Lessons from Bangladesh and Nepal: Role of WUG/A in Flood Management and Drainage

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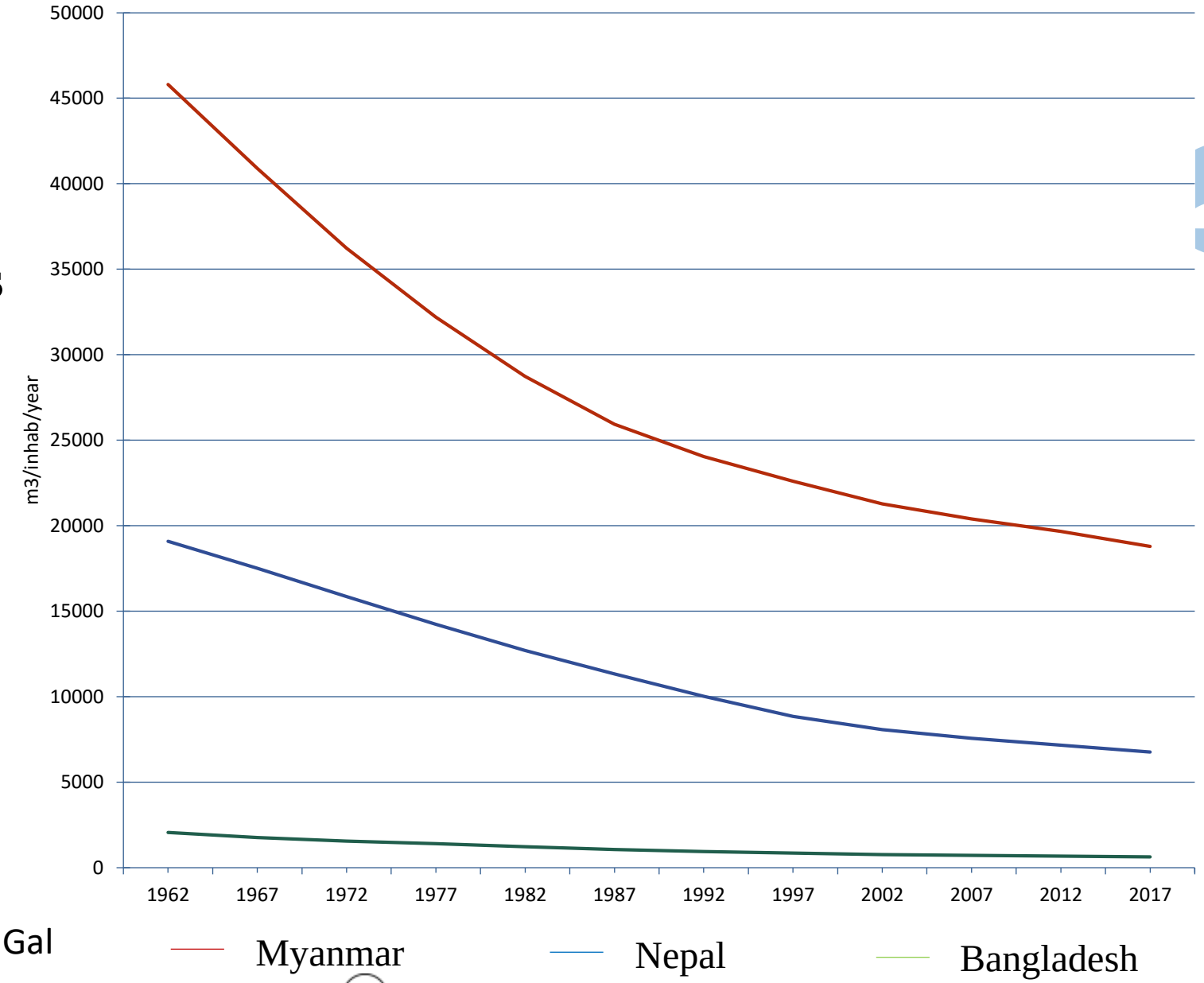
Total Annual Internal Renewable Water Resources per Capita (cubic meters)



Unit Conversion

1 m^3 = 219.960 imperial Gal


BUREAUCRACY
ORGANIZATION
ORGANIZED
SUCCESSFUL
INSTITUTION
HIERARCHY
SOCIOLOGIST
ARISTOCRACY
HIERARCHICALLY

In the Past

Boyce, J (1987) convincingly proves that water control (of which "Flood Control" is only one aspect) is instrumental for rural development in Bangladesh.

