H: Hardware**

- Together with the operational model that will make the system work.

- Now, it is time to propose what will be the software outputs of your project:

What is your project promising to deliver to make sure that the system is working:
- that everybody is doing what they are supposed to do, according to the operational plan:

> **S: Software**

Let's take the time to get to know the SSWM Toolbox!

agricultur
e

water

sanitation

"Linking up Sustainable Sanitation, Water Management & Agriculture"

This training was organized by:

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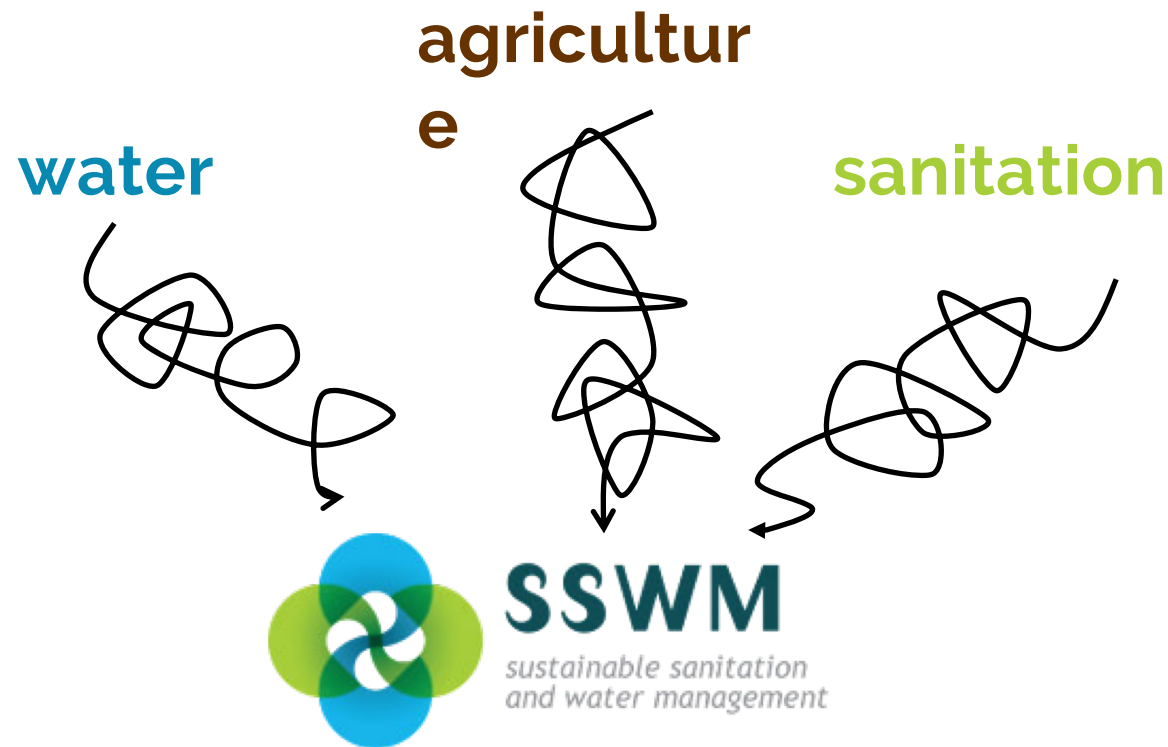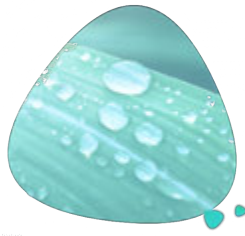**Swiss Agency for Development and Cooperation SDC**

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WATER SUPPLY & SANITATION COLLABORATIVE COUNCIL

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Local Governments for Sustainability

INDIAN WATER WORKS ASSOCIATION

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IWA International Water Association

NORWEGIAN UNIVERSITY OF LIFE SCIENCES
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Sustainability Criteria

Leonellha Barreto Dillon
cewas Middle East

What is Sustainable Sanitation?

