

# Water Without Border : Pilot Community Water Management Curriculum

Community Water Management Project



The KMUTT Geospatial Engineering and Innovation Center

## **Pariwate Varnakovida, Ph.D.**

### **Assistant Professor**

Director / Project Manager  
Community Water Management fund  
inspired by the thai Roral Initiative

King Mongkut's University of Technology Thonburi  
126 Pracha Uthit Road, 10140 Bangkok  
<http://www.kgeo.org> / [pariwate@gmail.com](mailto:pariwate@gmail.com)  
M. (66) 08 9866 5958, 09 8247 3389





## CONTACT US

(+66) 98 247 3389

E-mail : cwmri2022@gmail.com

www.cwmri.org



## ABOUT US

**Khunying Kalaya Sophonpanich,**  
**Deputy Minister of Education of Thailand**

"I am determined to preserve and build upon the King Rama IX's wishes by establishing Community Water Management Fund Inspired by the Thai Royal Initiative"

With knowledge and technology CWMRI will help to achieve successful community water management according to the Royal initiative helping Thai people to fight the drought crisis and resolve poverty once and for all.



# Community Water Management Project.

BY

CWMRI







## 01 Policy Announcement

Khunying Kalaya Sophonpanich, Deputy Minister of Education, plays an important role to include the Water Management policy into the government policy number 10. This includes, written in clause 10.3, the key statement to our project :  
"encourage the community to participate in water management according to the Thai Royal Initiative."

## 02 Grand Opening Ceremony & MOU Signing

On July 13, 2020, Dr. Wissanu Krea-ngam, Deputy Prime Minister, chaired the official opening ceremony of the Community Water Management Fund inspired by Thai Royal initiative (CWMRI).



2019

## 03 Building Learning Center

Immediately after launching the project, the first action taken by CWMRI was to collaborate with College of Agriculture and Technology (CAT) to quickly establish a learning center through problem solving and mutual support within the water management processes of their respective areas.



2020

## 05 Consult the Expert

KGEO and AGS are two instrumental organizations in this project, providing geographic information and technical engineering design.



2021

## 07 Chonlakorn Course – An integration of science and Royal initiatives

Chonlakorn is comprised of 6 subjects. Together, these subjects will create a full round of water management through a sustainable learning process to bring a better life to the Thai farmers. See the individual subjects at: [www.cwmri.org](http://www.cwmri.org)

### THE CHONLAKORN khangsaans

- INTRODUCTION TO METEOROLOGY AND HYDROLOGY
- INTRODUCTION TO WATER MANAGEMENT
- GROUNDWATER BASICS
- COMMUNITY WATER MANAGEMENT
- PRINCIPLE OF WATER AND SOIL RESOURCE MANAGEMENT
- ROYAL INITIATIVE COMMUNITY WATER RESOURCE MANAGEMENT

2022 - FUTURE

The MOU signing ceremony in October 2020: Under MOU the institutions AGS and KMUTT will be major supporting roles for CWMRI using their technology. This unique integration of international organizations will enhance the Chonlakorn course, standardizing local knowledge.



## 04 Community

"Through training to inspect and analyze landscapes we will understand the community's water requirements and work together to construct solutions with direct community involvement."



## 06 Process

For the first time in Thai history, Chonlakorn has integrated knowledge from many involved volunteer specialists from important organizations to give Thailand a curriculum that brings all knowledge of community water management together.



## 08 Collaboration – Key Success Factor

Support and collaboration has played a key role in the success of Chonlakorn. The venture would not have been possible without the financial support from the Thai Public Policy foundation. The "Train the Trainer" program and the 6 textbooks created by volunteers from CAT have also proven to be instrumental.

## 09 The Future

By incorporating all key elements of water management into an available educational resource, the inspiration from King Rama IX and execution by Khunying Kalaya were only the beginning. Through continued support and collaboration from the community, together we can keep our progress in motion and work towards a more prosperous future.





# 6 Curriculum Chonlakorn Course

- Introduction to Meteorology and Hydrology
- Introduction to water management
- Groundwater banking
- Community Onsite wastewater management
- Principles of water and soil resources management
- Royal Initiative Community water resource management



