

# Multiplying Benefits through Multiple Water Uses at Local Level: Case Study of Multiple Water Use System in a Remote Nepali Village

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"Inclusive & safe WASH in School, Kavre"

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# Introduction

	Labdhikhola Irrigation System
Total command area	30 ha( Source : FGD, 2010)
Length of the canal	3.5 km ( Source: FGD, 2015)
Capacity (Discharge)	300 litre/sec (FGD,2015)
Types of System	Irrigation Canal, Micro-hydro and Water mills
Caste and ethnic groups	Hill Brahmin, Chhetri followed by Magar, Newar, Kami, Sarki, Sanyasi, Dashanami, Gharti, Bhujel, Thakali.
Main income source	Government and private job, small industries, Agriculture and livestock rearing and foreign employment

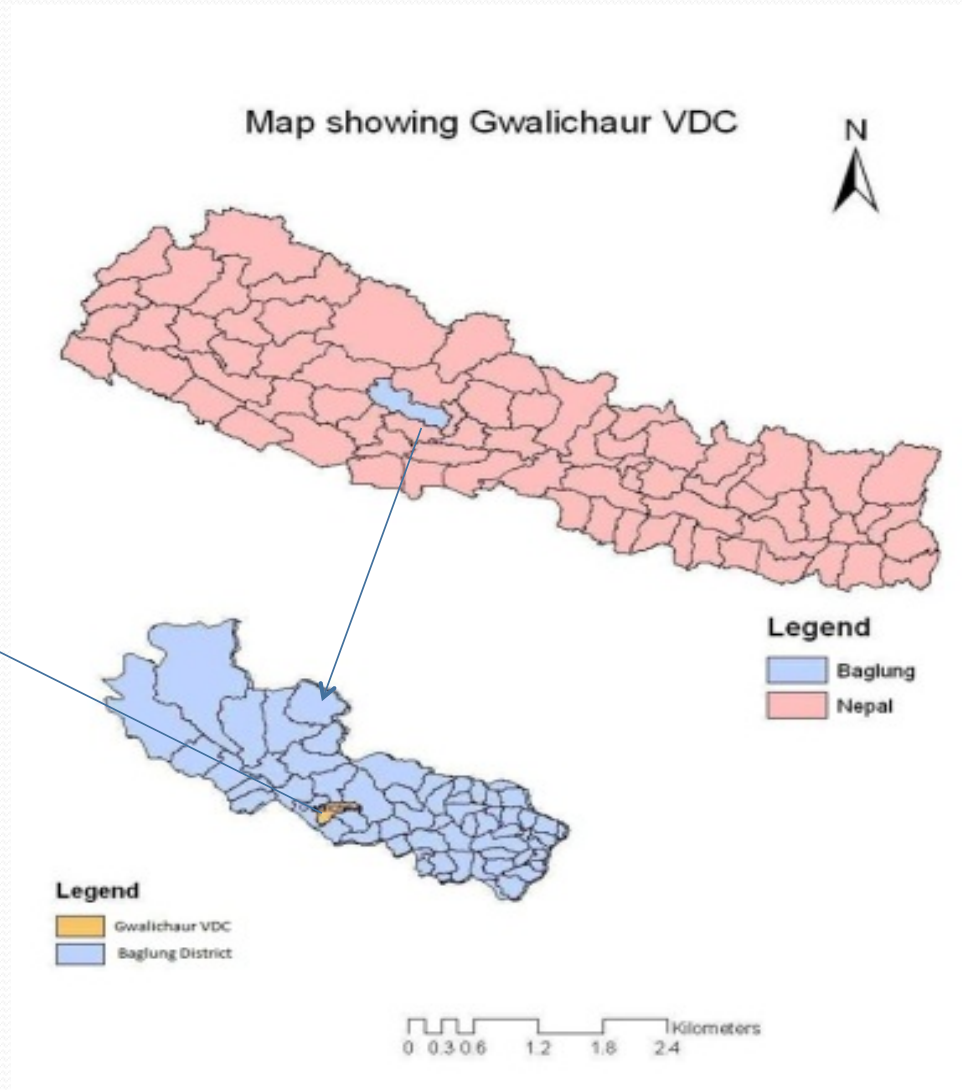
Source : FGD, 2015

## Objectives of Study

- To understand the preference of the users in making investment in developing MUS and the processes involved thereto
- To identify benefit streams and livelihood impacts and their pathways produced in multiple uses irrigation systems
- To analyze the contributions of the MUS in enhancing livelihood opportunities and promoting social and economic wellbeing of the people.

