

# Community based water resources management criteria towards SDGs

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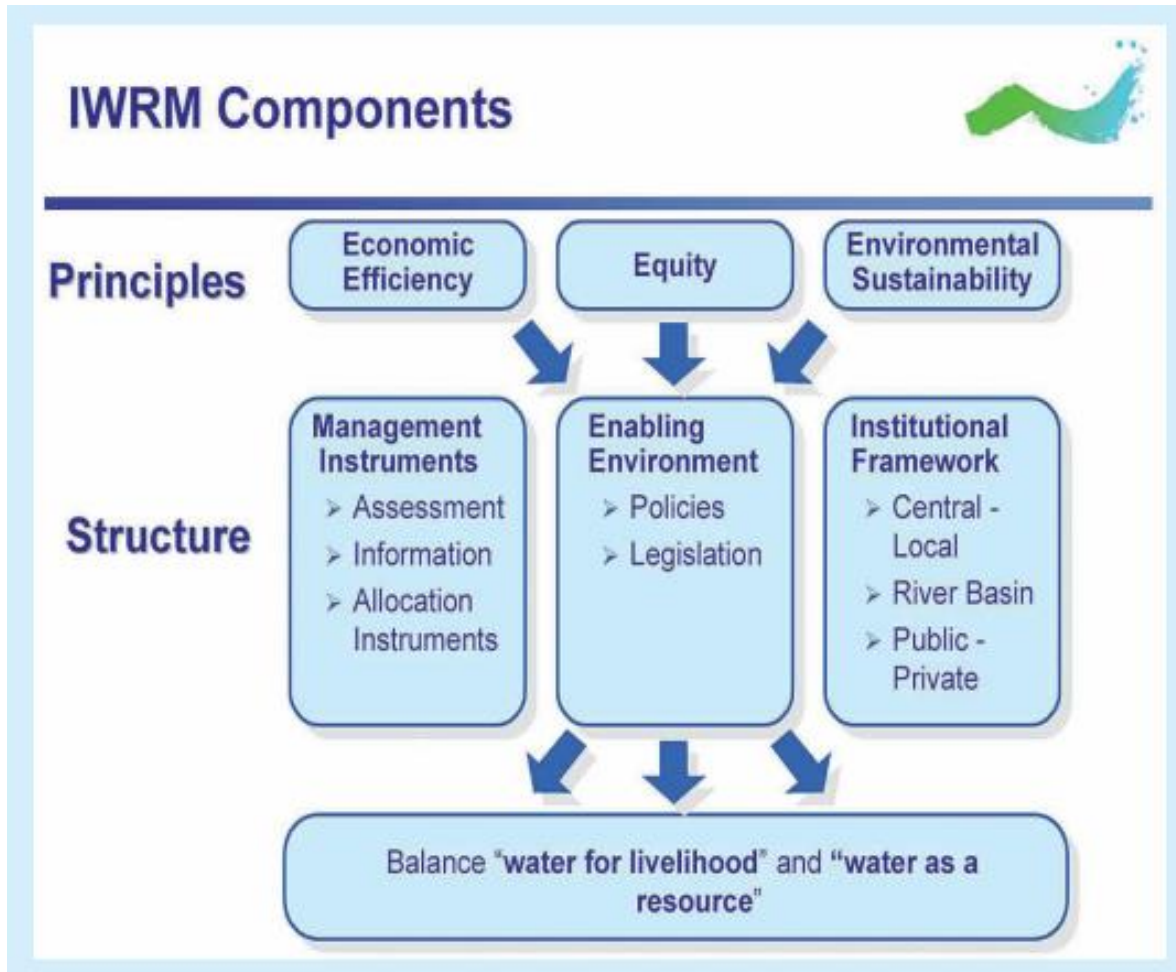
**THA 2022 International Conference**  
**Friday 28 January 2022, 9.00 – 10.20 Room C7**

# Presentation outline

- Motivation and background
- Research objectives
- Study area
- Methodology and data
- Results and discussions
- Summary and future work

# Motivation and background

Challenges: with social and economic development and more climate variability, water allocation to different water user groups needs more coordination.