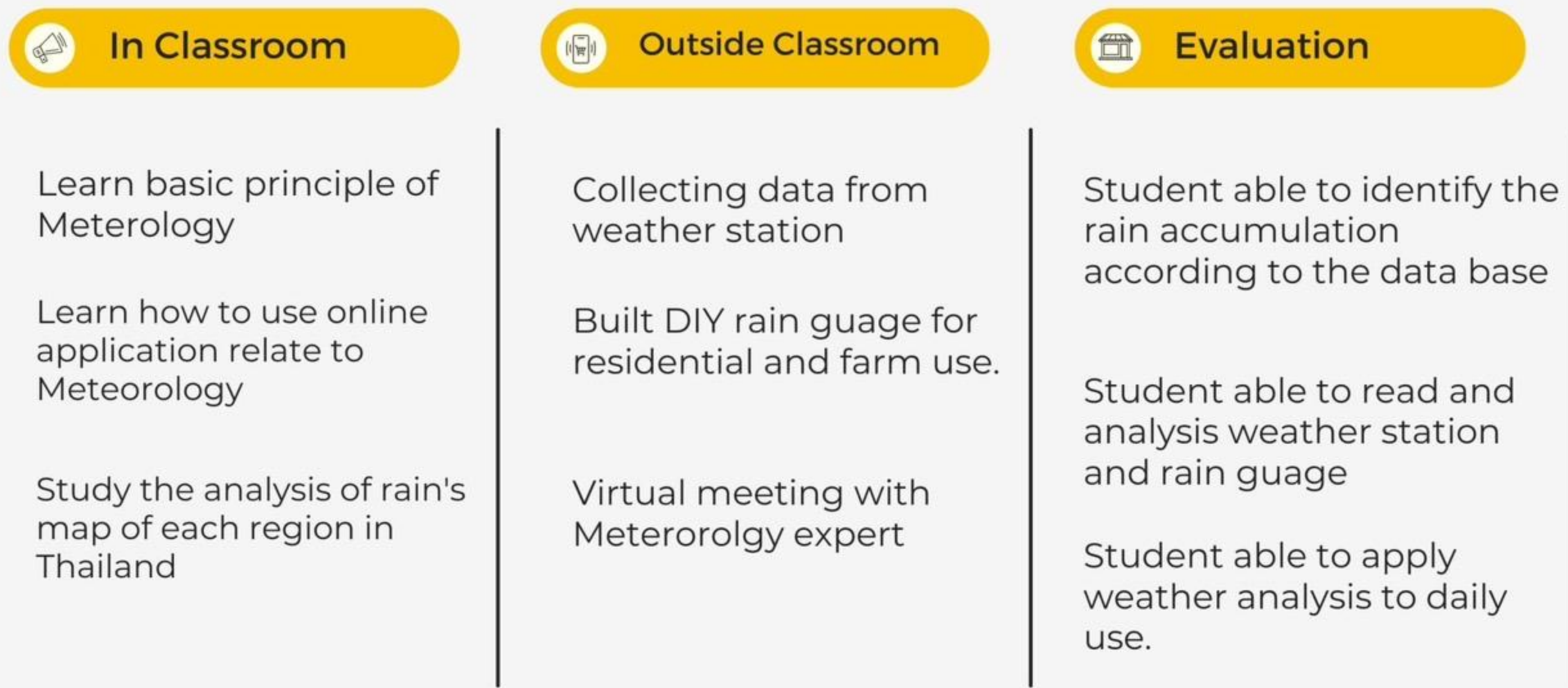
COMMUNITY  
WATER MANAGEMENT FUND  
INSPIRED BY THE THAI ROYAL INITIATIVE

รู้จัก **6**  
**รายวิชาใหม่**  
ในหลักสูตร “ชลกร” ต้องเรียนอะไรบ้าง

- 1 หลักการอุทกนิยามวิทยาและอุทกวิทยาเบื้องต้น
- 2 การบริหารจัดการน้ำเบื้องต้น
- 3 หลักการธนาคารน้ำใต้ดิน
- 4 การบริหารจัดการน้ำเสียชุมชน
- 5 หลักการจัดการทรัพยากรแหล่งน้ำและดิน
- 6 การบริหารจัดการลุ่มน้ำโดยชุมชนตามแนวพระราชดำริ



