Integrating MUS in WASH as a Domestic+:
An initiation (In the context of WAN)

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Presentation Outline

1. WaterAid in Nepal: A brief info
2. MUS in WASH: A Context
3. Concept of MUS application: An Approach
4. Implementation Framework
5. Intervention of MUS in WASH Projects
6. Lessons Learned
7. Going Forward: A Recommendation
WaterAid in Nepal: A brief Info

Start: 1987 in response to UN Water & Sanitation Decade to support provision of water & sanitation services in rural Nepal

Contribution: 4 - 5% on an average annually in WASH Sector

• WAN works with 7 partners to:
  • In 4 out of 5 regions of the country
  • To deliver WASH facilities in such a way that they are: informed, appropriate, integrated, transferable & sustainable
  • To advocate for policy influence through evidenced based demonstration
MUS in WASH: A context

WAN in MUS

- Intervened since 2009/10 as a pilot initiative through NEWAH in 6 districts in a VDC level with gradual scaling-up.
- Demonstrate a spirit of IWRM, but not yet institutionalized.

Why MUS in WASH? (Suitability of MUS)

- Increased efficiency when traditional experiences continue with current technologies and approaches
- Integrate Domestic WS facilities with productive uses for local livelihood in a participatory way satisfying domestic needs (E.g. with Micro-irrigation for off season high value agro-products etc.)
- Ensure sustained WASH facilities linking with livelihood & functional O&M
- Access of poor with marginalized landholding to water not only for domestic use
Initiated with Unstructured MUS in WASH on Ad-hoc basis:

- **Utilization of wastewater:** Design of water points with appropriate:
  - Drainage systems for the promotion of optimum use of wasted water collected from daily use
  - Freshwater overflowing from RTs constructed for DW purposes.

- **Increased design capacity:** Designing schemes with surplus water than required from actual need:
  - Extraction of 20% more than required for drinking purposes depending upon the permission of sources
Concept of MUS Application: An Approach

**MUS as a part of WRM approach in WASH: with a concept of \(D^+\)**

- Minimize water depletion and competing demand with optimum use of available sources for drinking and productive use.
- Manage water sources at appropriate and optimum level acknowledging rights of other users/uses.

- Initiated MUS in WASH with a concept of \(\text{Domestic}^+\) in an integrated approach under broad theme of WRM/WSM

**Major difference \((MUS & \text{Domestic}^+):\)**

- **Starting point** – where MUS considers all water uses whereas \(\text{Domestic}^+\) ensures available water meets domestic needs of the community at first
WASH with a concept of Holistic Plan - WUMP:

- **Source Inventory**: Mapping/inventory of water resources & their uses.
- **Water Budgeting**: Develop WUMP to allocate water for diverse water uses.
- **Utilization of Diverse Resources through Coordination**: Joint efforts of sub-actors/users:
  - WASH, Irrigation, Energy, Livestock & Livelihood, Ecology & Environment, etc.
- **Sanitation Promotion**: Promoting sanitation intervention developing linkages wherever possible (e.g., ECOSAN, DeWATs).

Concept of MUS Application: An Approach

**WUMP (Water Use Management Plan)**:
- A Holistic Framework
- Community prepare at local level and advocate for enforcing the plan
- Manage competitive demands, conserve water sources, ensure water rights and minimize water conflicts.

**Process to create common Platform**

**Benefits of WUMP**

**Local Body planning and prioritization Tool**

**Identifies Supply & Demand of Water Resources**
Criteria to integrate MUS:

If $Q \leq 45$ lpcd
Limit to WASH and systematize installing add-ons

If $Q > 45$ lpcd
Implement MUS in WASH as a $D^+$
Intervention of MUS in WASH Projects

Steps in intervention

- **PLAN** beyond basic domestic needs assessing all sources with priorities of communities and pros & cons in place
- Analyze water using trend to manage water sources meeting diff. needs and acknowledging water rights of the people through water budgeting
- Identify feasible & appropriate technological options offering livelihood/IG
- Explore potential opportunities while managing sanitation – value chain

Implementing Approach

- **Increasing Abstraction Capacity:** Tapping extra water if source permits
- **Installing Add-Ons:** Adding productive infrastructures on WASH projects (Vice Versa)
- **Phased Extension:** Comprehensive plan Vs availability of resources
- **Linking Sanitation to livelihood chain:** By product of Sanitation in agriculture as fertilizer/manure
Intervention of MUS in WASH Projects

Basic Technology Adopted:

- Technologies - not new & special; resemble the components in different ways.
- Surface water sources (springs) – conveyed to DW collection/storage tanks with GF system.
- Excess water from one tank overflows to another for domestic and productive use
  - Micro Irrigation: kitchen gardening; sprinklers/drip irrigation from Over Flow from Water Storage Tank.
  - Energy: Peltric sets, water mills etc.
  - RWH, water recharging, etc.

