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Institutionalizing Underground Taming of Floods for Irrigation (UTFI) in the Ramganga Sub-basin: Status and Approaches for Sustainable Water Management and Livelihood Enhancement

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Background

- UTFI is taken up at a scale transcending communities and administrative boundaries.
- UTFI requires a unified approach that considers both the supply as well as demand side approaches at scale.
- UTFI provides environmental services that are beyond flood mitigation and boosting irrigation viz.,sustainable water supply, livelihoods, health benefits, nutrition, etc.
- Nature of costs and benefits associated with UTFI vary between up-stream and down-stream locations.
- The interplay of these factors brings greater complexity to the implementation and sustainability of UTFI.
- Institutional approaches and policies could address these complexities effectively.

Purpose

- Specifically to:

❖ Understand the socioeconomic context

❖ Estimate the impacts of floods and water stress in the down-stream / up-stream context.

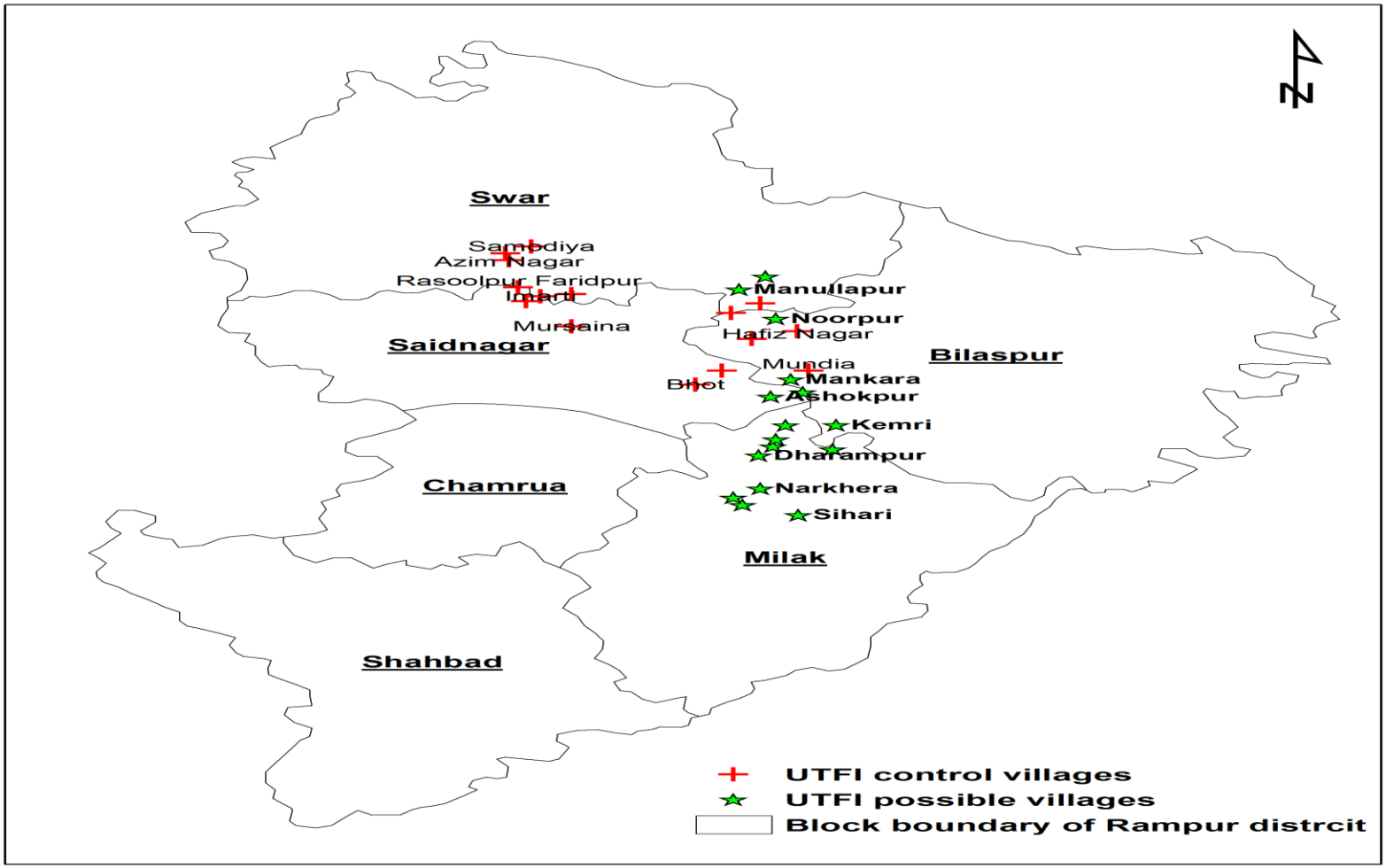
❖ Assess the existing institutional dynamics and suggest approaches to suite UTFI governance.