# Introduction To Meterorology and Hydrology

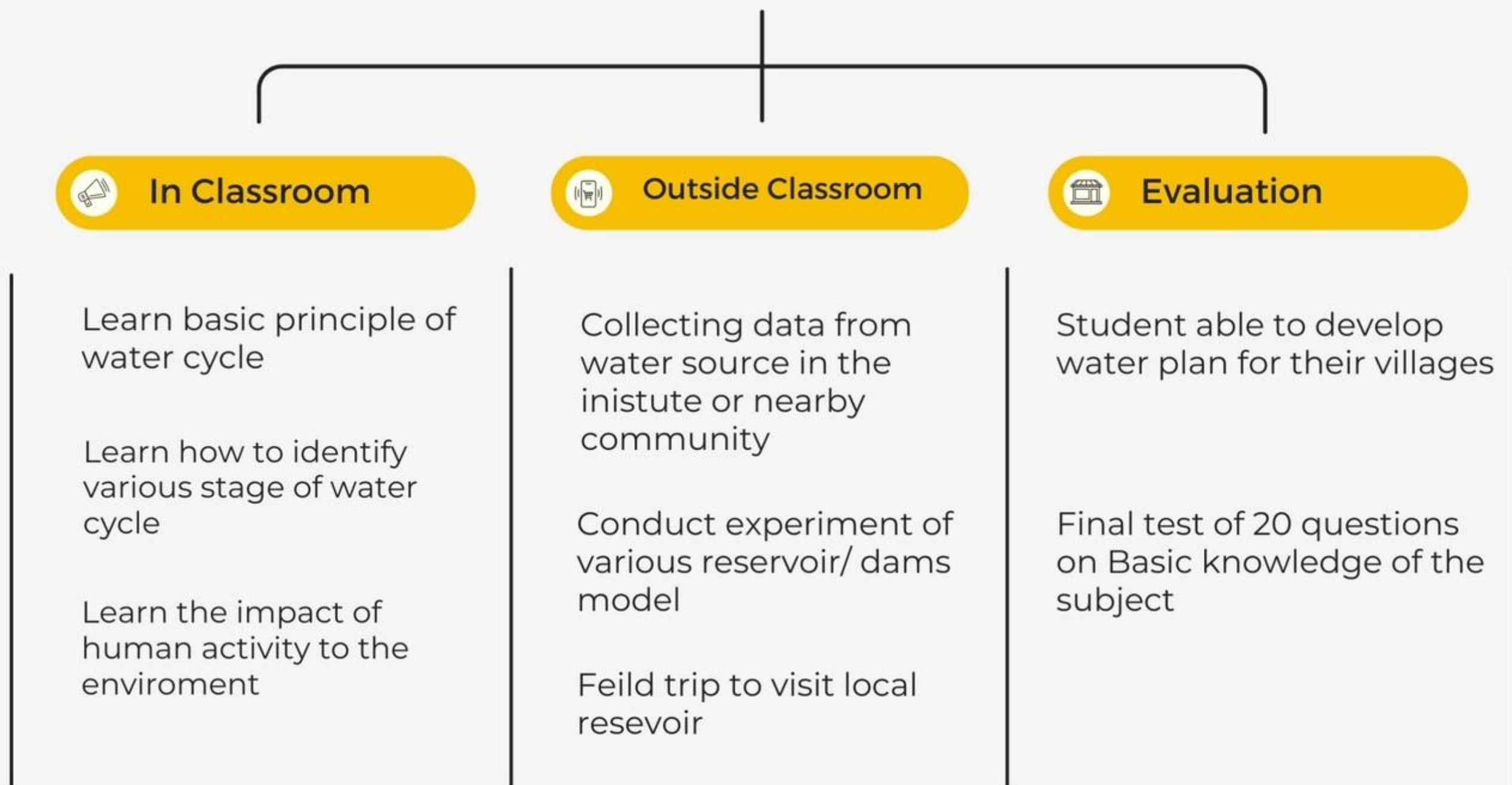


## Note

Teachers may adapt these core principles idea into the learning direction in classroom that suitable for institution resource and the student



