MUS Approach Application in the context of Climate Change: Department of Irrigation undertaking Pilot Projects to adapt with Climate Change in Nepal

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Presentation Organization

- Background
- Issues of Irrigation System
- Study Area
- Cropping pattern
- Analysis
- Conclusion

Background

- Nepal Area 141181 Sq. KM
- Cultivable land 2.6 M hectare
- Irrigable land 1.8 M Ha
- Irrigated land 1.36 M Ha
- MUS could be a tool to increase irrigable land.

Specially in the hill of Nepal, “Aansu sasto Pani Mahango” Tear is cheaper and Water is expensive. MUS can reduce the tear of women n children of hills of Nepal.

Background

……. ***transforming the current subsistence oriented farming system into a commercial and competitive farming system….. (phrase : Vision National Agricultural Policy, 2004)***

Year round Irrigation to all agricultural land of Nepal is the vision of irrigation policy, 2013

- Providing year round irrigation with high efficiency and reliable supply of irrigation water without damaging physical environment
- Improving crop production and productivity, diversification, intensification/ commercialization/ modernization
- Effective Water management, institutional development

Some issues of the Surface Canal Systems

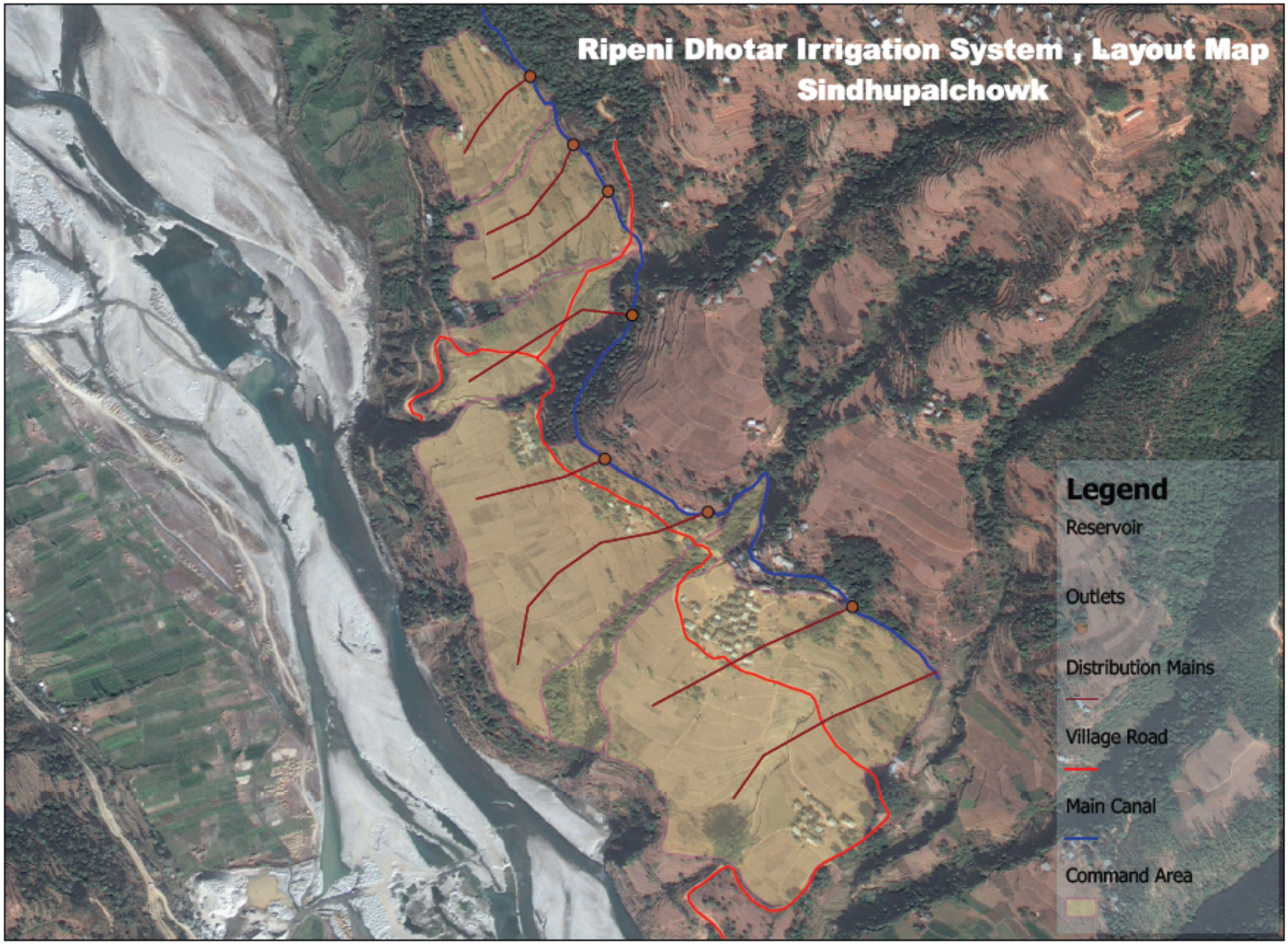
- Due to low flow in the source during winter and spring seasons, irrigated area is much less than expected/ designed.
- On farm water application method is not efficient (surface) and often it causes soil erosion.
- Water user associations (WUA) lack adequate skill and knowledge on the improved irrigated agriculture and management of the institution.
- Tail end farmers get rare irrigation (around 20% remain unirrigated)