**Integrated Water Resources Management (IWRM)** is defined by Global Water Partnership (GWP) as “a process which promotes the coordinated development and management of **water, land and related resources** in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.”

Source: GWP

# Motivation and background

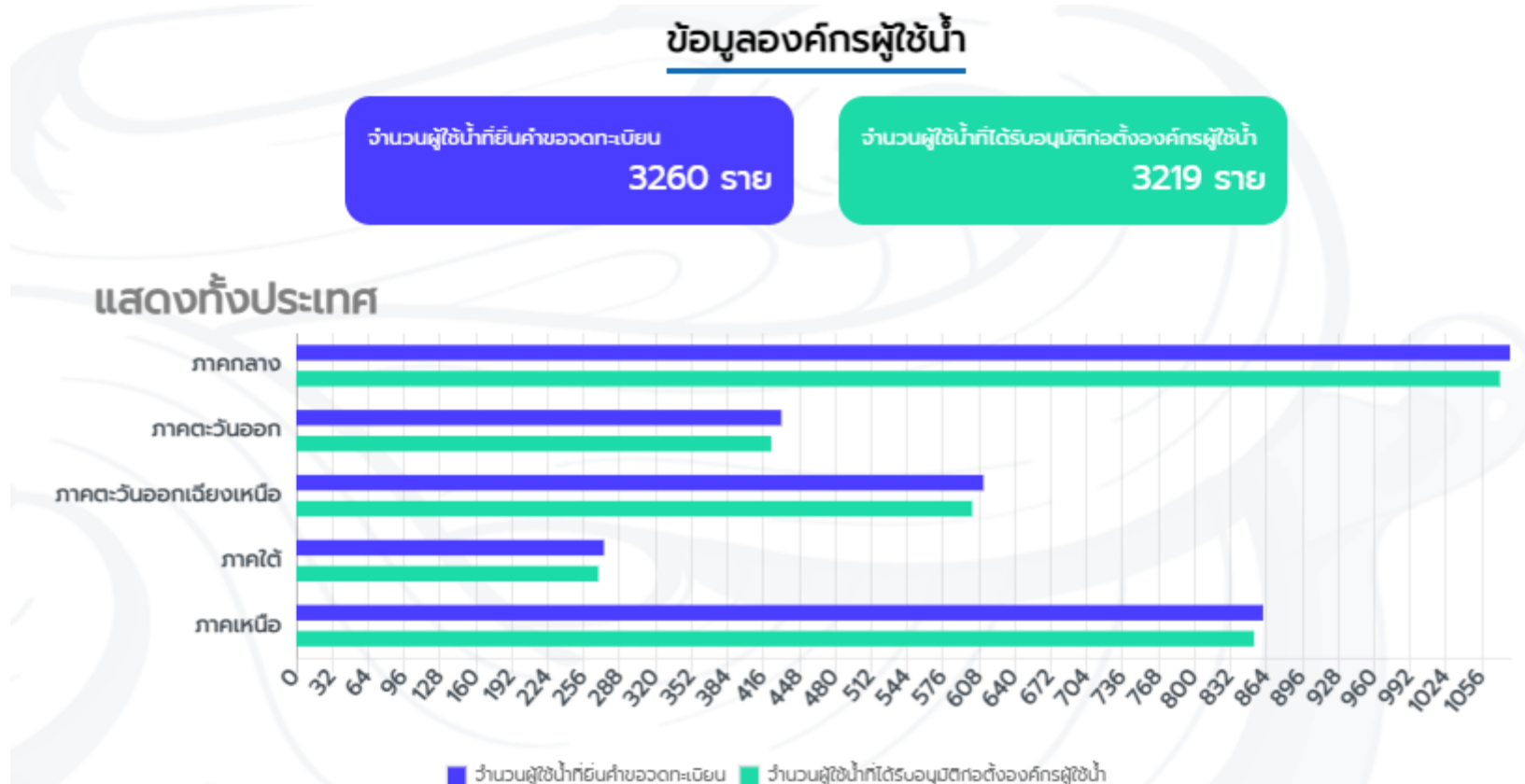
UN Water has encouraged **IWRM implementation** and defined **Target 6.5** of SDG6 to “by 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate” and the **indicator 6.5.1** is the assessment on “**degree of integrated water resources management implementation.**”