## Introduction To Water Management

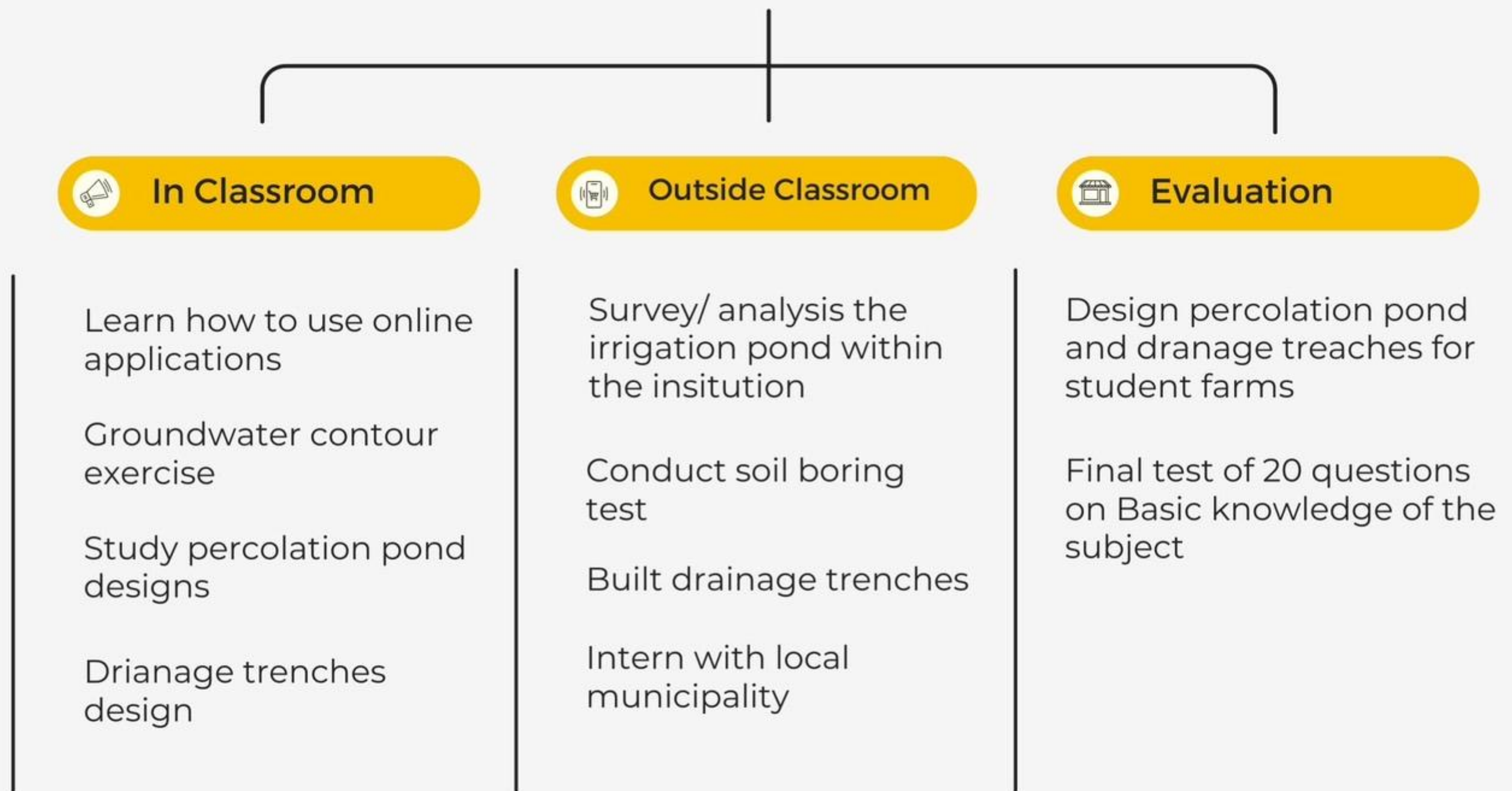


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# Groundwater Banking

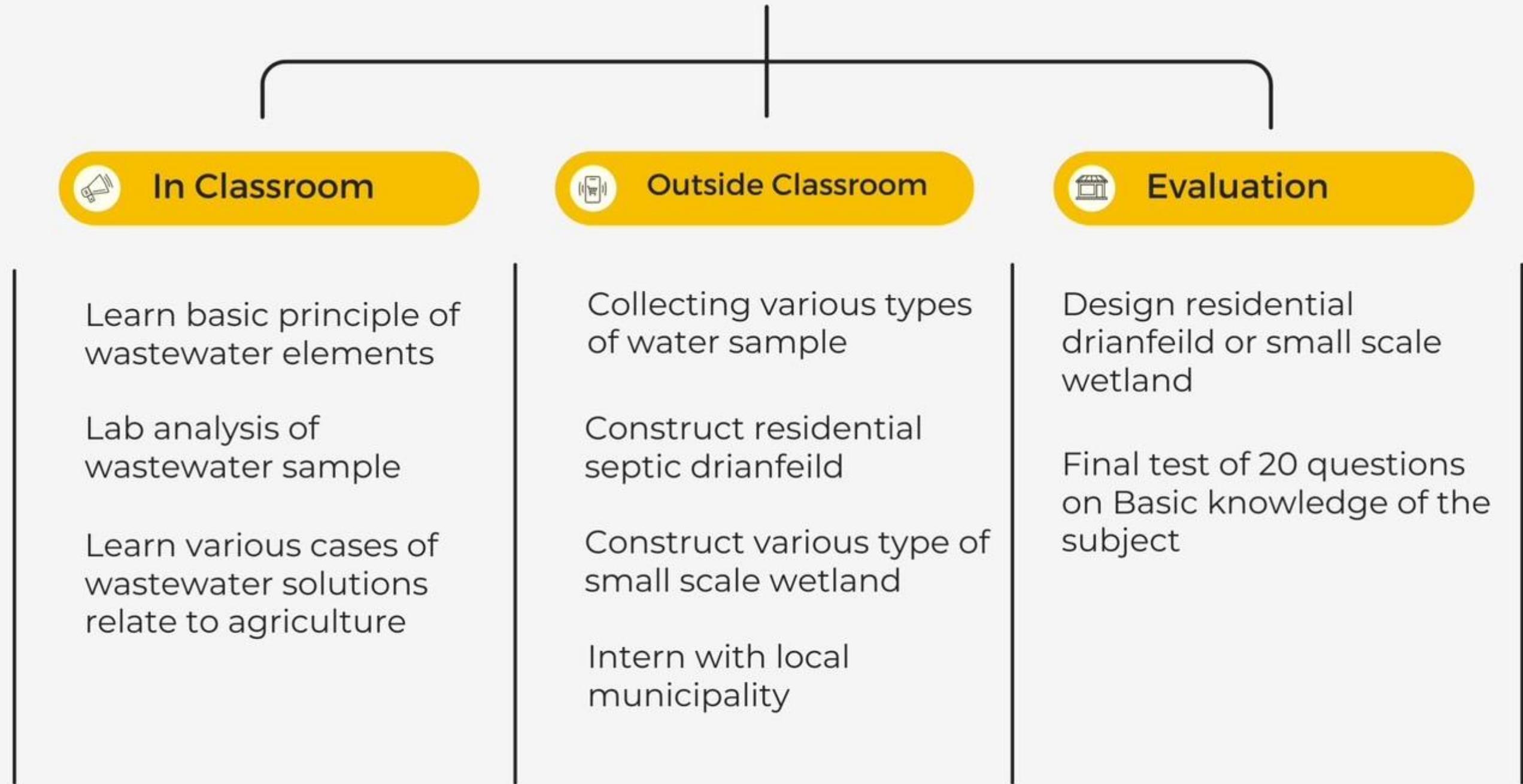


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## Community Onsite Wastewater Management

