

# Multiple Use Services (MUS) of Water

Practices and experiences from WaterAid  
West Africa Region

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# General context

- The MUS is **common practice** in all WaterAid West Africa countries
- Dictated by the **needs**
- Designed by the realities in the countries
- link to the sustainability of the interventions

# Type of technologies

The type of technologies we have are :

- hand dug well /Large Diameter well
- Borehole fitted with handpump,
- Water Kiosk,
- Limited Mechanised Water System (public stand pipes)
- Ferrocement Rain Water Harvesting System
- Micro-dam / Sand dam

# Borehole equipped for cattle watering in Burkina Faso



# Well equipped with lavatory for domestic uses in Mali



# Solar Water Scheme in Nigeria



# Self supply increases family income in Sierra Leone



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# Why MUS of water

- **Water point ratio:**
  - very few water points in the communities
  - No other water sources
- **Generate income:**
  - Farming and gardening
  - Cleaning services
  - Building...
- **Alternative solution for water provision**
  - Rain water harvesting
  - Micro-dam (Retention, Recharge, Reuse)
- **Self supply**
  - Use of domestic (household) well

# MUS Water: what and where

Rural: (Hand dug well/large diameter well /Micro dam/sand dam/Borehole, RWH)

- Drinking water/Domestic uses
- Farming /gardening/Animal rearing,
- School/Health center
- Retention, Recharge (storage), Reuse

Urban: (Borehole, stand pipe, RWH)

- Drinking (sachet water production)
- Cleaning services
- School
- Building (tanker)

# MUS of water and Sustainability

- **Design**
  - for different needs
  - Water quantity/ Water Quality
- **Early implication of the community**
  - Siting of the facility
  - Choice of the design
  - participation (financial, physical)
- **Capacity building of Water users committees**
  - Develop facility management plan
  - Guide in operation and maintenance
  - Tariff setting technique

# MUS of water and Sustainability (Ctd)

- **Conflict prevention:**

- Land management (facility sitting, sharing of the water /land)
- Management of the water point
  - (to limit the pressure on the water point)
- Implication of local authorities (Traditional and LGs)
- Design for different needs

- **Self supply:**

- in **Liberia**, we supported 12 communities to establish farms to raise recurrent cost for maintaining their water facilities

# Impacts of Sanankoro (Mali) Micro-dam



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# Objectives of the micro-dam

- Allow better control of runoff vis-à-vis of the early withdrawals from floodwaters;
- Allow greater conservation of water and soil to groundwater recharge;
- Allow recharge of groundwater for a permanent water supply of wells for safe drinking water for people ;
- Reviving the canopy with the possibility of extension of the fruit (mango, citrus, etc.). Thus contributing to environmental protection.

# Description of the micro-dam

- Stone masonry dam  
Section: trapezoidal  
Facilities:  
Pertuis drain equipped with metallic stop logs (number 7)  
to adjust the water level in the reserve.
- Area of influence of the dam: two (2) bands 500 m wide  
each on either side of the lowland and long of 2.5 km (from  
the structure to the village)  
The main measures are:

Height (m)	Length(m)	Width(m)	Length of reservoir (m)	Volume of retained water (m <sup>3</sup> )
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# Description of the initial status of the areas of the micro-dam

- **The soils of lowland**
  - Strong water erosion (presence of ravines in the riverbed );
  - Low and very low surface topsoil layer;
  - Moisture conservation only in the months of August and September.
- **Surface water in the shallows**
  - Intermittent flow during the rainy season (fast after heavy rains);
  - Total absence of water during the dry season.
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  - Intermittent flow during the rainy season (fast after heavy rains);
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- **Gardening activities**
  - Water stress of vegetable crops;
  - The inability of early planting due to lack of water;
  - The increase in watering times (very low flow wells);
  - Lower yields and production of crops

# Impacts of the micro-dam

- The soils of lowland  
Reduction of erosion by water;
  - Increased deposition of sediment;
  - Moisture conservation during the months of August and September.
- Surface water in the shallows
  - Flow control during the rainy season;
  - Water storage for a long period after the rainy season.



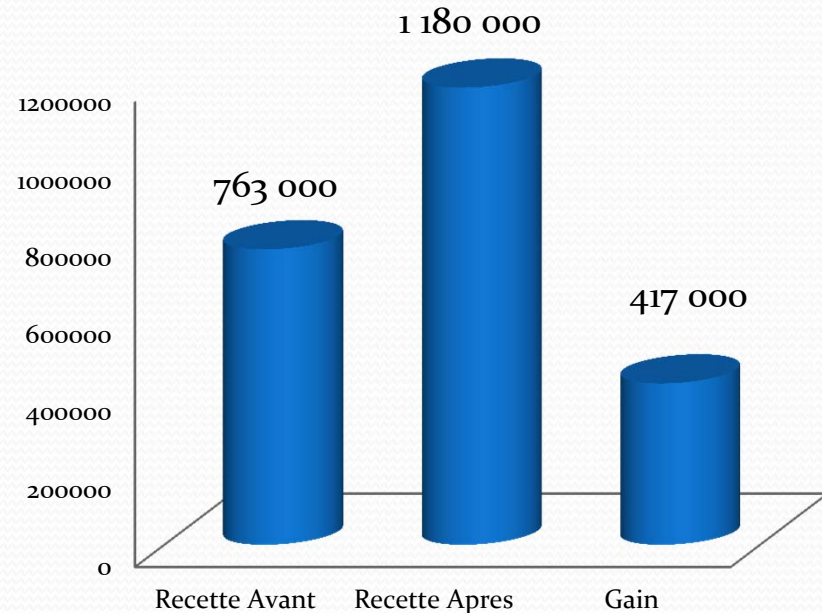
# Impacts of the micro-dam (Ctd)

- Groundwater
  - Increase in the water column of 3.40 m on average with respect to the level before the dam;
  - The permanence of water in wells throughout the dry season;
  - There is no more work deepening of wells.
- Gardening activities
  - The availability of sustainable water column for irrigation boards and fruit trees;
  - The increased flow of each well in contrast to the previous situation where there was a total absence of water;
  - Early planting of gardening through the constant presence of water.



# Impacts of the micro-dam (Ctd)

- The introduction of new cultures more demanding of water (melon and cucumber)
- Removing the corvee of watering the animals;
- Pasture availability is fuller and long lasting.



Average Revenue in gardening  
(More than 150 % increase)

Merci