- Flood and Drought were "PROBLEM(s)" that could be

"SOLVED"

through the construction of large embankments and dams.

Wester, P. & Bron, J. (1998)

Infrastructural Approaches to Water Management

Bangladesh

There are serious lack of scientific documentation and data /information in Bangladesh.

Palash, Wahid. (2005)

Nepal

The majority of irrigation systems are small and medium scale.

Pradhan, Prachanda & Belbase, Madhav. (2018)

Myanmar

Structural Approach	
Particular	No. of Facilities
Dam	235
Weir	106
Sluice Gate	169
Small Tank	71
Total	581

Than, Mu Mu (2016)

Consequently,

Performance problems:

- Decreasing capacity of irrigation facilities due to siltation and sedimentation
- Unequal distribution of irrigation water
- Inefficient water use
- Poor operation and maintenance activities
- Low participation of users in collective action and
- Conflicts among users

Pradhan (2003)

Shift in Institutional Arrangement

Bangladesh

Key Policies	Year	Insights of Key Policies
IECO Master Plan	1964	shifts from fragmented management to top-down centralised approach; high engineering approach for flood control, drainage and irrigation; major focus is on surface water
IBRD Report	1972	besides engineering approach, introduction of small scale water resources projects; the conjunctive use of both surface and groundwater
National Water Plan (NWP) phase I	1983–1986	projected the future demand for water by different sectors
FAP reports	1989–1995	introduced "stakeholder involvement" in water management
National Water Plan (NWP) phase II	1991	introduced catchment scale planning and carried out comprehensive assessment for water resources
National Water Policy	1999	accelerating the development of sustainable public and private water delivery systems, with appropriate legal and financial measures and incentives including formulation of water rights and water pricing
National Water Management Plan	2004	multi-use approach of water resources; provides guidelines for implementation of water management programmes
Coastal Zone Policy	2005	developed based on Integrated Coastal Zone Management (ICZM) approach for management of coastal regions of the country
NAPA	2005	developed adaptation strategies following sustainable development goals and objectives through participation of stakeholders
BCCSAP	2009	integrate climate change issues to support economic growth and poverty reduction
Vision 2021	2010	development scenario for achieving a higher standard of living through better education, social justice, protection of environment
Sixth Five Year Plan	2011	a key focus on strategies, policies and institutions to help guide the private sector in helping Bangladesh achieve the goals set in Vision 2021
Bangladesh Water Act	2013	enacted to integrate the management, development, utilisation and protection of water resources