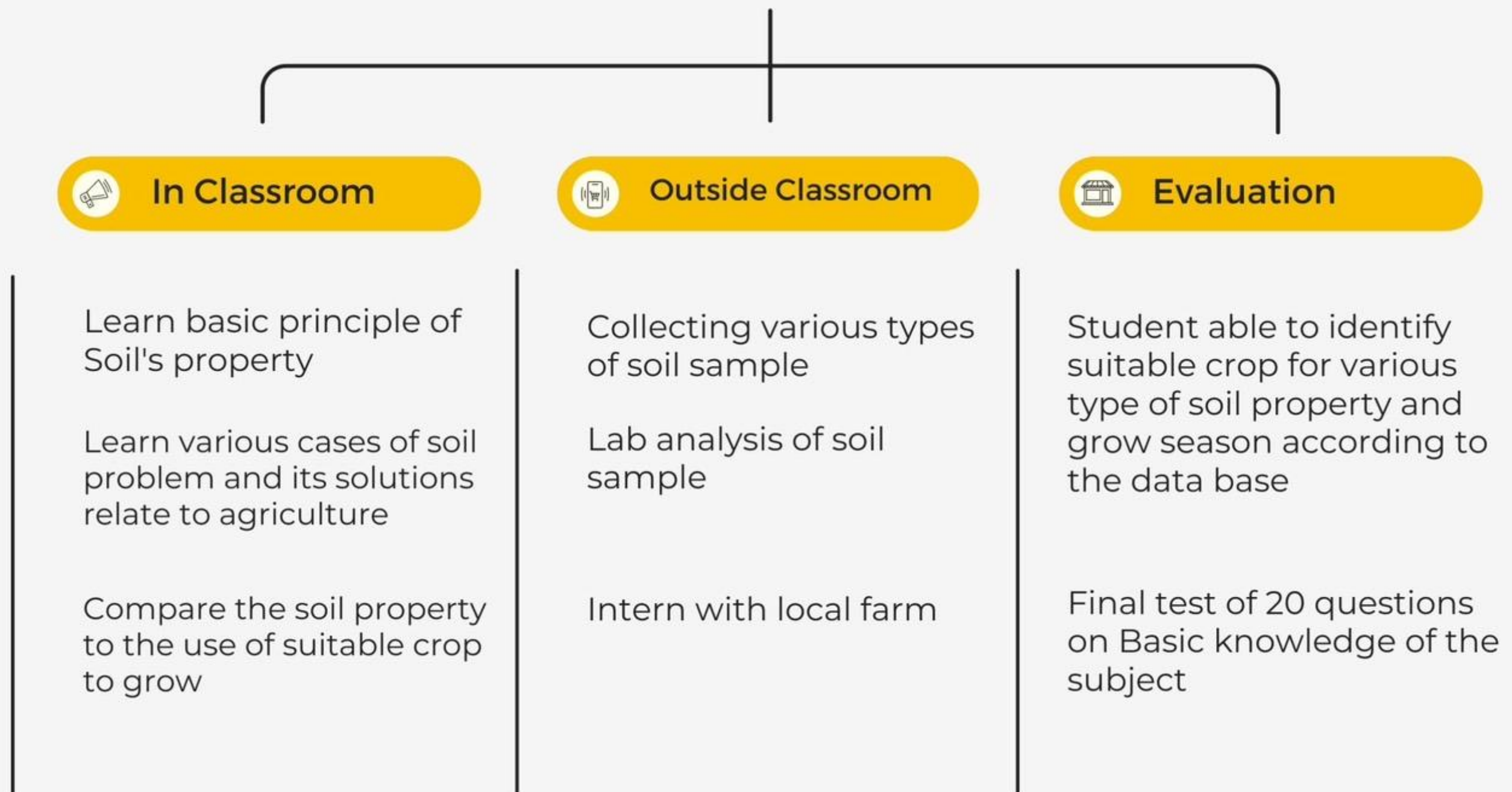


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## Principle of Water and Soil Resources Management

