Challenges and Opportunities for Farmer Managed Irrigation Systems (FMIS) in Koshi Basin, Nepal

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March 2016
General Characteristics of FMIS

- Nepal has rich tradition of community effort in natural resources management (water resources, forestry and pastures)
- State policies and practices have historically been conducive
- Community role in natural resources management
- FMIS a national heritage, covers 70% of irrigated area
Role of Community

- Where ever water resources are available in the Hills and Terai, people make effort to bring water through channel for cultivation
- These systems ensured food security and rural livelihood
- Provided job opportunity and contributed for poverty alleviation
- FMIS reflects local knowledge, local skill and local technology
FMIS in Koshi River Basin

• Many FMIS exist in these Koshi Basin Districts

• *Indrawati* Sub-basin, a tributary of Koshi, in *Sindhupalchowk* (1986) within 200km$^3$, 119 systems were identified with (2,100 ha) were identified

• An inventory of irrigation systems in *Dolkha* and *Okhaldunga* reported to be 237 and 292 units of systems were identified (FMIST, 2001)
Koshi Basin Districts
FMIS in Central and Eastern Regions Koshi Basin Districts

- DOI has partial record of WUA registration by districts. They are only those systems which have received assistance from the government for rehabilitation. There are many other systems which are not yet recorded.

- One of the challenges that is being faced now is about the preparation of inventory of this important resource for FMIS systems.
Assistance to FMIS

• A number of donor driven projects have provided assistance for rehabilitation of the FMIS in the Koshi Basin districts

• They are SINKALAMA, Sector Irrigation Project-I, Second Sector Irrigation Project (SSIP), CMIASP, CMIASP-AF, KHARDP, etc.
Water Sources of these systems

• The water sources of these systems are generally the tributaries of Koshi

• Water scarcity in these tributaries have become a big challenge in irrigation water management

• The climate change has also impact on the these irrigation systems in water availability, timing, cropping pattern and productivity
Big River systems and FMIS

- In Easter part of Nepal, FMIS drawing water from big river do not exist like in *Rani Jamara Kulariya* of Kailali and *Rajapur* of Bardiya drawing water from *Karnali* in Western Nepal.
- Within Koshi basin, only a few systems have water source in Koshi river or bigger tributary like Morang –Sunsari and *Chandra Nahar* from *Trijuga* River, tributary of Koshi. Many FMIS were merged in the big systems.
Groundwater Utilization

• STW and DTW were also installed in the Koshi Basin Terai districts. Many of them are owned by the community of farmers or by the farmers themselves.
Concerns of FMIS

• FMIS are no longer only institutional, physical and technical concern, climate change causing water scarcity has become one of the major concerns of FMIS sustainability.
Challenges of FMIS are to be Considered

A. productivity of available resources
B. reducing poverty and insecurity
C. people’s dignity and empowerment
D. farmers organization as social capital to be used for their improvement
E. innovation of farmers for their livelihood improvement
F. “politics” something to be dealt with
Influenced by External factors and Changing social and value systems

<table>
<thead>
<tr>
<th>Then</th>
<th>Now and Future</th>
</tr>
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<tbody>
<tr>
<td>• Indigenous System</td>
<td>• Changing System</td>
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<tr>
<td>• Self-reliance</td>
<td>• Globalization</td>
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<td>• Community focus</td>
<td>• National and international economics</td>
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<tr>
<td>• Traditional management</td>
<td>• Management transfer</td>
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<tr>
<td>• Peripheral</td>
<td>• Mainstream/ central</td>
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**Orientation**

<table>
<thead>
<tr>
<th>Then</th>
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<tbody>
<tr>
<td>• Subsistence</td>
<td>• Commercial</td>
</tr>
<tr>
<td>• Labor allocation</td>
<td>• Access to resources</td>
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<tr>
<td>• Community focus</td>
<td>• Labor scarcity and saving</td>
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<tr>
<td>• Farmers less educated</td>
<td>• Efficiency</td>
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<tr>
<td>• Climate variable</td>
<td>• Economics</td>
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<tr>
<td>• Water relatively predictable</td>
<td>• Farmers more educated</td>
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<tr>
<td>• Agriculture main focus</td>
<td>• Climate unreliable</td>
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Influenced by External factors and Changing social and value systems (cont..)

- Water – Key factor
- Water as resource
- Water allocation and distribution
- Government- a distant phenomena
- Can not depend on it

- Livelihoods are focus
- All resources critical
- Water is natural resource
- Water productivity
- Government is weaker, but willing to help
- Migration
- Change in role of women
Directions

• The identification of those features of then and now provides a basis to rethink about research priority, planning of irrigation development, investment, monitoring and evaluation of FMIS.
Thanks