

## Pragya Shrestha

### Studying Multiple Use Water Services, their cost effectiveness, sustainability and contribution to poverty reduction in Nepal 2010

Pragya Shrestha from Nepal studied Multiple Use Water Services (MUS); their cost-effectiveness, sustainability and contribution to poverty reduction in Nepal. Pragya studied environmental science and management in Nepal and studied the MESPOM course based in Manchester. In Nepal she worked with IDE.

Below is Pragya's PowerPoint presentation on her case study in Nepal.

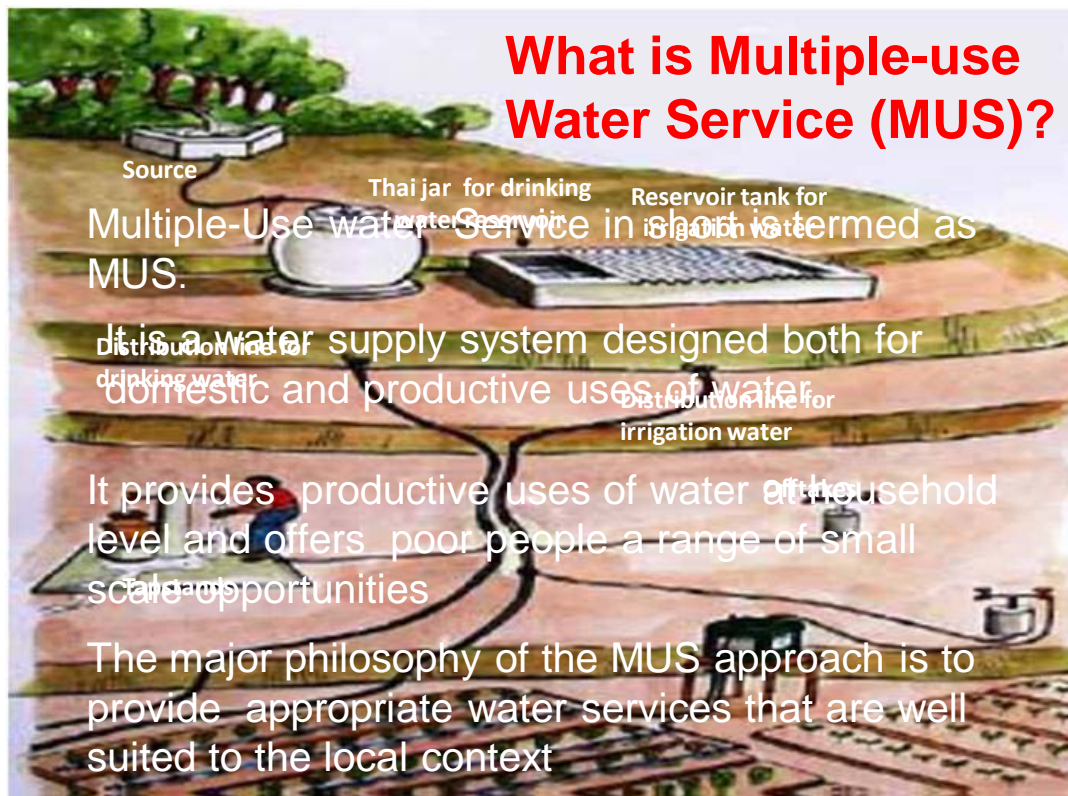
### Multiple-Use water Service (MUS): Cost Effectiveness and Contribution towards Poverty Reduction. A case study of Nepal



Pragya Shrestha  
June 2010

## Outlines

- What is Multiple-use Water Service (MUS)?
- Justification of the study
- Aim of the study
- Study area
- Methodology
- Findings
  - MUS in Nepal
  - Poverty impact analysis
  - Benefit cost analysis
- Conclusion
- Recommendations

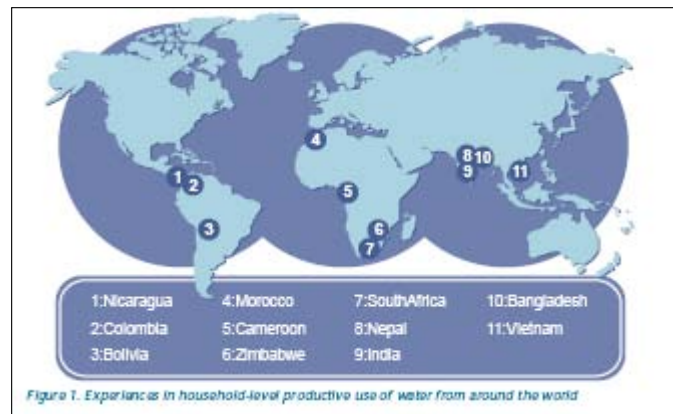


## What is MUS?



- The Global Water Partnership, a key global network on IWRM, also refers to MUS approaches as an appropriate forms of IWRM for developing poor areas.