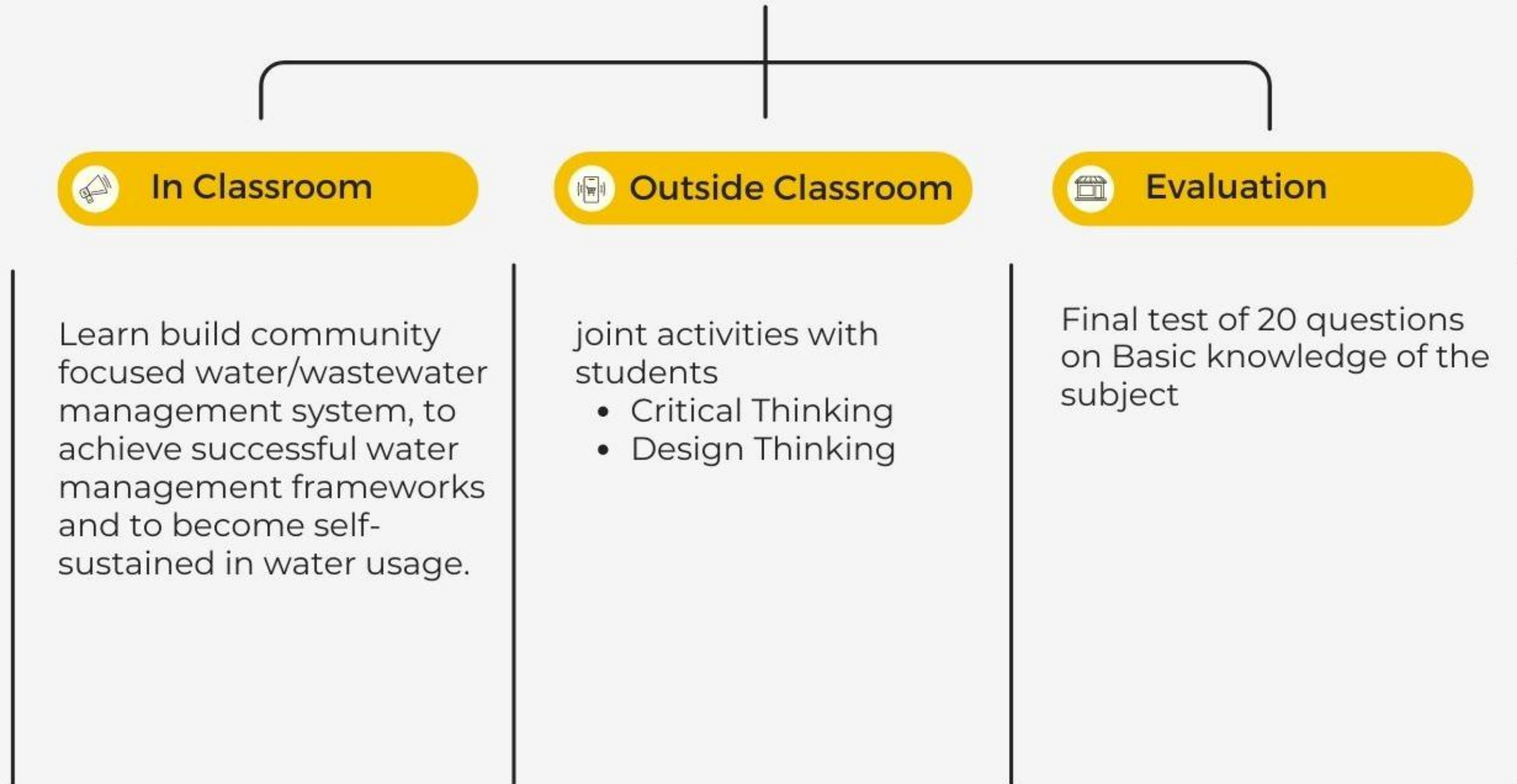


### Note

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## Royal Initiative Community water resource management



### Note

Teachers may adapt these core principles idea into the learning direction in classroom that suitable for institution resource and the student.



รายวิชา 30505-2206

การบริหารจัดการน้ำโดยชุมชน ตามแนวพระราชดำริ  
ROYAL INITIATIVE COMMUNITY WATER RESOURCE MANAGEMENT



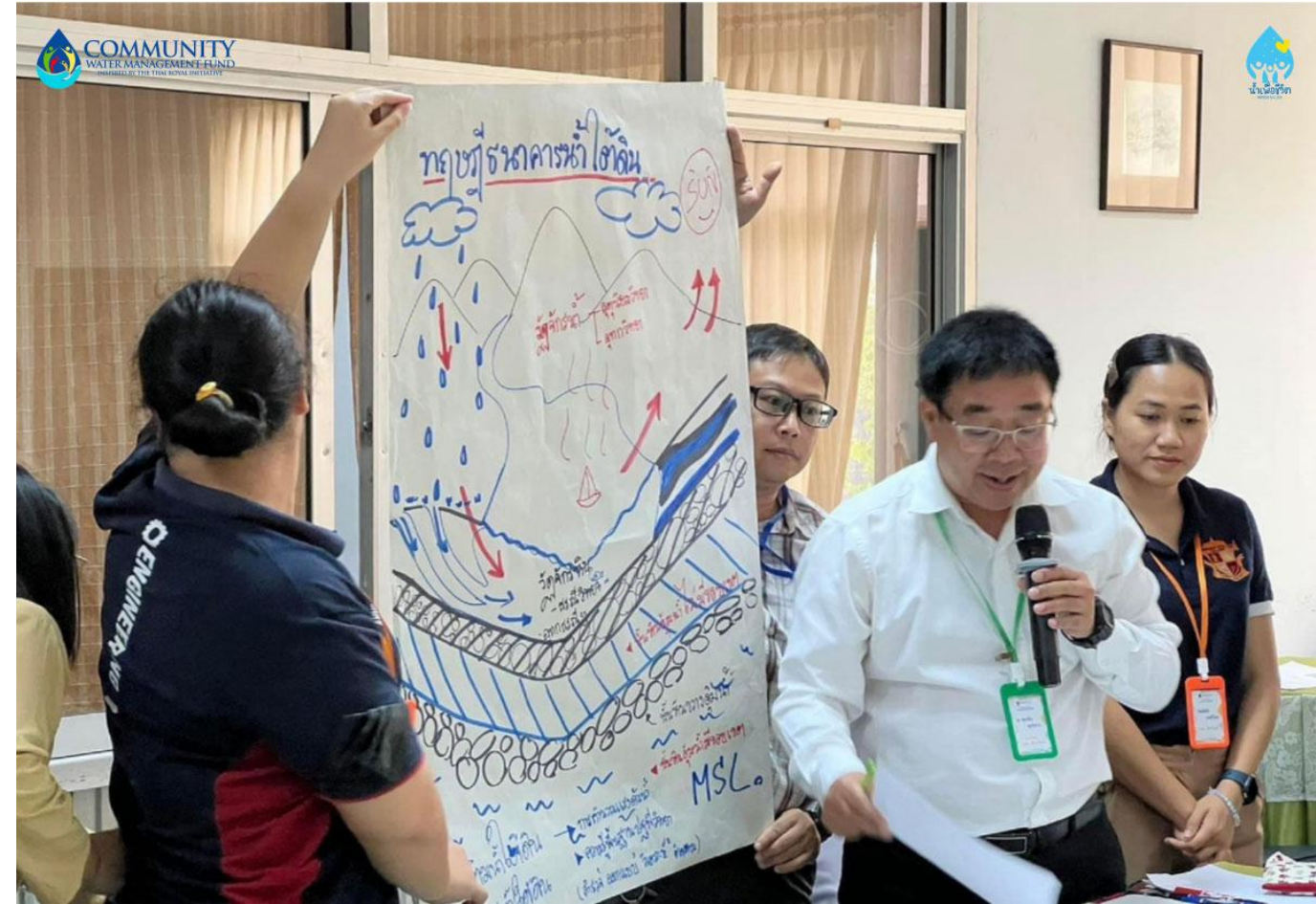
“หลักสำคัญว่าต้องมีน้ำบริโภค น้ำใช้ น้ำเพื่อการเพาะปลูก เพราะว่าชีวิตอยู่ที่นั่น ถ้าไม่มีน้ำ คนอยู่ไม่ได้ ไม่มีไฟฟ้าคนอยู่ได้ แต่ถ้ามีไฟฟ้า ไม่มีน้ำ คนอยู่ไม่ได้”