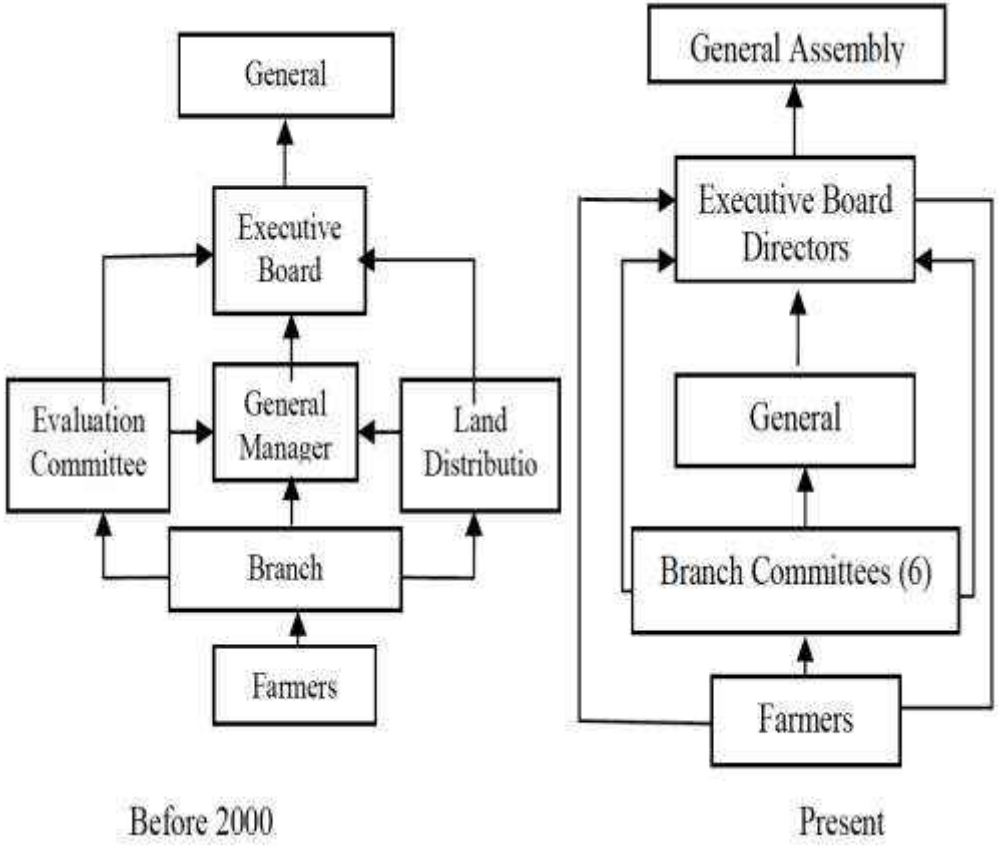
Shifts in Water Management Policies

Key Institutions	Original Mandate	Transitions
BWDB	providing infrastructures for flood control, drainage and irrigation	institutional reforms (restructuring of the Board of Directors into a Governing Council with stakeholders' representatives); partial implementation of cost recovery; stakeholder involvement
LGED	small-scale water resources development	establishment of IWRM unit; multi-disciplinary team of experts
WARPO	water management focused on only agriculture	holistic focused; multidisciplinary team of experts
MoWR	responsible for irrigation, water development and flood control	responsible for all aspects of water management including expansion of irrigated areas, water conservation, surface and groundwater use, and river management
NWRC	formulation of water policy, including inter-agency co-ordination among different water sector agencies	adoption and oversight of the NWMP and its updates, resolution of inter-agency conflicts, and adoption of common standards for the water sector
IWFM	research on flood control and drainage	research and capacity development in water and flood management, through promoting IWRM approach
BHWDB	providing catchment-wide integrated development approach	extensive public consultations were carried out in preparing the master plan
BMDA	groundwater based irrigation system using mainly deep tube wells (DTWs)	introduced afforestation, re-excavation of ponds, construction of cross-dams, and installation and electrification of DTWs; implemented cost recovery of irrigation water supply

Shifts in Water Management Organizations

Shift in Institutional Arrangement

Nepal



WUA Structure before 2000 and at present

- In 1980s, the farmer-managed irrigation systems (FMISs) were first recognized by the government

  Pradhan & Belbase (2018)

- One aim is to transfer costs and maintenance responsibilities to the users.
- 70% fall under FMIS, symbol of democratic values

  Pradhan (2000)

- AKWUA collects the service fee among its water share holders and regular receives technical and financial support from BPC.