## MUS promoted countries



It has been promoted in peri urban and rural settlements of South Asia, Latin America and Sub Saharan Africa where there a high concentration of poor with inadequate water accessibility.

## Justification of the study

- MUS approach though is emerging approach in water supply services, it is still in demonstration stages.
- Promoted mainly by I/NGOs
- The governments are still reluctant for its promotion.
- It might be due to additional initial cost and lack of evidence of social benefit.
- There is still insufficient knowledge and awareness regarding cost and benefit aspects of the MUS for its promotion.

## Aim of the study

- Analyse whether the MUS is cost effective option in domestic water supply services
- Assess whether the MUS contributes towards poverty reduction



## Study Area



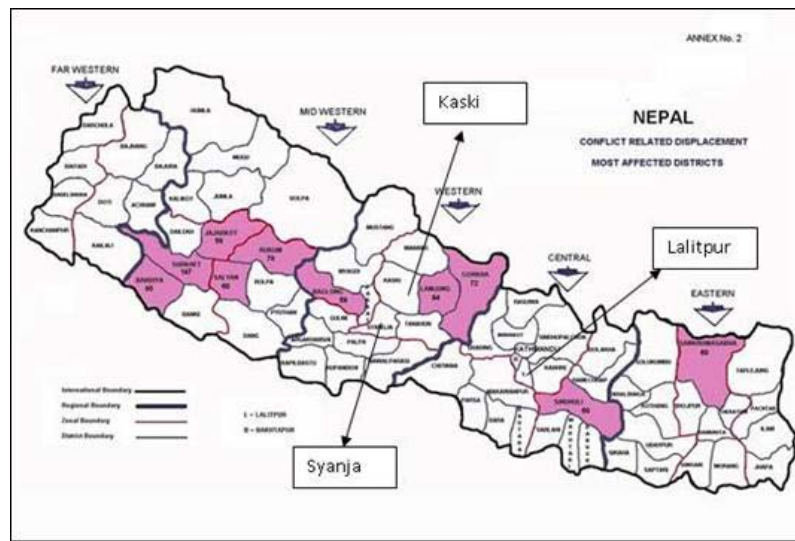
- Located in between India & China.
- One of the poor country in SE Asia. Around 31% are under poverty line.
- Multi dimensional poverty due to poor literacy rate and poor access to basic facilities including water accessibility. Only 48% has reliable water accessibility.
- Agriculture is a major occupation.

## Methodology

- Secondary information review
- Visiting organisations and expert consultations
- Household interviews and site observations:
  - Interviews conducted in 50 households of five different MUS schemes



## Survey areas in Nepal



## MUS in Nepal

- MUS has been promoted in Nepal since 2003.
- It has been promoted in hilly regions as gravity flow system
- Till date there are around 81MUS schemes.
- The water from the MUS has been used for domestic use and vegetable production.



## Poverty impact analysis



### 1. Time saving in fetching water

- All the household acknowledged that the MUS helps saving their time of fetching water.
- Before they had to travel in average 25 minutes for a trip
- But after the MUS, they get water access within a distance of 5 minutes, which helps significantly in saving time, especially of female.

“MUS helps saving my time . I would not have been talking to you like this if I had to fetch water like before.”



Shanti Nepal

## 2. Food Security and improvement in household nutrition.

Before the MUS

“Before we did not have money to buy and eat vegetables. But now we cannot eat our meal without fresh vegetables, grown in our own garden. I am feeling more healthy and fresh after consuming lots of fresh vegetables, and so is my family.”

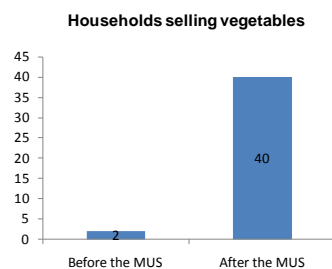
After the MUS,

- The users started vegetable production.
- All the households started vegetable production for own consumption.
- Now, there is no need to buy vegetables for the household.



Moti Lal Poudyal

## 3. Improved income level and living standards of the users.



- Income ranges from 11 to 2000 US \$ per year
- Around 70% of the households admitted that the vegetable farming helps them to support their children education.
- They also shared that they do not have to take any loan. Instead they are saving at least 2-10 US\$ a month in their saving and credit group.