พระราชดำรัส ณ พระตำหนักจิตรลดารโหฐาน เมื่อวันที่ ๑๗ มีนาคม พ.ศ. ๒๕๒๙



The "Chonlakorn" course has reformed the body of knowledge according to the King's science. be combined with universal knowledge It shows the importance of teaching agriculture. to help the country in another way Let students earn more changing the attitude towards the agricultural profession that income is low and difficult.











## "Khunying Kalaya" delighted with a successful visit to America ready to coordinate education cooperation between Thailand and the United States expand knowledge



The community-based water management project working group according to the royal initiative This time, the objective is to exchange experiences. and discuss ways of cooperation between the Ministry of Education of Thailand with educational institutions and agencies in the water management of the United States.



## 5th International Conference & Expo on Water & Waste Management (WMM) 2023, in India.



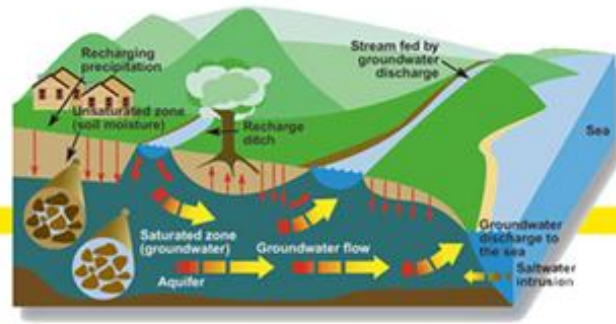
Dr. Khunying Kalaya Sophonpanich, Deputy Minister of Education Sending representatives from the community-based water management project According to His Majesty's initiative, participated in the 5th International Conference & Expo on Water & Waste Management (WMM) 2023, an international water management seminar in India, ready to continue the cooperation in exchanging knowledge on water management and networks in India.



# Basic 8 steps of AGS Standards for Groundwater Bank Techniques to help replenish water into the regional shallow aquifers for agriculture use.



**1** Collect basic data of all water resources both surface and groundwater including geography and geology data of the regions.



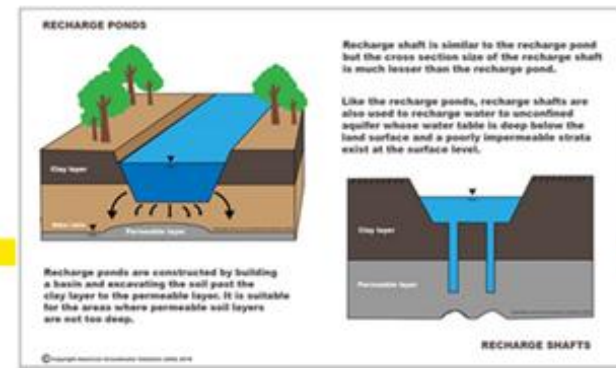
**2** Survey for potential project construction areas and make groundwater contour maps of the regions or groundwater flow paths.



**3** Geological survey the project potential areas and calculate the capacity of the region's aquifers.



**6** Consult with construction experts for cost and duration of the construction to avoid raining season as construction will be difficult. Then construct the recharge ponds.