# The study Area

LKIS in Gwalichour  
VDC in Baglung





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# Methodology

## Source of data

Field survey

1. Exploratory Visit

3. Key Informant Interview (KII)

Irrigation Users Committee,  
Electricity Users Committee

4. Focused Group Discussion(FGD)

Four FGDs at different places



# Results and Discussion

## 1. Land Holding Size (Irrigated Land)

S. N	Area of Land ( Ropani)	No. of HH
1	1 to 3	150
2	4 to 6	120
3	7 to 9	50
4	10 to 12	50
5	>12	10

Source : FGD, 2015

## Access to Job

S.N	Types of Job	No. of household
1	Government	100
2	Private	15
3	Business	15
4	Pension	200
5	Foreign	300

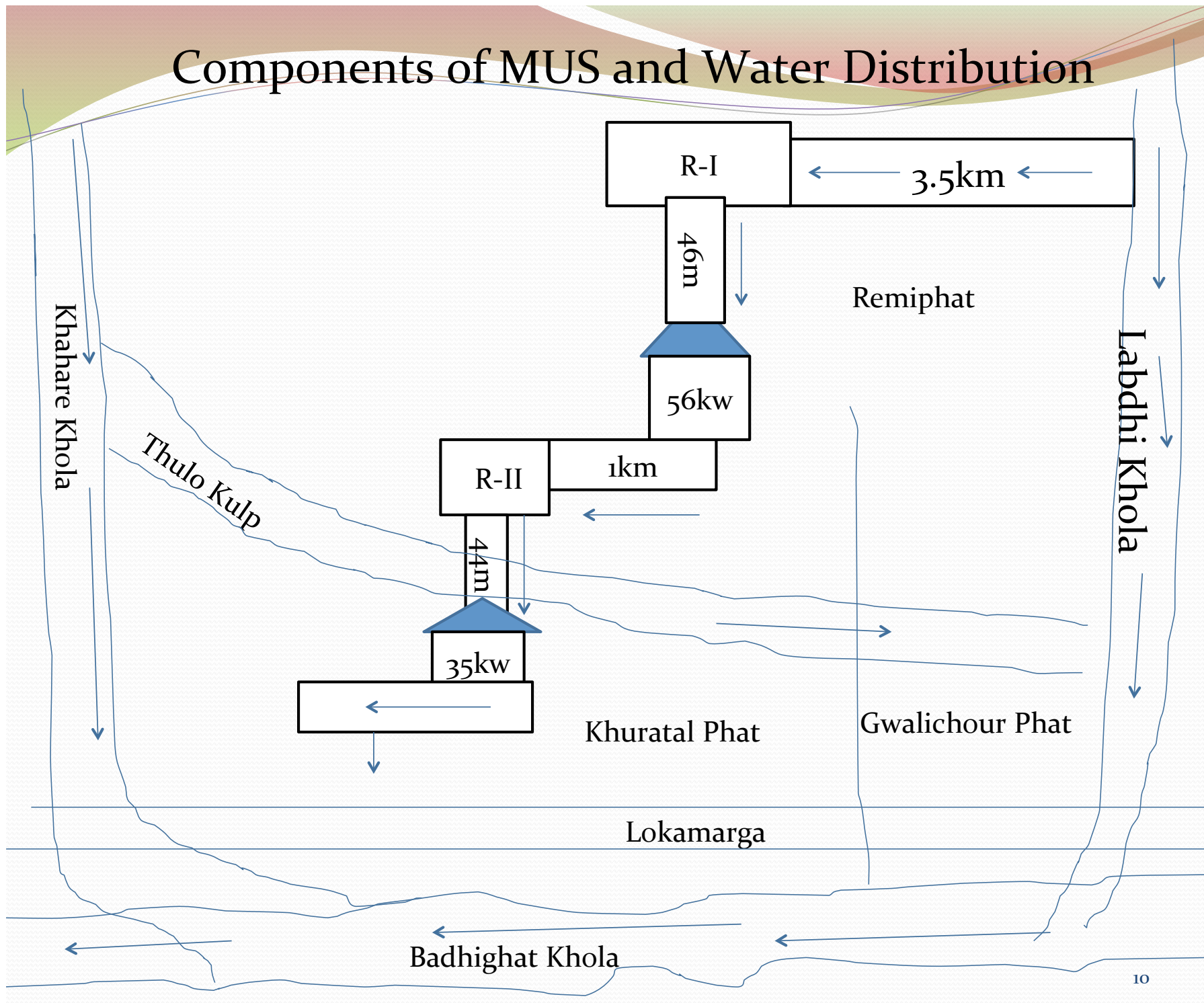
Source: FGD, 2015



## Results and Discussion: Development of MUS

Milestone Year	Activities
Before 1982	A person was died during conflict
1983	Local Leader went Pokhara
1983	First time Survey Team came in village and couldn't conduct survey
1984	WRID through ILO canal construction was begun
1988	Irrigation Canal and water mill
1988	Discussion about Electricity
2003	56KW Electricity generate
2003	35 KW Electricity generate

