Making MUS work for climate vulnerable farmers through CSA approach and sustain its outcomes: *A case study of a village from Majhthana, Kaski, Nepal*

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Introduction

- MUS has been proven to benefit small holder farmers by improving income through increasing cropping intensity and maximizing water use efficiency, and reducing women's workload and drudgery. (Pant et al., 2006 {Research from Nepal})

- MUS enhances farmers' adaptive capacity to water stress due to climate change through promoting economic and domestic use of water. (Kaur et al., 2010 {Research from Ethiopia})

- Policy provision is smooth for MUS research and promotion

Introduction…

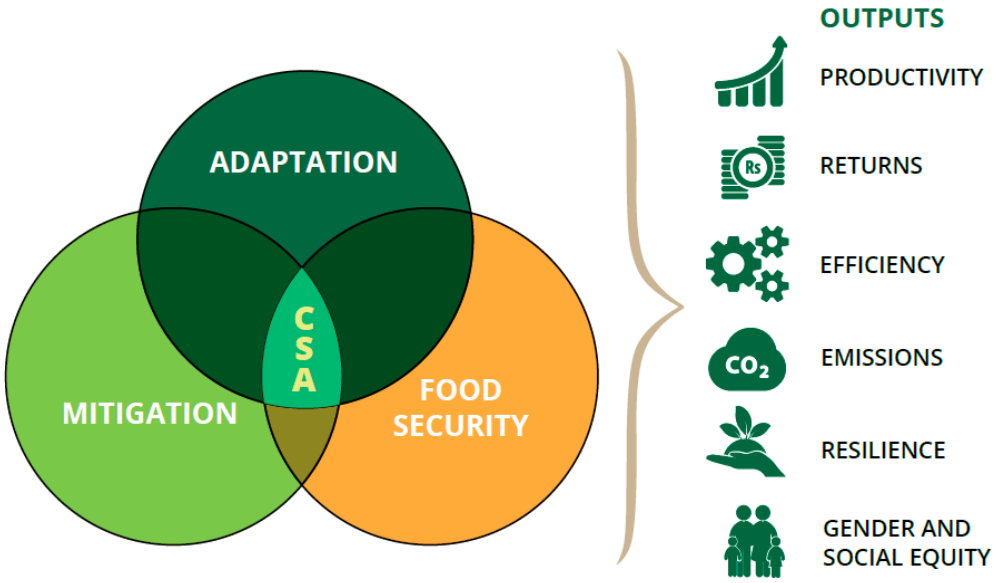
- Scaling up MUS is contingent upon (Van Koppen et al., 2014)
  - People's priorities and choices
  - Public funding (users and local stakeholders including government)
  - Smart subsidies for the poor
  - Benefit women and enhancing their decision making capacities
  - Cost recovery and infrastructure sustainability

- With this backdrop, we have been assessing
  - Does MUS contribute to climate smart agricultural system?
  - If it qualifies as a CSA technology, how it can be scaled up considering the local and national vulnerability context?