## Country Survey Instrument for SDG Indicator 6.5.1 Institutions and participation Example on public participation level

		Very low (0)	Low (20)	Medium-low (40)	Medium-high (60)	High (80)	Very high (100)
<b>b. Public participation in water resources, policy, planning and management at the local level.</b>	<b>No information</b> shared between government and the public on policy, planning and management.	<b>Information</b> on water resources, policy, planning and management is made available to the public.	<b>Communication:</b> Government authorities request information, experiences and opinions of the public.	<b>Consultation:</b> Government authorities regularly use local level information, experiences and opinions of the public.	<b>Collaboration:</b> Mechanisms established, and regularly used, for the public to take part in relevant policy, planning and management processes.	<b>Representation:</b> Formal representation of the public in local authority processes contributing to decision making on important issues and activities, as appropriate.	
	Score	XX					
<b>Status description: xxx</b> [E.g. mechanisms for public participation, types of groups that participate or any significant ones that do not, evidence of degree of participation, geographic differences across country.]							
<b>Way forward: xxx</b> [E.g. planned or recommended activities to improve public participation; barriers and enablers; draft interim targets where appropriate.]							

# Motivation and background

**Water User Association** (WUA) has been established to aim for better water allocation coordination and management. The **Ministerial Regulation** on Water User Association was announced in 2021 and **Office of National Water Resources (ONWR)** has opened the registration platform <https://twuo.onwr.go.th/>



In this study, we aim to investigate the **existing capacity** of water user groups by carrying out the focus groups at 33 subdistricts to assess capacity of **community based water resources management**, studying the relationship between the capacity assessment and the **Water Management Index** from NSO, and examining the linkage to **SDG 6.5.1** in order to promote more community water management in the future.