Sustainable sanitation systems:

- protect and promote **human health, hygiene & nutrition** for all,

- are **socially acceptable & institutionally appropriate**,

- **financially & economically viable**,

- protect the **environment & natural resources**,

- are **technically & operationally appropriate** in the long term.
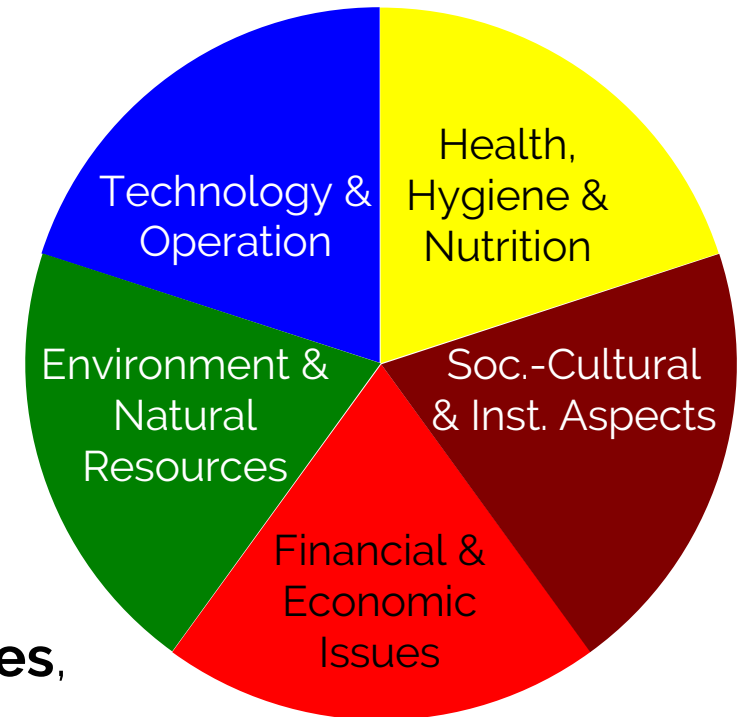
# Sustainability Criteria: Health, Hygiene & Nutrition

Sanitation systems should be carefully evaluated with regard to:
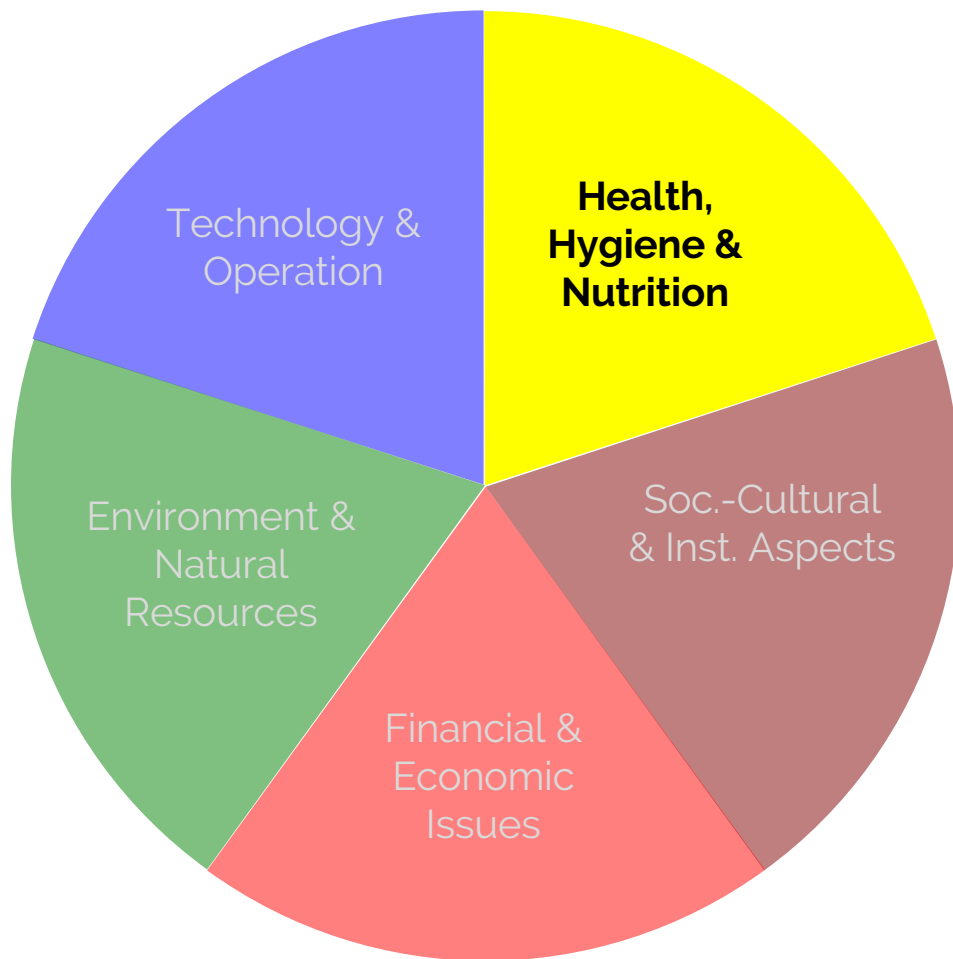
- risk reduction in exposure to pathogens and hazardous substances (at all points of the sanitation system)