# Components of MUS and Water Distribution



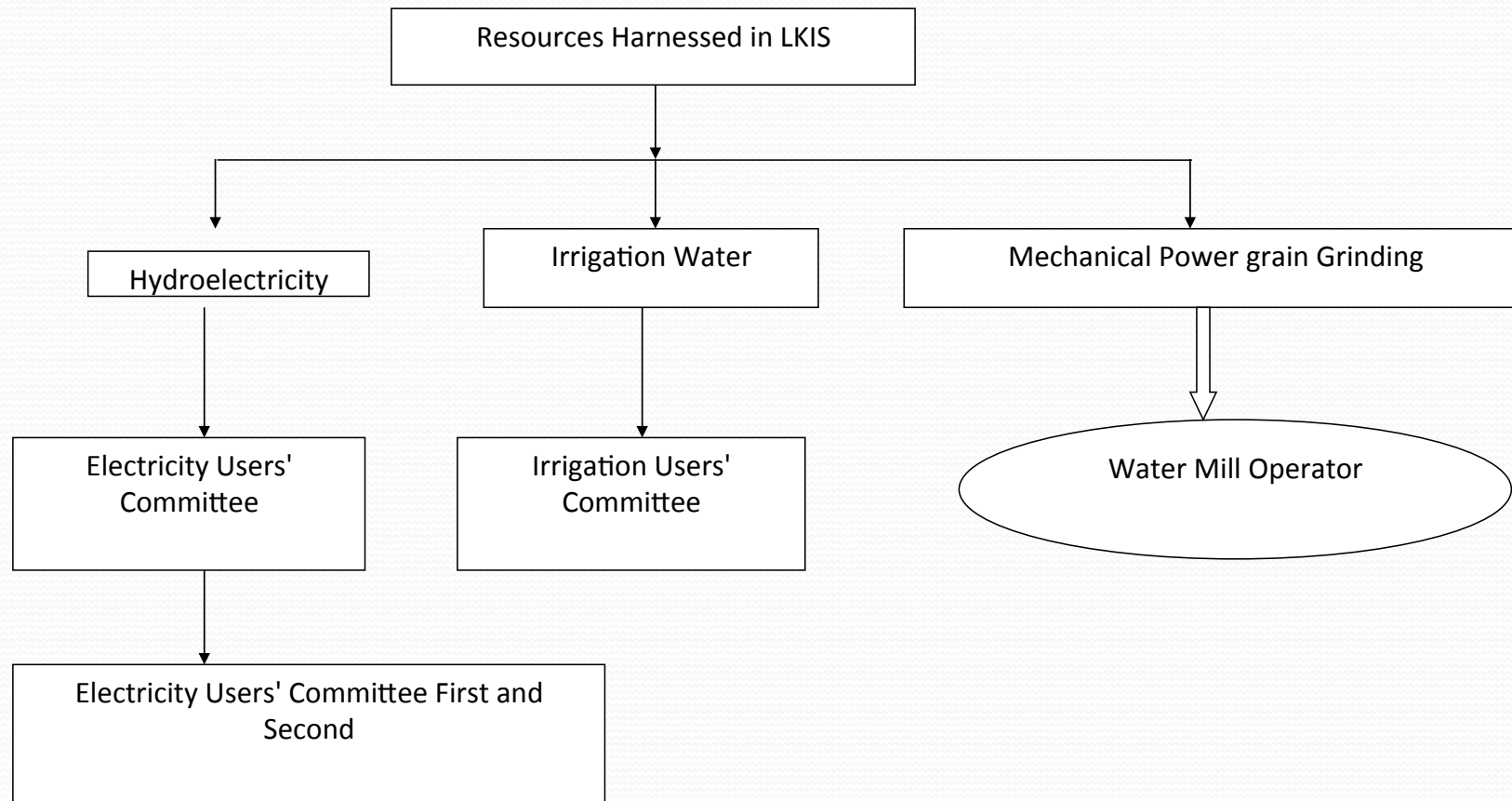
## Results and Discussion

### b. Access of households to MUS

Name(s) of the Village	No. of Households	Access	Remarks
Gwalichour VDC ward no. 1, 2, 3	300	Irrigation+ Electricity+ Water Mill	Prior appropriators
Gwalichour VDC ward no. 1, 2, 3, 6, 8	620	Electricity 56KW	
Gwalichour VDC Ward no. 4.5, 6, 8	270	Electricity 35 KW	
Total			