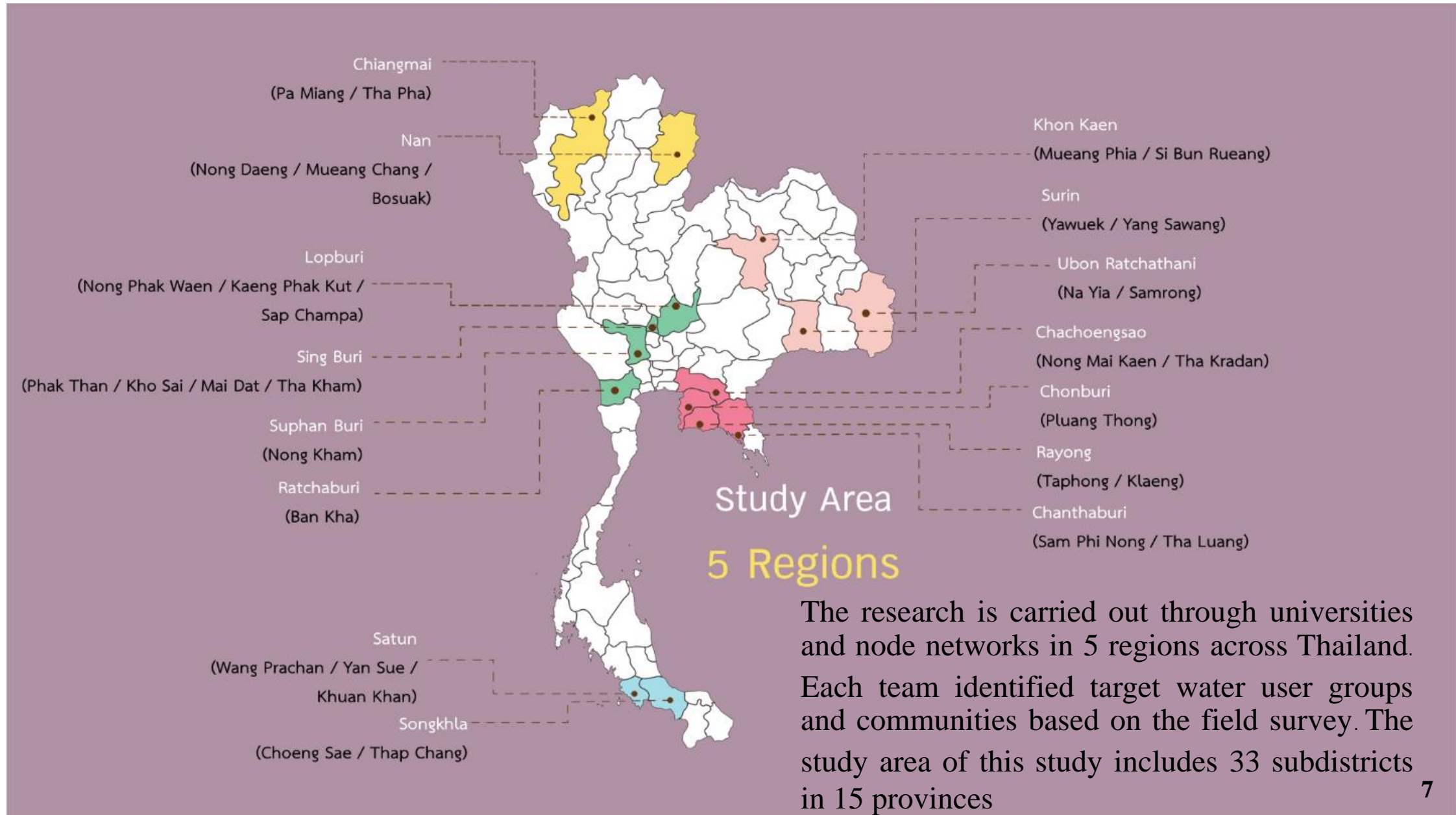
This research is part of the research projects

“Guidelines for the development of community water user organization to increase the ability of planning water management at the area level” and

“Water security assessment based on development of water management system using technology in central region and the Eastern Economic Corridor”

under **NRCT Spearhead Research Program on Water Management** supported by  
**National Research Council of Thailand**

# Study area



The **focus groups** in the 33 subdistricts were organized to gather information and supporting evidence for the assessment of community based water resources management (before training)

## 10 Attributes of community based water management

1. Water user group with clear roles and responsibilities
2. Capable committee to manage community water resources
3. Community-based databases and information systems for water resources management
4. Platform for participatory planning
5. Eco-based water resources management plans
6. Approved measures for water resources management
7. Funds for water resources management
8. Monitoring and evaluation system
9. Collaborating mechanisms with other parties
10. Capacity development