Drinking Water Tap
MUS off take drip irrigation system
System Design: By Use

- **Single Use System (SUS):** Designed for domestic consumption only
- **De-Facto MUS (D-MUS):** Using water/wastewater for KG
- **MUS by Design (MUS-D):** Designed to meet both domestic and productive water demands simultaneously from:

<table>
<thead>
<tr>
<th>Single Water Source</th>
<th>Different Water Sources</th>
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<td>• For single use with single/multiple infrastructures</td>
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System Design (by Use) is further guided by:

(a) **Continuous Flow System:** 1 Tank System Source with sufficient flow throughout year
(b) **Year Round Controlled System:** 2 Tanks System Source just enough to meet design demand
(c) **Seasonally Controlled System:** 1 Tank controlled system Moderate source to meet yearly demand

*Source: IDE*
Intervention of MUS in WASH Projects

Implemented MUS in WASH with $D^+$ in:

In unstructured way, very early (may be more than 7 yrs ago) **BUT in structured way, intervened since 2009/10** as a pilot initiative through NEWAH in 6 districts in a VDC level with gradual scaling up.

6 districts *(Udayapur, Siraha, Dailekh, Jajarkot, Doti & Surkhet)* at VDC level

Achievements:

- Contributed VDCs in achieving universal WASH coverage and ODF with 200 WPs facilitating DW in place for 925 HHs benefitting 1300 HHs more
- IG opportunity & linkage with S/C (MF) groups gradually led to economic return and informed locals about nutritional value of fresh vegetables
- Mobilized resources from LGs for installation of:
  - Micro irrigation with excess water for producing cash crops through kitchen gardening, nursery irrigation, sprinkler/drip irrigation
  - Peltric Sets, Water Mills etc. integrating with DW systems & Biogas with toilets
  - Recharging shallow GW aquifer from the excess water and Rainwater
  - Cattle troughs and fish Ponds const. for cattle raising and fish farming
Lessons Learned

- WASH integrated with $D^+$ or MUS ensures functional of the facilities with likely to sustain when analyzed from FITS criteria;

  **May be due to:**
  - Engages people in livelihood and system management
  - Reduces No. of UGs by MUS in WASH as $D^+$
  - Understood Value of WATER (e.g. add-ons to WASH)

- Practiced in Hilly regions (*GF system*) – But relatively expensive in mixed (*Pumping–OHT–GF Distribution*)

  **Not so popular in Tarai**

- WASH access with integration of MUS might be expensive to reach poor & vulnerable (*marginalized /no land holding*) when not linked with market

- Provision of seeds & technical advice to promote kitchen gardening using extra water (incl. wastewater) needs linkages with DADO for more efficacy
Lessons Learned

- Transfer of management skills to locals is essential for sustenance of WASH with MUS/D+ and sanitation by-products
- High community participation with a return of economic benefits from IG / livelihood with Pay back period of 13-14 Months & FIRR of 58%
- Roughly 10% of total cost is added - Nominal when looked at benefits it offers
- Financing: Pay back period of financing (loan/benefits) for WASH with MUS is less when compared to WASH without MUS
- Market promotion, linkage and networking is essential to go beyond domestic consumption to ensure economic benefits and return.
- Financing mechanism: Only 45% of total sector financing could be mobilized incorporating MUS in WASH, though ensure economic return
 Going Forward

- **Incorporate MUS approach** in WAN’s WRM/WSM policy as Domestic\(^+\) and institutionalize / mainstream it among the partners – rural to start

- **Promote WUMP as a holistic coordinated plan to:**
  - Initiate MUS as a starting action for cross linkages and synergy
  - Develop linkage/collaborations & advocate within sector & beyond:
    - Govt. bodies, MDPs, Donors, sector agencies & expert actors
    - Organizations particularly focusing on energy, and agriculture

- **Promote MUS initiatives** in WASH sector and beyond for:
  - Endorsement & financing for wider replication of concept/approach
  - Profitable investment and social reform,
  - Marketing products (*both WAT & SAN*) with a value chain concept
  - Harmonizing sector development to achieve WASH targets
Some Glimpses

THANK YOU