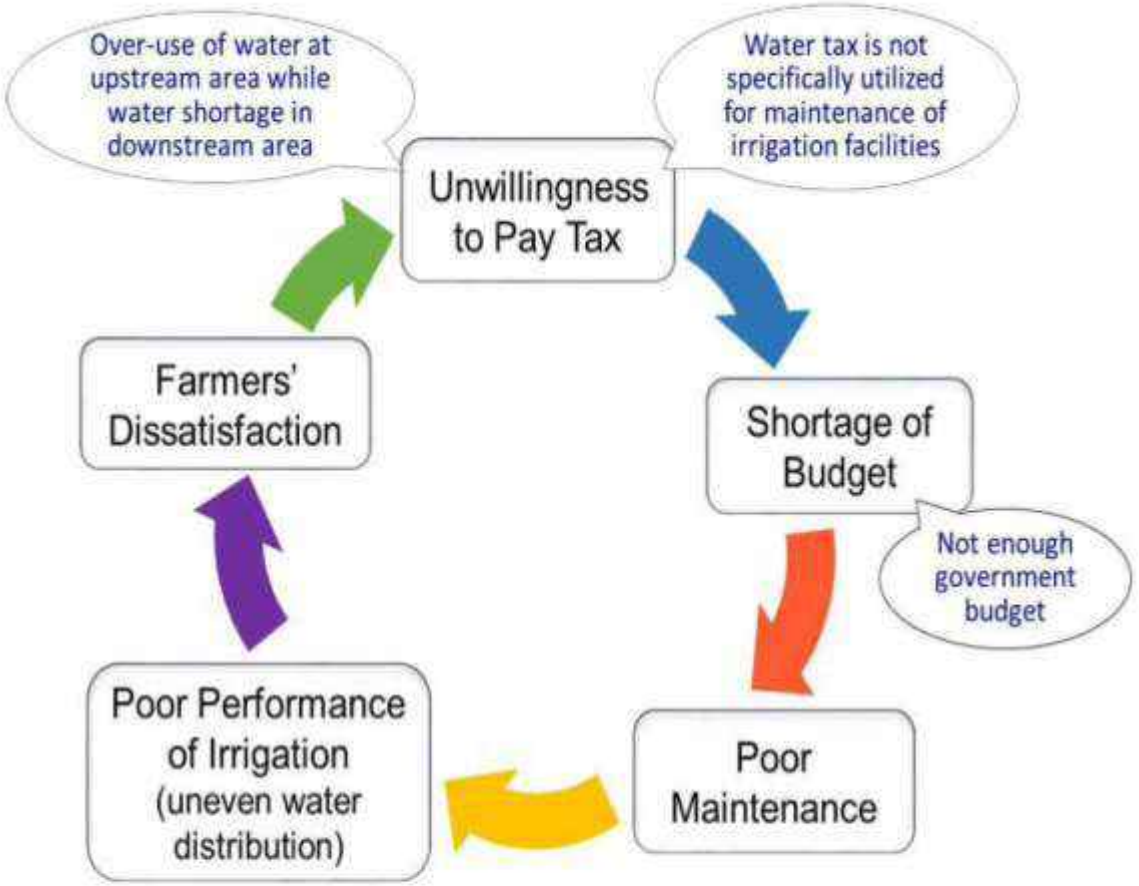
  Dongol (2015)

Annex Table 5.A.3. Myanmar, State of regulatory functions

Regulatory function	State
Quality standard for drinking water	Surface water is the primary source for all activities, but Inle Lake (largest source) contains unsafe levels of contaminants from agricultural runoff. Safe drinking water must be piped in from elsewhere, but system is sparse and intakes often unclean.
Quality standard for wastewater treatment	Wastewater treatment regulation is disorganised, with multiple agencies involved. Co-operation among agencies must be improved, within a logic of consolidation. Insufficient treatment infrastructure in urban areas.
Defining technical/industry and service standards	Current legislation requires Ministry of Transport approval for any construction that could affect water resources.
Setting incentives for efficient use of water resources	Government carries out several initiatives to promote and support water conservation, but efforts are hampered by poor irrigation efficiency and lack of incentives to conserve. State-owned irrigation systems do not recover costs.
Information and data gathering	Data are lacking, and the little available data are difficult to access.
Monitoring of service delivery performance	Lacking or not publicly available. Transparency must improve.