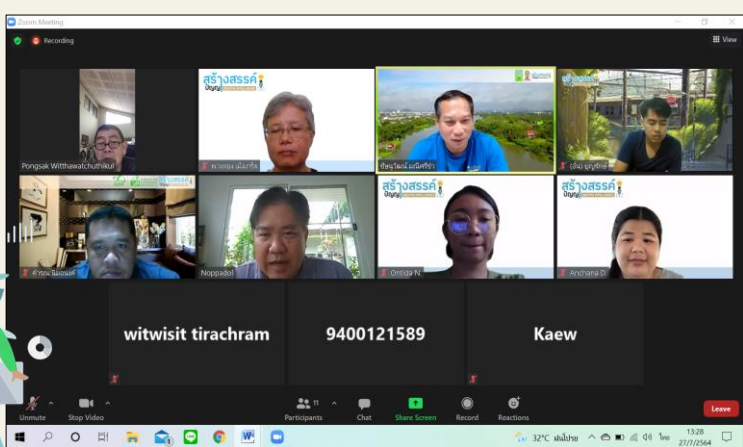
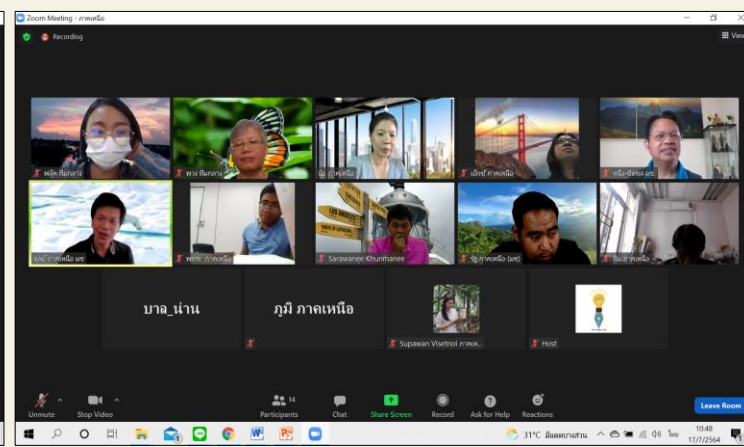
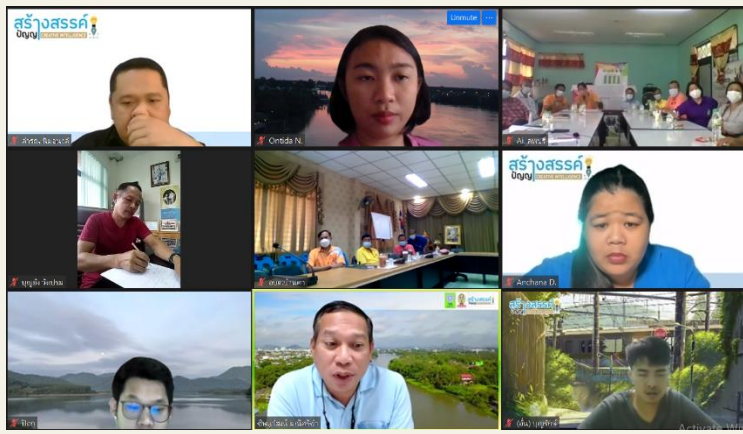
## Criteria for assessment

Low capacity level: community has 1-4 attributes  
Medium capacity level: community has 5-7 attributes  
High capacity level: community has 8-10 attributes

Studying the relationship between the capacity assessment and the Water Management Index from NSO, and examining the linkage to SDG 6.5.1 in order to promote more community water management in the future