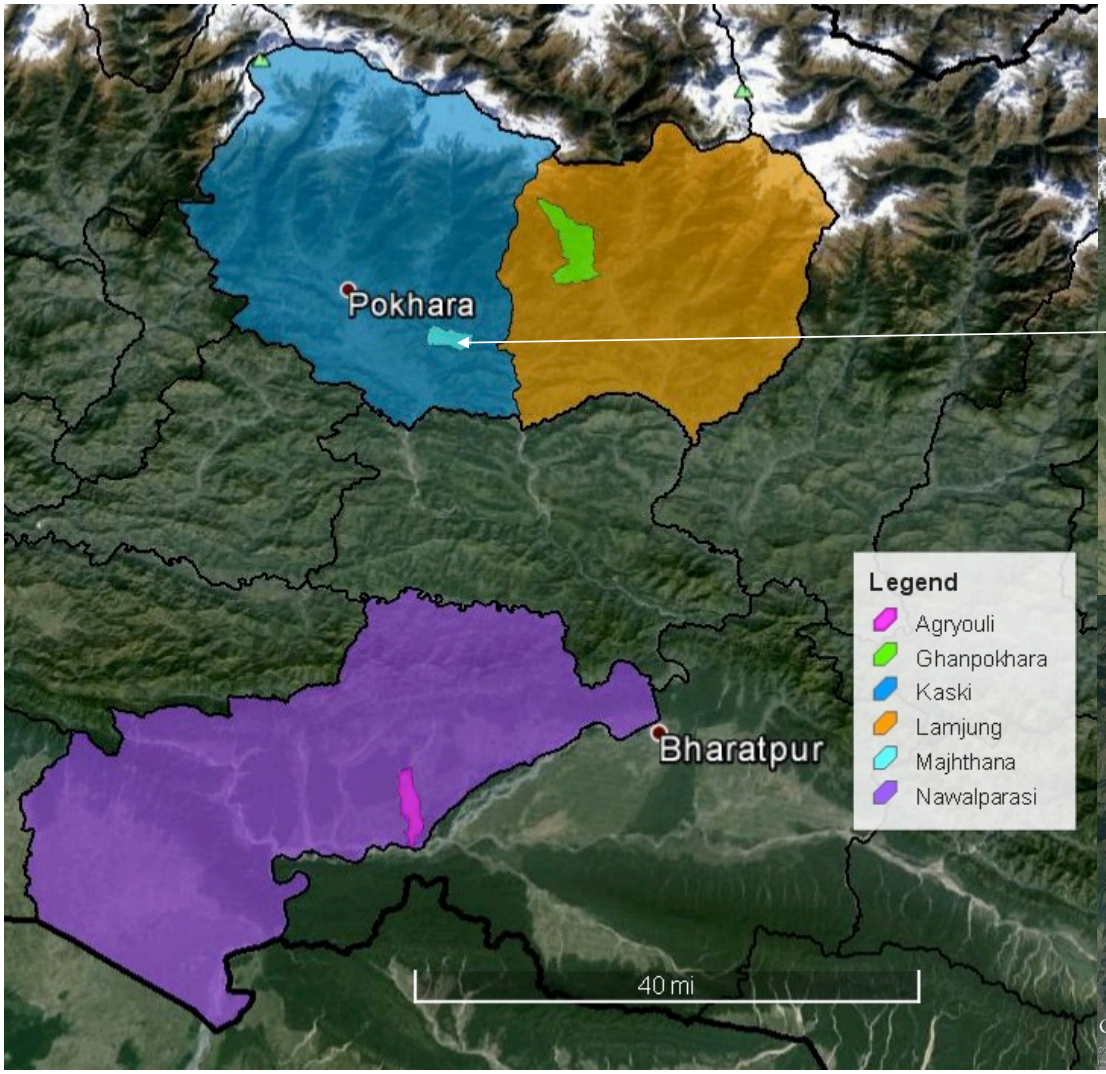
Methods

- Analyzed climatic data and community perception on climate hazards
- Reviewed MUS through CSA approach based on literatures and expert judgement
- Field observation and community consultation
- Case study at village level for MUS package