OECD/ADBI/Mekong Institute (2020)

Limitations



A Vicious Circle of Irrigation Management

IWUMD, JICA (2020)

ရေခွန်နှင့်တာတမံခွန်နှုန်းများသတ်မှတ်ခြင်း

၄။ ဆည်ရေသောက်ဧရိယာ သို့မဟုတ် ရေဘေးကာကွယ်သည့် ဧရိယာအတွင်းရှိ လယ်ယာမြေများကို အခွန်စည်းကြပ်ကောက်ခံမည့်အဖွဲ့က ဘဏ္ဍာရေးနှစ်အလိုက် အောက်ပါအခွန်နှုန်းထားများနှင့်အညီ ကောက်ခံရမည်-

(က) သီးနှံတစ်ရာသီအတွက် ဆည်ရေသောက်ဧရိယာများတွင် -

(၁) စပါးသီးနှံအတွက် မြေပြုပြင်သည်မှ အောင်ရေအထိ ရေအပြည့်အဝရယူပါက တစ်ဧကလျှင် နှစ်ထောင်ကျပ်နှုန်း၊

(၂) စပါးသီးနှံအတွက် မြေပြုပြင်သည်မှ အောင်ရေအထိ တစ်စိတ်တစ်ပိုင်းသာရယူပါက တစ်ဧကလျှင် တစ်ထောင်ကျပ်နှုန်း၊

(၃) အခြားသီးနှံ စိုက်ပျိုးပါက တစ်ဧကလျှင် တစ်ထောင်ကျပ်နှုန်း။

(ခ) ရေဘေးကာကွယ်သည့်ဧရိယာတွင် ဘဏ္ဍာနှစ် တစ်နှစ်အတွက် တစ်ဧကလျှင် ငါးရာကျပ်နှုန်း၊

Water Tax and Embankment Tax (2017)

Limitations

Notes (in case of Myanmar):

Although there are some individual efforts to manage small to medium scale irrigation functions by farmers' group or organization in Myanmar, these can be considered as informal or individual attempts.

Notes (in case of Myanmar):

In the other countries, the farmers' organizations have responsibilities not only to manage those irrigation facilities but also to collect irrigation service fee (ISF). However, currently in Myanmar, there is water tax but there is no ISF.

18 November 2020

Alternative Ways

1. Government management
2. Users (Irrigators) Management
3. Joint Management (Hybrid management of government and Users (Irrigators).

ယင်းနောက် ဆည်မြောင်းနှင့် ရေအသုံးချမှုစီမံခန့်ခွဲရေးဦးစီးဌာန ညွှန်ကြားရေးမှူးချုပ် ဦးဗိုလ်ဗိုလ်ကျော် က ၂၀၂၀ မိုးရာသီတွင် ရေလောင်တမံအများစု၌ ဝင်ရေလျော့နည်းကျဆင်း ခဲ့ခြင်းကြောင့် အချို့သော ရေလောင်တမံများတွင် သောက်သုံးရေတစ်မျိုးတည်း သာ ပေးဝေ နိုင်ခဲ့ပြီး၊ နွေစပါးစိုက်ပျိုးရေပေးဝေရန် မလုံလောက် သဖြင့် အခြားသီးနှံများ ပြောင်းလဲစိုက်ပျိုး နိုင်ရေးအတွက် သက်ဆိုင်ရာဌာနများနှင့် ပူးပေါင်းဆောင်ရွက်လျက်ရှိကြောင်း၊ ရေလေလွင့် ဆုံးရှုံးမှုများပြားပြီး စိုက်ပျိုးရေအငြင်းပွားမှု ဖြစ်စေ နိုင်မည့် ကွက်ဆင့်သောက်စနစ်များ လျော့နည်းသွားစေရန်နှင့် လယ်သမားအချင်းချင်း နားလည်မှုရှိစွာဖြင့် လယ်ကြားမြောင်း များ ဆောက်လုပ်နိုင်ရန် ရေအသုံးချသူများအဖွဲ့ Water User Group (WUG) ကို တိုင်းဒေသကြီး ပြည်နယ်အသီးသီး၌ ဖွဲ့စည်း ဆောင်ရွက်ခဲ့ရာ ယနေ့အထိ ရေအသုံးချသူများအဖွဲ့ (၈၁၈၈)ဖွဲ့ ဖွဲ့စည်းပေးနိုင်ခဲ့ပြီး ရေအသုံးချသူများအသင်း Water User Association (WUA)များ အဖြစ် တိုးချဲ့ ဖွဲ့စည်းပေးနိုင်ရေး ဆောင်ရွက်လျက်ရှိကြောင်း ရှင်းလင်းဆွေးနွေးသည်။

https://myanmar.gov.mm/en/home/-/asset_publisher/wb7k6KEe39SK/content/id/75565011