Focus groups



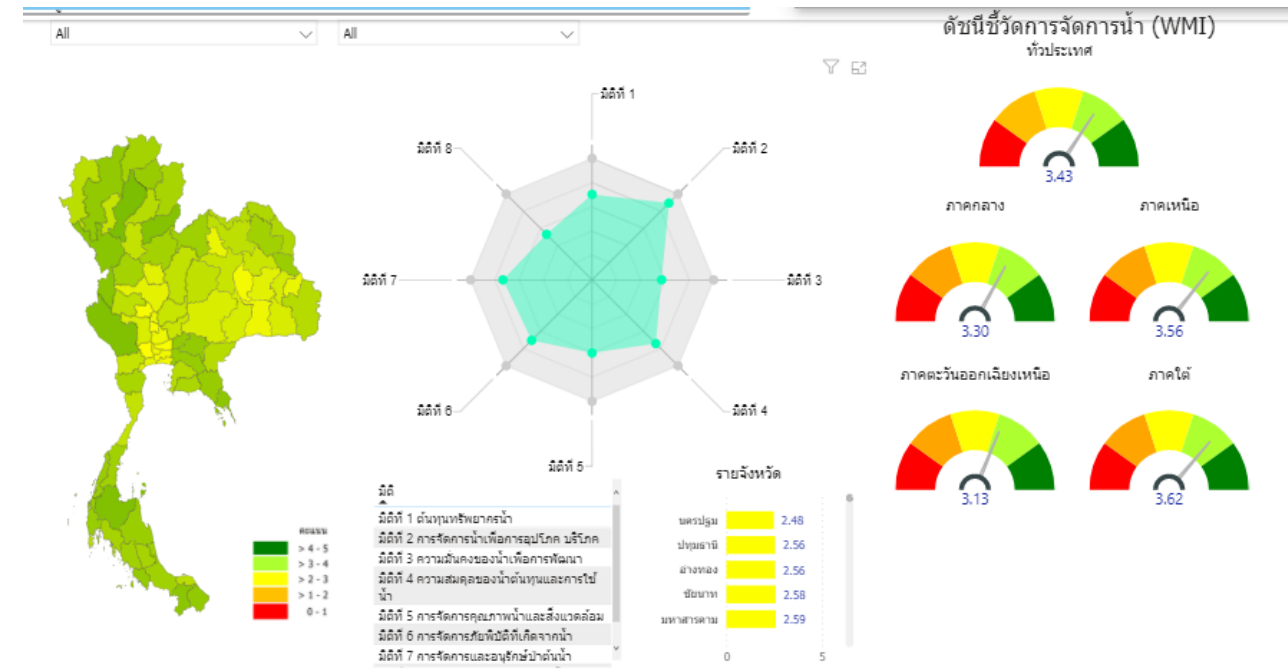
# Data : Water Management Index (WMI)

National Statistical Office (NSO) developed Water Management Index (WMI) that includes 8 dimensions and the database can be accessed from <http://wmc.nso.go.th/>

WMI has been developed to evaluate status of water management at river basin, provincial, district, and subdistrict scales. WMI also includes participation assessment.

## Water Management Index (WMI) in 8 dimensions:

1. Water resources supply
2. Domestic water management
3. Water for development
4. Balance of water supply and water use
5. Water quality management and environment
6. Water-related disasters management
7. Upstream forest management and conservation
8. Water resources management



Source: <http://wmc.nso.go.th/> (accessed September 2021)