- And assess the potential for scale up in the basin / region.

Approach

- Based on a sample of 10 villages - criteria: flooding and groundwater situation and potential for recharge.
- Representing US (6) and DS (4)
- Secondary & Primary sources of information
- Qualitative (FGDs; KIIs, etc) and Quantitative (structured hh questionnaire) methods
- Sample of 30 HH from each village drawn purposively to represent all the socioeconomic groups. Total sample: 302

Location of the Sample Villages



Sampling Details

Village	Block	Location	No. of HHs (2011 census)	No. of FGDs conducted	No. of KIIs	No. of Sample HHs
Kumharia Kalan	Suar	US	321	1	3	30
Mankara	Bilaspur	US	315	1	3	30
Ashokpur	Chamaraua	US	249	1	3	30
Patti Ashokpur	Chamaraua	US	220	1	3	31
Azim Nagar	Saidnagar	US	311	1	3	30
Mursaina	Sadar	US	342	1	3	30
Moh..gar Nankar	Milak	DS	263	1	3	30
Jiwai Jadid	Milak	DS	313	5	10	31
Narkhera	Milak	DS	418	1	3	30
Sihari	Milak	DS	532	1	3	30
Total	NA	NA	3284	14	37	302

Profile of the Study Region

- Agriculture is the main occupation, but contributes less.
- Livestock and labour contribution is substantial
- Contribution of agriculture is more in DS
- GW is the main source of irrigation
- Though Water table goes down, area irrigated is not affected
- But some of the villages in US face drinking water shortages
- GW stress could be a reality in the near future

LH Distribution of the Sample Households

Name of the Village	Cultivation +Livestock	Agrl. +Non-agrlLabour	Others	Total
Occupation				
Upstream	66 (64)	30 (32)	4 (4)	100 (100)
Downstream	81 (81)	17 (16)	3 (3)	100 (100)
Overall	72 (70)	25 (25)	3 (5)	100 (100)
Income				
Upstream	59854 (54)	44728 (40)	6425 (05)	111008 (100)
Downstream	76688 (69)	41807 (25)	7237 (06)	125733 (100)
Overall	59854 (62)	44728 (32)	6425 (06)	111008 (100)

Impact of Floods

- Flood impacts are observed in 4 important areas- crops; livestock; employment and health.
- On an average each household loses about Rs. 8,000 during moderate floods and about Rs. 16,000 during severe floods.
- LL and SMF lose more when compared to LMF- loses are as high as 18 % (SMF) of their HH income as against 7% (LMF)
- Damages in DS are more when compared to US
- Flood damages are equally significant in urban areas

Flood Impacts in Rural Areas (Rs. / Household)

Location of the Village	Economic Category	Crops		Livestock		Employment		Health		Total	
		MF	SF	MF	SF	MF	SF	MF	SF	MF	SF
Upstream	LL	--	--	1840	3648	3000	5600	250	400	5090 (6)	9648 (11)
	SMF	1325	3062	2810	5442	1600	3000	260	580	5995 (6)	12084 (11)
	LMF	11486	18171	720	1440	2000	3800	--	--	14206 (4)	23411 (7)
	All	1822	3802	2538	4932	2600	4800	259	564	7219 (5)	14098 (10)
Downstream	LL	--	--	3805	6378	3000	5400	1000	1250	7805 (8)	13028 (14)
	SMF	3798	7421	4858	7839	2800	5200	490	1030	11946 (10)	21490 (18)
	LMF	7200	14400	2130	3194	2800	5200	--	--	12130 (3)	22794 (6)
	All	4406	8667	4104	6610	2000	3800	575	1233	11085 (8)	20310 (14)

Resilience and Adaptation

- No specific strategies at the HH level

- Adapt to cover income losses
  - Increased work participation (52%)
  - Migration (30%)
  - Crop Changes (18 %)

Recharge Structures Established Under UTFI in Jiwai Jadid Village

Photo: IWMI

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Institutional Dynamics

- Institutionally weak (Including SHGs)
- Presence of SHGs are more in DS
- PRI is the only institution that is functional in the sample villages- manages MGNREGAS
- Social capital is very weak and NGOs are absent
- Given the economic status – ability to contribute towards interventions is low though DS is better off.

Way Forward - I

- Designing of institutions that address - creation of systems; maintenance of the systems; management of groundwater; floods, etc.
- Appropriate market and participatory instruments need to be identified viz., PES; social regulation, etc.
- Creation of user groups around UTFI viz., UTFI management committees (UMC) with formal link to PRIs
- Awareness building about UTFI is a prerequisite

Way Forward - II

- UMC should be part of broader institutional entity that provides larger economic benefits viz., FPO
- Given the substantial socio-economic benefits (impacts), public and private partnerships (banks, CSR initiatives) could promote collective initiatives.
- Promotion and supporting the NGO sector in the region would help bridging this gap.

Thank You

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