Next Step

Research and Development

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Opening Question

1. Can you tell us about your farmland or organization and what you do?

Question related to **Knowledge**

2. What do you know about the departments' procedures in managing irrigation facilities?
3. How much severe water shortage in your farmland?
4. What do you think that the main obstacles to keep good performance of the irrigation facilities?
5. What do you know about the plans and actions of the Departments to address the uncertainty of water availability in the farmland?
6. Do you think the plans and actions you mentioned are well targeted to solve the problem?
7. How useful do you think the capacity building (training and workshop) is for addressing the water issues?

Questions related to **Attitude**

8. How important do you think the establishment of the WUG/A is to your industry (economically, technically and environmentally)?
9. Could you describe what the WUG/A mean to you personally?

Question related to **Skills**

10. How have you changed your practices since the establishment of the WUG/A and why?
11. To what extent do you think you that you and your family are able to change your farming practice to enrich the productivity of your farmland.

Question related to **Aspiration**

12. Do you have any suggestions about how all the stakeholders (the Departments and farmland owners, farm workers) can be better involved in operation and maintenance of irrigation facilities efficiently?
13. Is there anything you would like to add about how you feel the WUG/A should be established or executed?

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Typical Schedule of WUA/G Establishment

	Activity	Month															
		O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
0	Hold a Stakeholder Meeting																	
1	Confirmation of TO location																	
2	Confirmation of water conditions																	
3	List-up water users by each TO																	
4	Introduction of WUG/WUA to the water users																	
5	Decide leader and co-leader for sub-group/WUG																	
6	Examination for re-organization of a WUG or scaling up to WUA from WUG																	
7	Preparation of WUG/WUA members' list without duplicated membership																	
8	Hold the first BOD meeting (in case of WUA)																	
9	Hold the first MB meeting (in case of independent WUG)																	
10	Hold the first GA																	
11	Discuss annual activity plan by the MB																	
12	Hold the first meeting for Planning Committees																	
13	Hold the second GA																	
14	IMT procedure from IWUMD to WUA																	
15	WUA Registration																	
16	Trainings on O&M and Others																	

Example of Responsibilities Demarcation

STEP	Activities	Responsible Actors											
		Farmer	WUG	WUA			IWUMD		DAL MS	DOA	GAD	
				BOD	MB	PC	CI	AE			VT	TS
0	Hold a stakeholder meeting	●					△	○/●	●	●	●	●
1	Confirmation of TO location	●					●	○/●	(●)		△	
2	Confirmation of water conditions	●					●	○/●	(△)		△	
3	List-up water users by each TO	●					●	○/●	(△)		△	
4	Introduction of WUG/WUA to the water users	●					●	○/●			△	△
5	Decide leader and co-leader for sub-group/WUG		●				●	○/●			△	
6	Examination for re-organization of a WUG or scaling up to WUA from WUG		●				△	○/●			△	
7	Preparation of WUG/WUA members' list without duplicated membership		△				●	○/●			△	
8	Hold the first BOD meeting (in case of WUA)		△	●			●	○/●			△	
9	Hold the first MB meeting (in case of independent WUG)		△		●		●	○/●			△	
10	Hold the first GA		●	●	●		●	○/●		△	△	△
11	Discuss annual activity plan by the MB				●		△	○/●				
12	Hold the first meeting for Planning Committees					●	△	○/●		△		
13	Hold the second GA		●	●	●		△	○/●*	△*		△	△
14	IMT procedure from IWUMD to WUA			●	△		△	○/●			△	●
15	WUA Registration			●	△			○/●			△	(●)
16	Trainings on O&M and Others		●	●	●	●	△	○/●		●	△	
	Transitional Measures		●	●	△		△	○/●			△	△

○: Supervisor, ●: Main actor in the field, △: Supportive actor