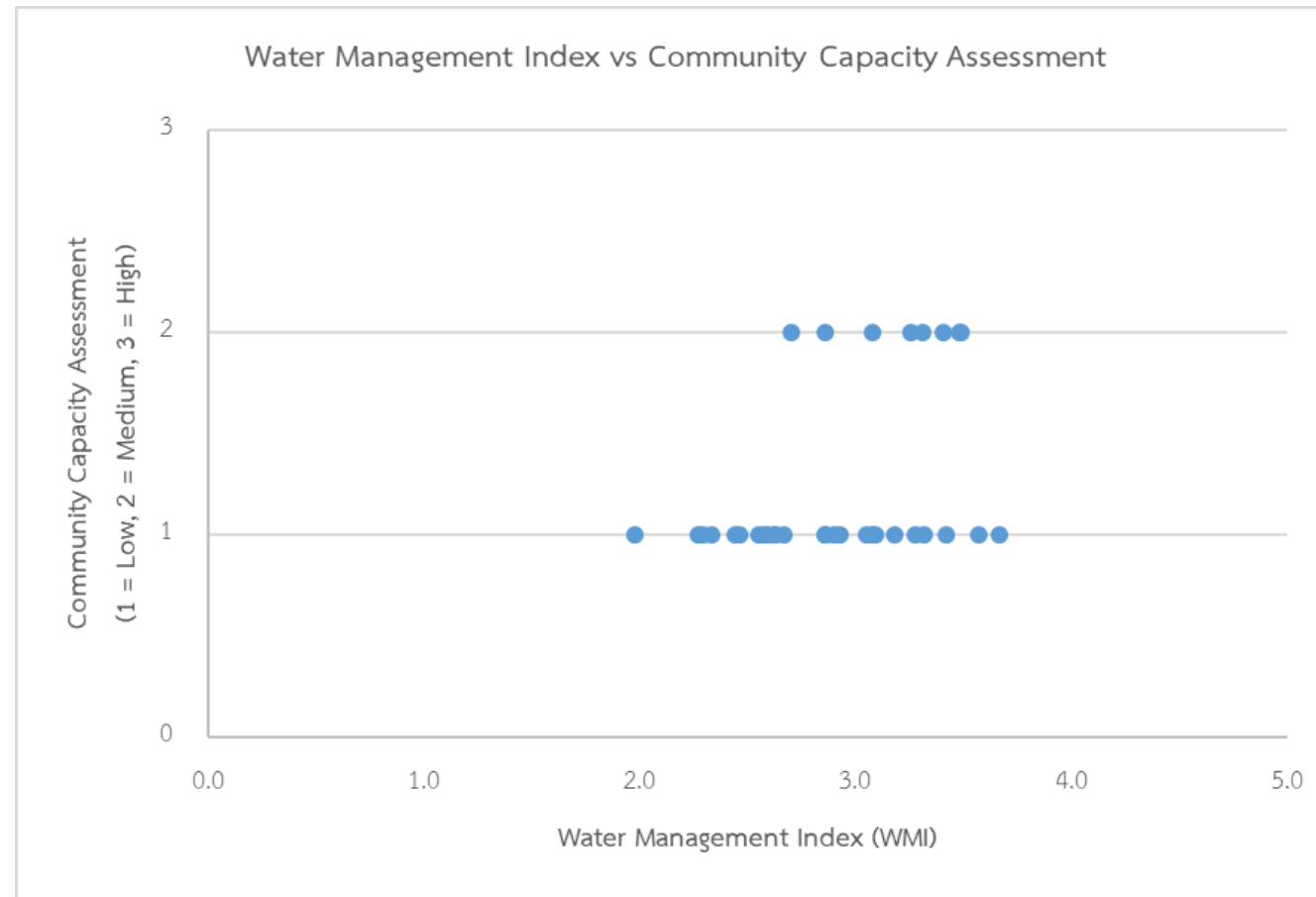
# Results and Discussions

Province	Subdistrict (Tambon)	Assessment of community based water resources management (before implementation)			Water Management Index (WMI) (SSO, 2020)
		Low level 1-4 attributes	Medium level 5-7 attributes	High level 8-10 attributes	
Nan	Nong Daeng	✓			3.67
	Mueang Chang	✓			3.28
	Bosuak		✓		3.26
Chiangmai	Pa Miang	✓			3.42
	Tha Pha		✓		3.49
Ubon Ratchathan	Na Yia	✓			2.29
	Samrong	✓			2.90
Khon Kaen	Mueang Phia		✓		2.70
	Si Bun Rueang		✓		2.86
Surin	Yang Sawang	✓			2.67
	Yawuek	✓			2.86
Chachoengsao	Nong Mai Kaen	✓			2.93
	Tha Kradan	✓			3.09
Chanthaburi	Sam Phi Nong	✓			3.05
	Tha Luang	✓			3.57
Chonburi	Pluang Thong		✓		3.48
Rayong	Klaeng	✓			2.63
	Taphong	✓			3.32

Province	Subdistrict (Tambon)	Assessment of community based water resources management (before implementation)			Water Management Index (WMI) (SSO, 2020)
		Low level 1-4 attributes	Medium level 5-7 attributes	High level 8-10 attributes	
Sing Buri	Phak Than	✓			2.44
	Mai Dat	✓			2.27
	Kho Sai	✓			2.33
	Tha Kham	✓			2.55
Lopburi	Kaeng Phak Kut	✓			2.59
	Tale Wang Wat	✓			2.46
	Sap Champa	✓			2.86
	Nong Phak Waen	✓			2.58
Suphan Buri	Nong Kham	✓			1.98
Ratchaburi	Ban Kha		✓		3.31
Satun	Wang Prachan		✓		3.41
	Yan Sue	✓			3.08
	Khuan Khan	✓			2.63
Songkhla	Choeng Sae		✓		3.08
	Thap Chang	✓			3.18
<b>15 provinces</b>	<b>33 subdistricts</b>	<b>25</b>	<b>8</b>	<b>0</b>	

# Relationship between community assessment and WMI

For a group of subdistricts with medium capacity level of community-based water resources management, their WMI is above 2.50 and less spreading when compared to a group of low capacity level. This could be **indicative** for causal relationship between water security and water governance.