MUS Assessment through CSA Framework



Where ?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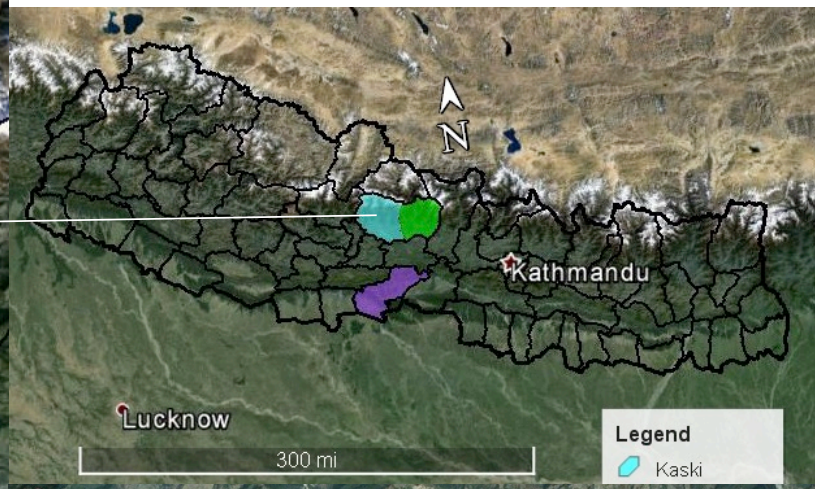