# Result and Discussion

- c. Governance arrangement in LKIS



# Results and Discussion

## A. Change in the Cropping system

- Cropping system was change The land under rice, potato and vegetable is found increased in LKIS
- Cropping intensity is found 300%

# Result and Discussion

## Crop productivity

S.N	Crop	Productivity	
		Before ( tons/ha)	After ( tons/ha)
1	Paddy	1.91	5.75
2	Maize	1.24	2.48
3	Wheat	1.24	2.48
4	Mustard	1.24	2.48
5	Potato	7.44	9.31

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## Results and Discussion

- Food Security condition

S.N	Food Security Condition	Before LKIS (HH)	After LKIS (HH)
1	Food deficit	250	150
2	Food sufficient	100	150
3	Food surplus	50	80

Source: FDG,2015

## Result and Discussion

- Multiplier Benefit from MUS system
  1. Facility of Irrigation, Micro-hydro, and Water Mill
  2. Land Under the Irrigation field increased ( 15% are of land under crop has increased)
  3. Cropping intensity of land also increased up to 300%
  4. Off-farm and on farm job at local level
  5. Sustainability of System



# Results and Discussion: Multiplier Benefit

## a. Off-Farm Job from Multiple Use of Water in LKIS

S.N	Industries	No.	No. of Job
1	Micro Hydro	2	10
2	Water Mill	3	3
2	Rice Mill	15	30
3	Crossing industries	1	5
4	Sub-mill for furniture	10	30
5	Computer Institute	1	4
6	Grill Industries	1	5

Source: FGD, 2015

## Results and Discussion: Multiplier Benefit

### b. on-farm job from MUS in LKIS

S.N.	On-farm activities	No. of HH	Job creation
1	Poultry Farming	4	12
2	Vegetable farming as a business purpose	100	100
3	Goat Raising as a business purpose	2	8
4	Tomato farming on Tunnel	7	14
5	Bee production	20	20
6	Mushroom production	10	10

Source: FGD, 2015

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# Result and Discussion: Sustainability

- Resource Mobilization

S.N.	Revenue collection	Expenditure	S a v i n g p e r month	Saving Per Year
1	Electricity Tariff Collection from 56KW Rs. 70000.00 per month	Expenditure for Salary of Staff per month Rs. 43,200.00	S a v i n g P e r month Rs . 26800.00	Rs.321600.00 Per year
2	Electricity Tariff from 35KW Rs. 40000.00 per month	Expenditure for Salary of Staff Rs. 21000.00	S a v i n g p e r month Rs . 19000.00	Rs. 228000.00

Source : FGD, 2015

## Results and Discussion: Sustainability

- a. Regular Repair and Maintenance of Canal
  - 2 times in a year by Irrigation users
  - two water guards are regular in job
  - 75% of canal length for 1<sup>st</sup> Hydropower users (56Kw)
  - 25% of canal length for 2<sup>nd</sup> Hydropower users (35Kw)

## Conclusion

### **The transformation of single use irrigation system to MUS creates**

- increase the investment capacity of the users in the maintenance and upkeep of the system
- reliability of the system operation
- more effective repair and maintenance of system
- opportunity for electricity generation without significant investment on physical infrastructure
- increase on-farm and off-farm job at local level
- contribute on higher level of crop productivity
- Increase awareness level

## Recommendation

- **Recommendation for the MUS promotion at policy level**
- The findings of the study clearly point to the need of national level policy to scale up MUS. Existing irrigation policy or those relating to water resources development do not envision the relevance of MUS.
- In the context of Nepal, MUS is still new intervention, there is a necessity of more awareness and knowledge sharing program at local, regional and national level. Hence creating knowledge sharing platform on MUS and expanding its scope is recommended.
- MUS being a multi -purpose project requires in many fields, including technical, marketing and software package. Hence, human resources development should be focused according to scale of the MUS.

**THANK YOU**