- improvement of hygiene, nutrition (contribution to food security) and livelihood

# Sustainability Criteria: Soc.-Cultural & Institutional Aspects

Sanitation systems should be carefully evaluated with regard to (contd.):
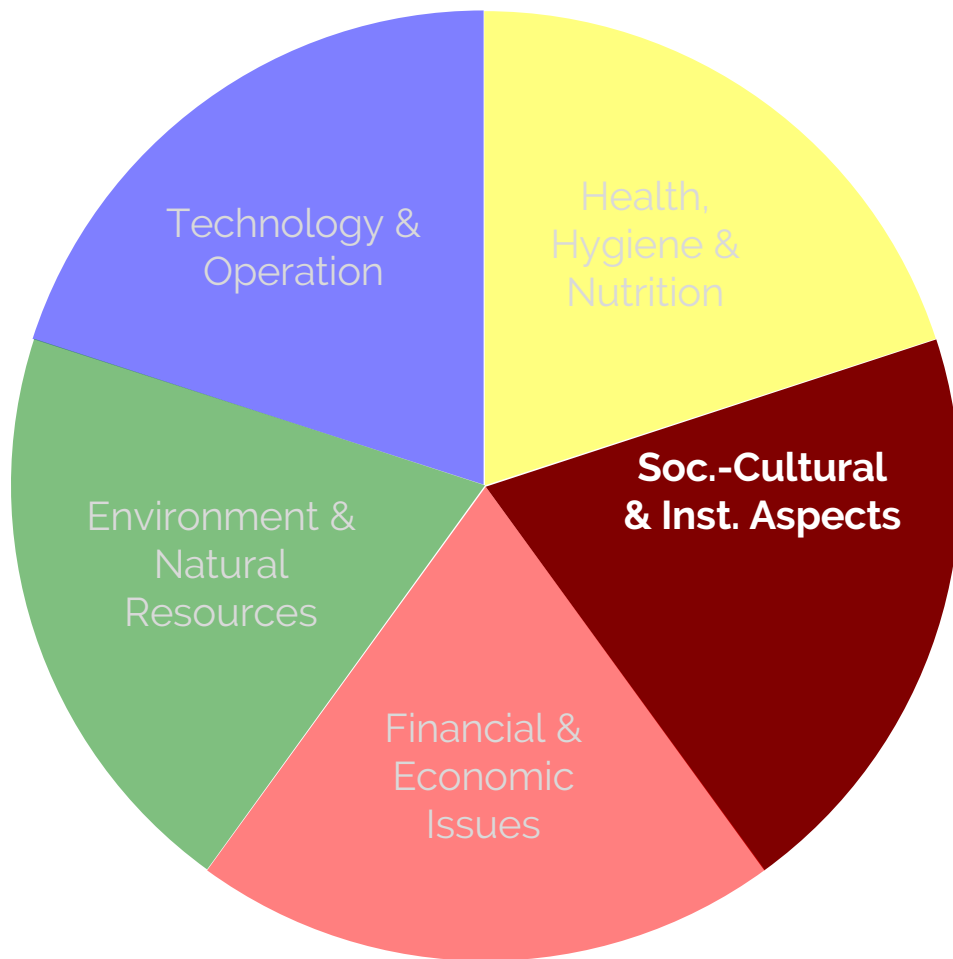
- socio-cultural acceptance & appropriateness
- convenience & system perceptions
- gender issues/ child-friendliness/impacts on human dignity
- compliance with legal framework & stable and efficient institutional settings