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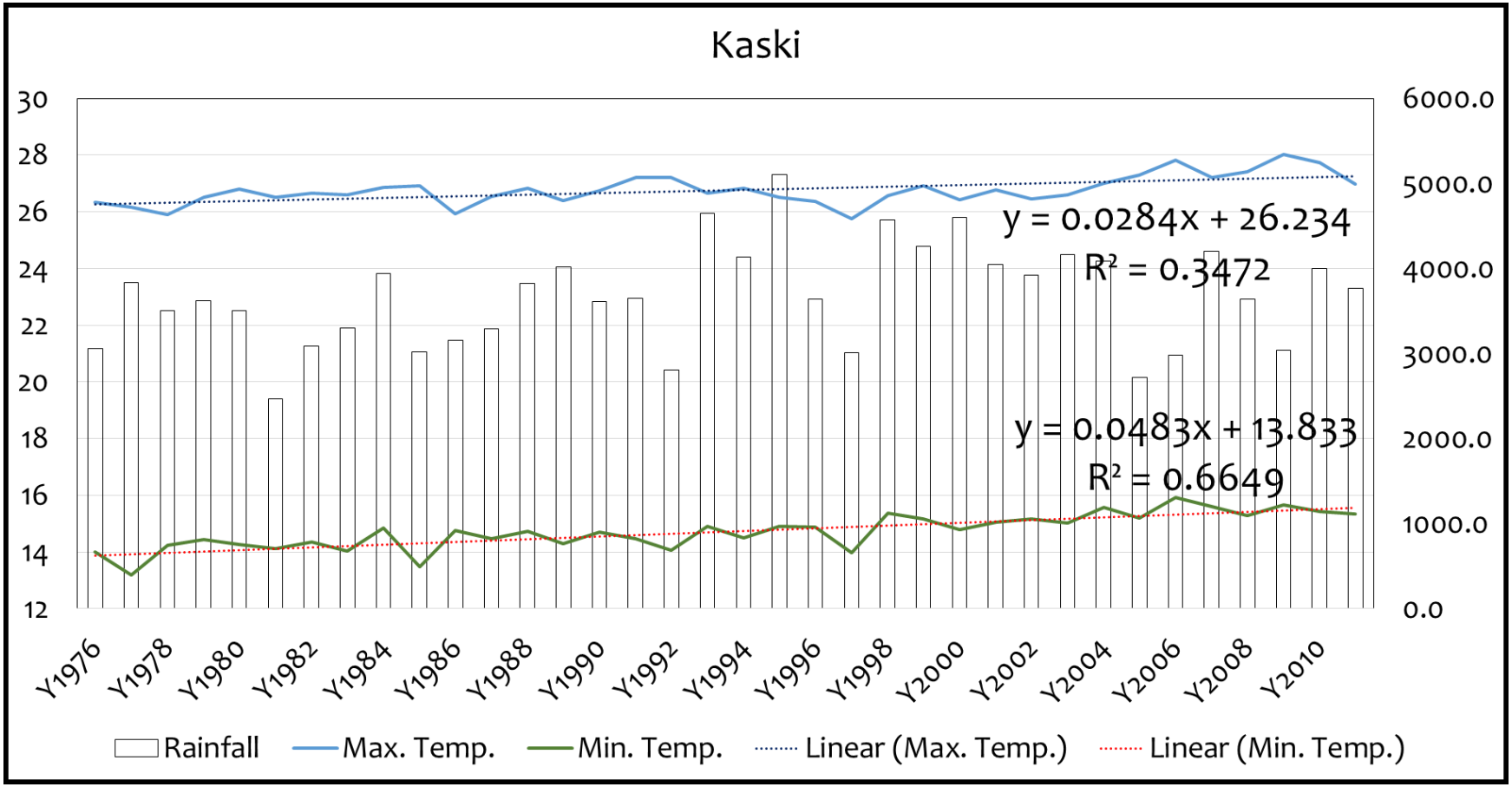
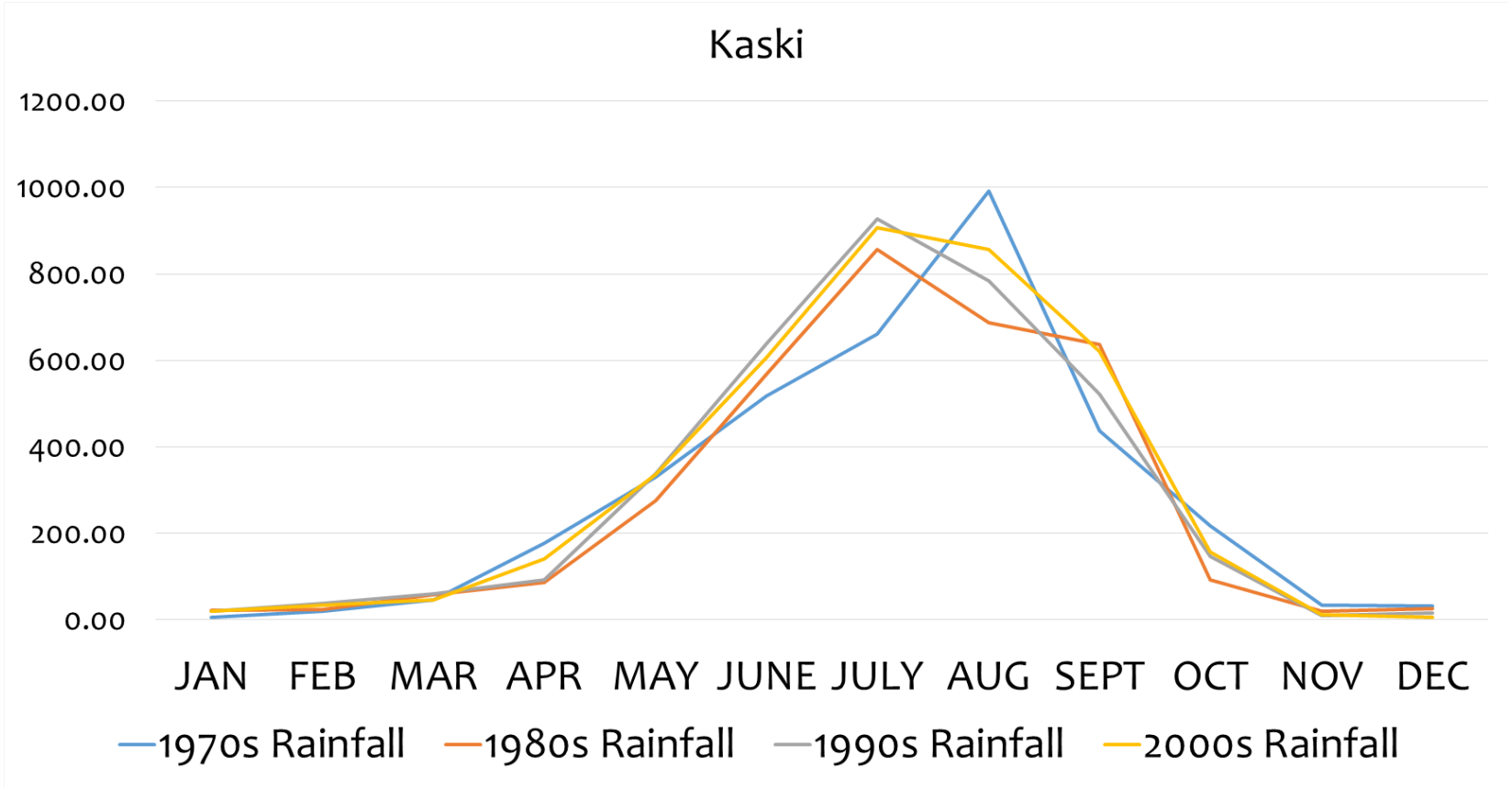
Results