# Linkage with SDG 6.5.1

- The linkage between community-based water resources management capacity and SDG 6.5.1 is examined.
- Indicator 6.5.1 of SDG 6.5 tracks the degree of integrated water resources management (IWRM) implementation, by assessing the four key components of IWRM: enabling environment, institutions and participation, management instruments, and financing (<https://www.sdg6monitoring.org/indicator-651/>).
- The survey instrument is used for the assessment (UNEP, GWP, UNEP-DHI Centre and Cap-Net, 2020)
- For institutions and participation, the assessment focuses on the status of institutions for IWRM implementation. Relevant key components for roles of communities and water user association are **developing IWRM capacity** and **public participation in water resources, policy, planning and management at the local level**.

# Linkage with SDG 6.5.1

- SDG 6.5.1 **Developing IWRM capacity**
  - **Medium-high level:** long-term capacity development initiatives are being implemented, and geographic and stakeholder coverage is **adequate**
  - **High level:** **effective** outcomes, and **very good** geographic and stakeholder coverage
  - **Very high level:** **highly effective** outcomes, and **excellent** geographic and stakeholder coverage
- SDG 6.5.1 **Public participation at local level**
  - **Medium-high level: Consultation:** Government authorities regularly use local level information, experiences and opinions of the public
  - **High level: Collaboration:** Mechanisms established, and regularly used, for the public to take part in relevant policy, planning and management processes.
  - **Very high level: Representation:** Formal representation of the public in local authority processes contributing to decision making on important issues and activities, as appropriate.

# Summary and future work

- The assessment of existing community capacity for water resources management based on the ten attributes carried out in 33 subdistricts in 15 provinces across 5 regions of Thailand shows that 8 subdistricts are assessed as medium capacity level and 25 subdistricts are assessed as low capacity level. There is no subdistrict with high capacity level.
- The relationship between Water Management Index (WMI) from NSO and our assessment could be indicative for relationship between water security and water governance.
- The ten attributes used in this study are conformed with criteria used in 6.5.1 for developing IWRM capacity and public participation. Promoting community capacity building with the ten attributes proposed in this study can help community-based water resources management to improve and reach higher level of SDG 6.5.1.
- Further research will be carried out to provide a training program to the water user groups in 33 districts and assess their capacities.
- Community-based water resources management capacity building will help strengthening public participation in water resources, policy, planning and management at national level and local level, capacity development, and data and information sharing under institutions and participation component of IWRM.

- This research is part of the research projects “Guidelines for the development of community water user organization to increase the ability of planning water management at the area level” and “Water security assessment based on development of water management system using technology in central region and the Eastern Economic Corridor” under NRCT Spearhead Research Program on Water Management supported by National Research Council of Thailand.
- We would like to thank National Statistical Office of Thailand for Water Management Index data



- GWP (2004), Integrated Water Resources Management, GWP Technical Committee (TEC) Background Paper No. 4 ([www.gwpforum.org](http://www.gwpforum.org) ).
- Maneesrikum, C. et al. (2020), Water Use Efficiency Improvement in local level within Tor Tong Daeng Irrigation Project area, Final Research Report submitted to TSRI-NRCT, September (in Thai).
- Koontanakulvong, S. (2020), Summary of TSRI-NRCT Spearhead Research Program Phase 1. Research Brief Document. Chulalongkorn University, December, 44 pp. (in Thai).
- NSO (2020), Water Management Index, <http://wtc.nso.go.th/> (accessed September, 2021) (in Thai)
- UNEP, GWP, UNEP-DHI Centre and Cap-Net (2020), Country Survey Instrument for SDG Indicator 6.5.1