Sustainability Criteria: Financial & Economic Issues

Sanitation systems should be carefully evaluated with regard to (contd.):
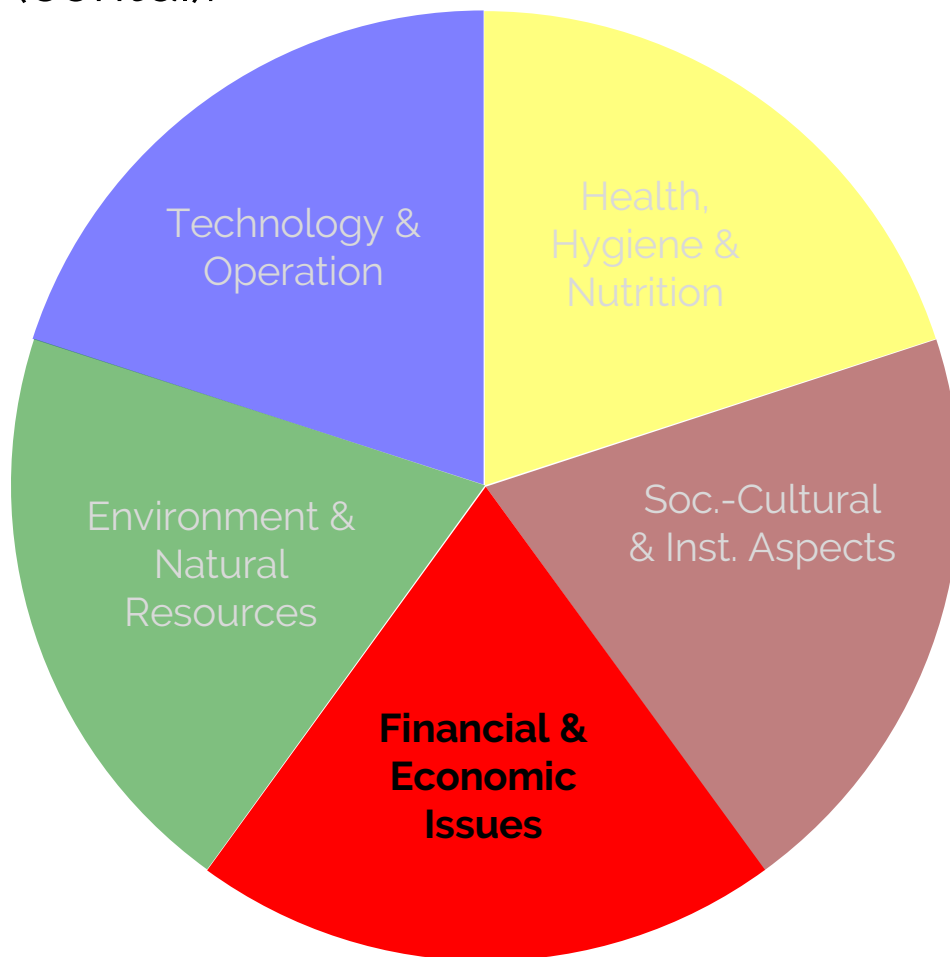
- beneficiaries' capacity to pay for construction, O&M and reinvestments

- direct benefits (e.g. reuse of recycled products)

- external costs (e.g. environmental pollution and health hazards)

- external benefits (increased agricultural productivity, employment creation, improved health)

Sustainability Criteria: Environment & Natural Resources

Sanitation systems should be carefully evaluated with regard to (contd.):

- consumption of energy, water and other natural resources (construction, O&M)

- emissions to environment (e.g. greenhouse gases, groundwater pollution, etc.)

- degree of recycling/ reuse (e.g. reuse of wastewater, returning nutrients/ organic material to agriculture)

- protection of non-renewable resources (e.g. substitution of LPB by biogas, etc.)

Sustainability Criteria: Technology & Operation

Sanitation systems should be carefully evaluated with regard to (contd.):
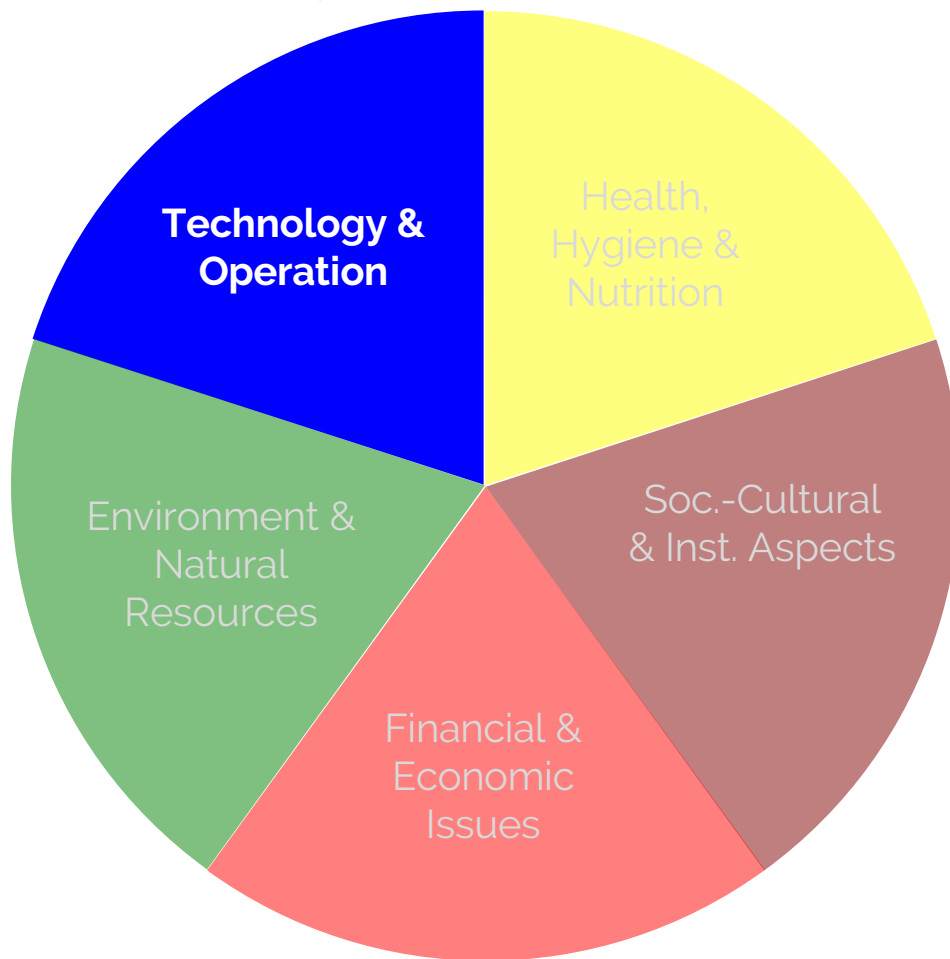
- functionality/ ease of construction, operation and maintenance (collection, transport, treatment and reuse/ final disposal)