Yearly rainfall and temperature trends (Kaski)



Comparison of average rainfall of decades



Community Perception

Livelihood Resources (Capital)		Impact Score (0=No; 1=Low; 2=Medium; 3=High)					
		Flood	Landslide	Wind	Drought	Hailstone	Total
Natural	Forest	1	2	1	0	0	6
	Water Source	0	1	0	2	0	5
	Grazing Land	0	0	0	0	0	1
	Staple Crops	1	1	2	2	2	9
	Livestock	0	0	0	1	0	2
Physical	Road	2	2	0	0	0	4
	Irrigation System	2	2	0	2	0	6
	School	0	0	0	1	0	1
	Market/Haat	0	0	0	1	0	1
	Houses	0	1	1	2	1	6
	Comm. INST	0	0	0	1	0	1
Human	Health Worker	0	1	0	0	0	2
	Teacher	0	1	0	0	0	2
	Social Worker	0	1	0	1	0	3
Social	Women's Group	0	0	0	2	1	5
	Cooperatives	0	1	0	0	0	2
Financial	Banks	0	1	0	0	0	2
	Daily Wages	0	1	0	1	1	4
Total		6	15	4	16	5	-

MUS from CSA approach

Food Security:

- Production: Cropping system intensification, year round vegetable production, increased yield of vegetables (radish, onion, chili, garlic, potato)
- Income: $200, $330 per year per hh
- Nutritional diversity: Production of vegetables, increased diversity

Adaptation:

- Increased water access by improving storage
- Increased water use efficiency (using water for different purposes) through micro-irrigation

Mitigation:

- Not explicit data or information available

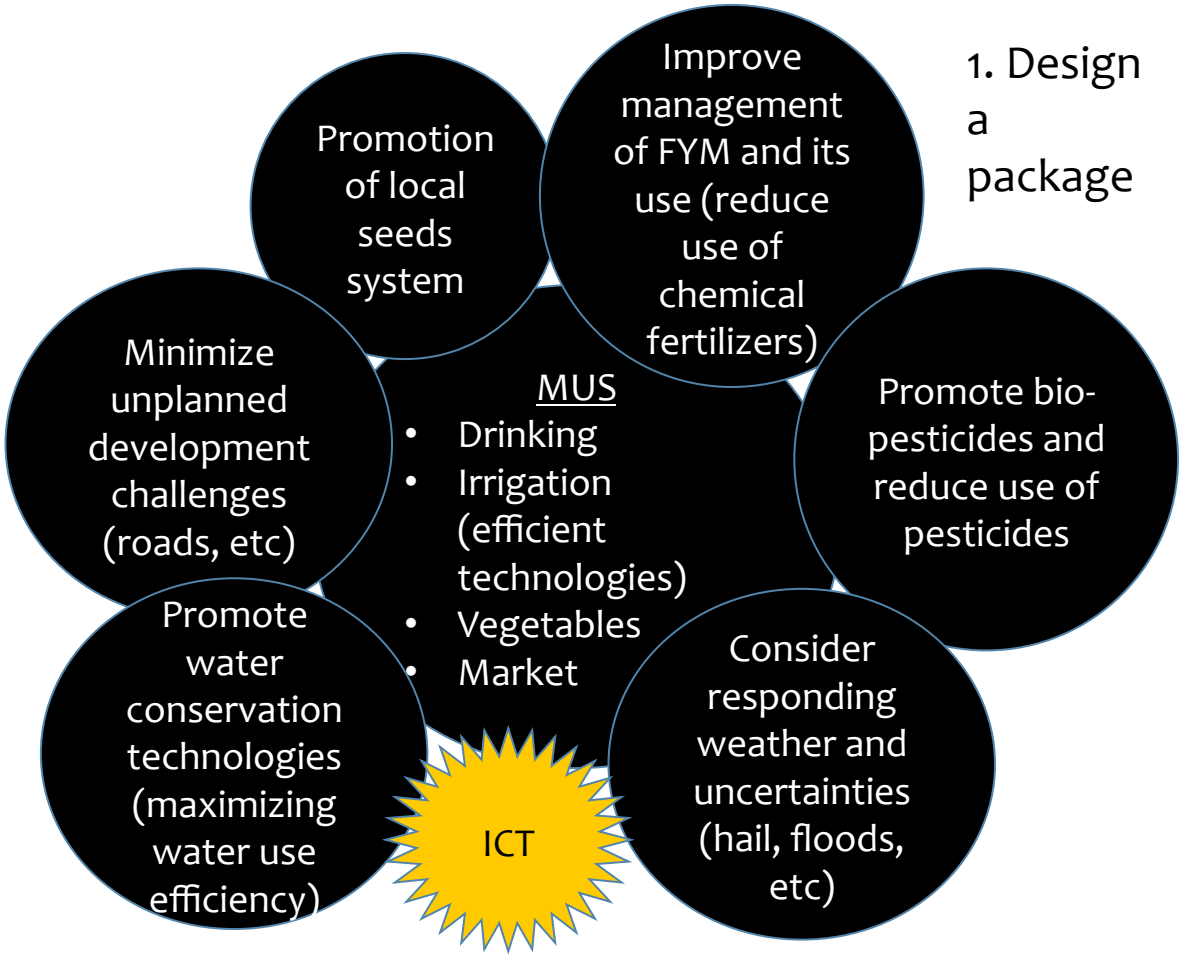
GESI:

- Timesaving (1.5 hours, 2.5 hours per day; 2 hours per day during dry season)
- Consultation and joint decision making increased
- Access to market

Kaur et al., 2010

Mikhail and Yoder, 2008; Clement et al., 2015

Piloting MUS through CSA approach in our sites



1. Design a package

2. Develop a financing mechanism

3. Formalize the contract with the grass root institution

Financing Mechanism	
Communities Cash	24%
Communities Kind	Labor
VDC	7%
LI-BIRD	69%
iDE	Technical support in design

Discussion and Conclusion

- From the review of literatures, we found that MUS has improved yield and income through accessing water and its efficient use. In some cases, increased diversity of vegetable was observed.

- MUS is GESI responsive: MUS has contributed to increase income of poor farmers and women. Contribution to saving time is explicit.

Discussion…

- In Nepalese context, MUS can be a climate smart agricultural technology.

- However, mitigation aspect of MUS is least explored/studies. Although the MUS do not directly contribute to GHG emission, there can be indirect effects (such as promotion of chemical fertilizers and pesticides for commercial vegetable cultivation).

- In the changed climatic context (with multiple hazards), the promotion of MUS should also be planned to address other climatic hazards to build community resilience.

Recommendation (for scaling up/out)

- MUS design should be in a package (not in isolation) considering multiple climatic and non-climatic hazards of the village or territory.

- A well planned financing mechanism ensures sustainability of MUS package. It should be diversified including mandatory cash and/or kind contribution from communities. Communities can not always themselves establish MUS from their own resources.

- The grass-root institutions (such as farmer's groups, cooperatives, mother groups, etc) should be empowered to facilitate governance of MUS package for its sustainability.

Acknowledgement

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Thank You

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Selected References

- Clement, F., Pokhrel, P., and Sherpa TYC. (2015). Sustainability and replicability of multi-use water systems (MUS): study for the market access and water technology for women project. IWMI, IDE, SAPPROS, Samjhauta, and NTAG.
- van Koppen, B., Smits, S., Rumbaitis del Rio, C. and Thomas, J.B. (2014) Scaling up multiple use water services: Accountability in the water sector, Rugby, UK: Practical Action Publishing http://dx.doi.org/10.3362/9781780448299.000
- Kaur, N., Getnet, M., Shimelis, B., Tesfaye, Z., Syoum, G., and Atnafu, E. (2010). Assessing the effectiveness of planned adaptation interventions in reducing local level vulnerability. Ripple working paper 18. http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6111.pdf
- Mikhail, M., and Yoder R. (2008). Multiple use water service implementation in Nepal and India: experience and lessons for scale-up. IDE, CPWF, and IWMI.
- Pant, D. Gautam, K. R. Shakya, S. D. Adhikari, D.L. (2006). Multiple use schemes: Benefit to smallholders. Colombo, Sri Lanka: International Water Management Institute. 48 p. (working Paper 114). www.ageconsearch.umn.edu/bitstream/91944/2/WOR**114**.pdf