## 4. Improved in health and sanitation.

- Out of 50 households surveyed, 47 households are using water from MUS even for their sanitation purposes,
- significant reduction of such water borne diseases
- The users felt healthier due to having fresh vegetable consumption and clean drinking water.

“MUS helps us practice clean and hygienic behaviour. I wash clothes any time I want, which was not possible before as the water source is far away from my house.”



Mangala Bishwokarma

## 5. Women's empowerment..

- Directly and indirectly supports empowering women
- Women feel empowered and confident due to vegetable business..

“My husband is working abroad and I had to wait for my husband's money to do anything. But now, after doing vegetable farming, I, myself, am earning a certain amount of money for my family”

These evidences support that MUS helps solving multidimensional poverty issues.



Durga Poudyal

## Benefit cost analysis (BCA) of the MUS

- The BCA was conducted by calculating Net Present Value (NPV), Benefit Cost Ratio (BCR), Financial Internal Rate of Return (FIRR) and Payback period.
- The NPV of all the studied MUS were found to be positive, ranging from US \$ 4,185 to 92,422.
- The Net Benefit Cost Ratio was found in a range of 11 to 87 % respectively.

## Benefit cost analysis of the MUS

- The payback period of the MUS was found to be 9 to 21 months.
- On average the FIRR is found to be 58 which implies that for every 100\$ investment, the financial return is \$158
- Hence the BCA shows the MUS as a highly feasible and beneficial water supply scheme.

## Conclusion

- The MUS is an appropriate and affordable option both financially and socially.
- The study supports poverty alleviation issues along with improving water accessibility, which are crucial basic needs for the development of the poor and an agricultural country.
- The study demonstrates that MUS have positive NPV, BCR greater than one, FIRR above 50% and a short payback period of 13 months showing the investment in the MUS is highly profitable.

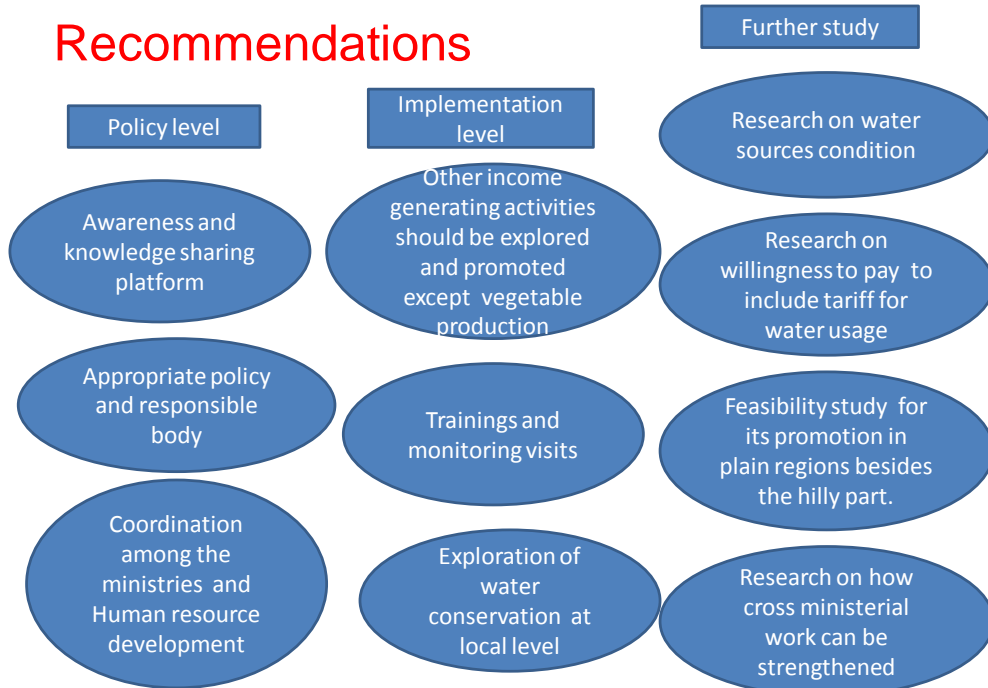


## Conclusion

- Besides, it also helps conserving precious water resources via drip irrigation, which is used for vegetable farming in the MUS.
- MUS contributes to economic and social upliftment by increased access to appropriate technology use, cash income, and social status for which appropriate design and follow up are essential.



## Recommendations



## Acknowledgement

- Dr. Ruben Mnatsakanian, CEU
- Dr. Petro Gaganis, University of Aegean
- Mr. Rabin Lal Shrestha, WaterAid Nepal
- CEU Research grant
- Lydia Press Fund
- WaterAid Nepal