- robustness (vulnerability towards power cuts, water shortages, floods, etc.)

- flexibility/ adaptability of technical elements to existing infrastructure and to demographic/ socio-economic development

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Sustainability evaluation of the field visit

Apply the sustainability criteria
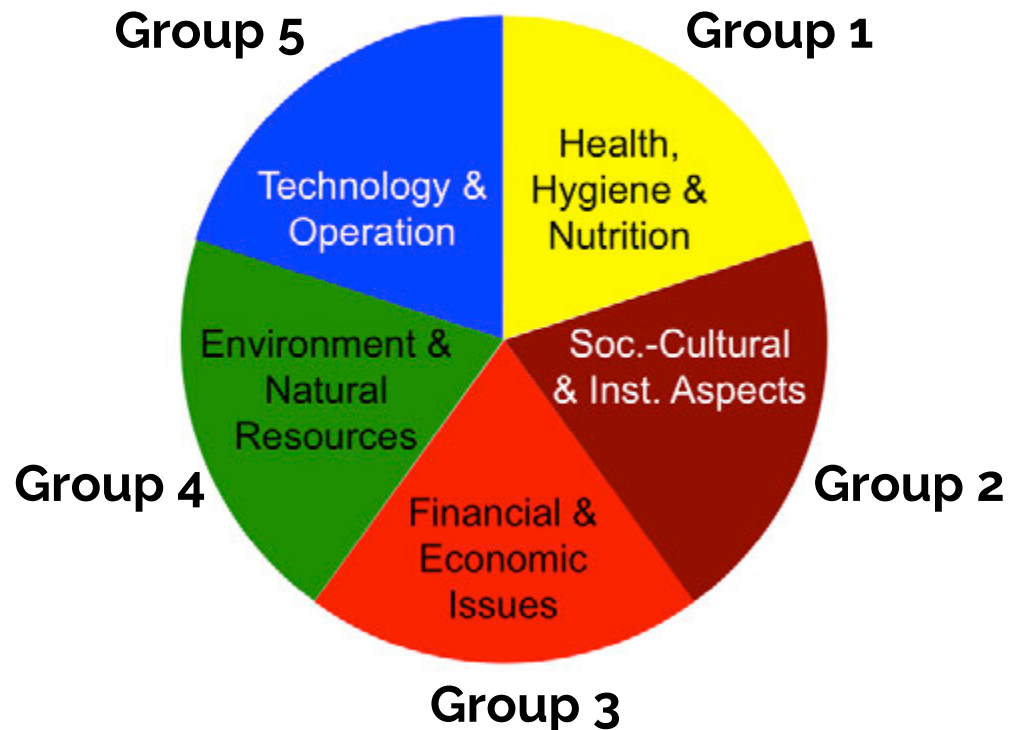
- We will form 5 groups

- Each group will be responsible for one sustainability criteria

- During the visit, each group will be in charge of evaluating its specific criteria

- When we come back from the visit, each group will systemize the information

- Each group will have max 7 minutes to present their findings.

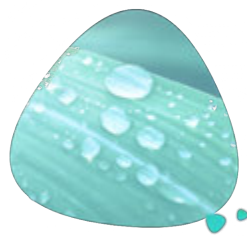*"Linking up Sustainable Sanitation, Water Management & Agriculture"*

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