Study Area

- Sub-Project: Ripin-Dhodar ISP
- Location: Bhimtar-3, Sindhupalchowk
- Village / Clusters: Bhimtar, 5 small clusters
  (Banjhobari, Deehi Chaur, Bahun Tole, Wallo Dhotar and Pallo Dhotar)
- Accessibility: 38 km North-east from Dhulikhel, on the left bank of the Indrawati River
- Household (Population): 120 (730)
- Caste /Ethnicity: Large majority Majhis (82 HH Majhis, 38 HH Others)

Nepal on World Map

Location of Project Site


Ripeni Dhotar Irrigation System , Layout Map
Sindhupalchowk
Legend
Reservoir
Outlets
Distribution Mains
Village Road
Main Canal
Command Area

The command area

Cropping Pattern before project

Upland:

(maize-millet black-gram intercropped)

- April /May- August : Maize
- July - November: millet

Low land

(Paddy- Wheat/potato/ mustard)

- July- November: Paddy
- November-March: Wheat/potato/ mustard

Cropping Intensity = 145 %

Cropping Pattern after the project

(Paddy- Vegetable- Vegetable)

- July- November: Paddy
- October- January: Vegetable (Cabbage)
- February- July: Vegetable (Bitter gourd)

Cropping Intensity = 250 %

Highly Participatory

Cost –Benefit Analysis of the Maize-Millet-Black gram cropping pattern per Ropani

Cost	Income
Manure/ Fertilizer: Rs. 1200.00 Seed: Rs. 445.00 Labor: Rs. 2455.00 Harvesting /Storage: Rs. 200 **Total : Rs. 4300**	Maize : Rs. 4200 Millet: Rs. 1500 Black gram: Rs. 2000 **Total: Rs. 7700**
Net Benefit: Rs. 3400.00	

Ropani is the 1/20 part of a hectare

Cost –Benefit Analysis of Winter Cabbage per Ropani (Season: October- January)

Cost	Income
Manure/ Fertilizer: Rs. 1450.00 Seed/supplements: Rs. 950.00 Labor: Rs. 1600.00 Marketing: Rs. 500 **Total : Rs. 4500**	**Marketable Product 1024 kg @Rs. 15/ kg** **Total: Rs. 15360**
Net Benefit: Rs. 10860.00	

Cost –Benefit Analysis of Bitter gourd per Ropani (Season: February-July)

Cost	Income
Manure/ Fertilizer: Rs. 1200.00 Seed & Supplemental: Rs. 900.00 Labor: Rs. 1600.00 Marketing : Rs. 600 **Total : Rs. 4410.00**	**Marketable Product 1084.8 kg @Rs. 20/ kg** **Total: Rs. 21696.00**
Net Benefit: Rs. 17286.00	

Incremental Benefit per Ropani/yr:

- Existing cropping Pattern: Maize-Millet-Blackgram Rs. 3400.00
- Vegetable (Cabbage- Bitter gourd):

  Rs. 10860.00 + Rs. 17286.00= Rs. 28146

Difference= Rs. 24, 746.00/ Ropani-yr

Conclusion

1. By increasing efficiency of the irrigation system, saved water can be used for other purpose i.e. domestic or industrial.
2. initiative for improving on farm water management and crop productivity.
3. easier to control water at different part of the command area due to pipe network.
4. highly social inclusive and participatory.
5. soil erosion / fertilizer losses greatly minimized (environmental benefits).
6. cost benefit analysis indicates that it has a attractive benefit cost ratio.
7. project can be replicated in other part of the world in similar condition as a MUS.

Thank you for your Attention

Query, Comments n Suggestions ???