**5** Design the recharge ponds according to the boring log and soil profiles with the consideration of limitation of the selected locations.



**4** Select suitable sites for construction according to the groundwater flow path networks then plan the artificial recharge locations onto the regional maps.



**7** Monitor and analysis the changes in groundwater tables and its condition regularly. Maintenance the recharge ponds.



**8** Analysis the data collected from the projects in a 1-2 years period. Find solutions to improve or expand to other locations.





**Before**



**After**



**Sa Kaeo College of Agriculture And Technology**

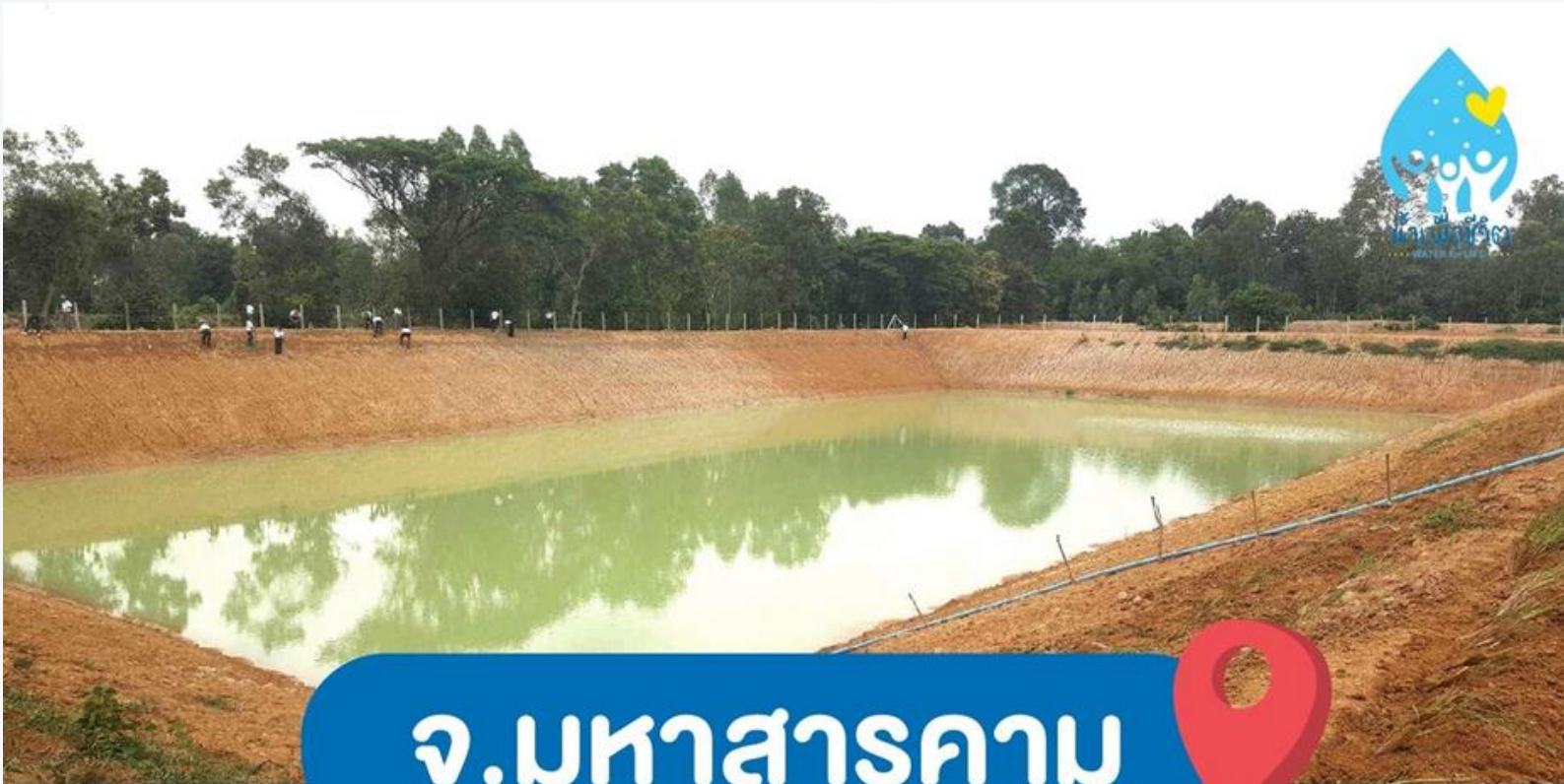


## **Pilot 5 Colleges of Agriculture And Technology Aiming To Expand The Results To Surrounding Communities.**

**Yasothon College  
of Agriculture And Technology**







## จ.มหาสารคาม

วิทยาลัยเกษตร  
และเทคโนโลยีมหาสารคาม



**Maha Sarakham College  
of Agriculture And Technology**



## จ.ศรีสะเกษ

วิทยาลัยเกษตร  
และเทคโนโลยีศรีสะเกษ



**Si Sa Ket College  
of Agriculture And Technology**





## จ.ร้อยเอ็ด

วิทยาลัยเกษตร  
และเทคโนโลยีร้อยเอ็ด

Roi Et College  
of Agriculture And Technology

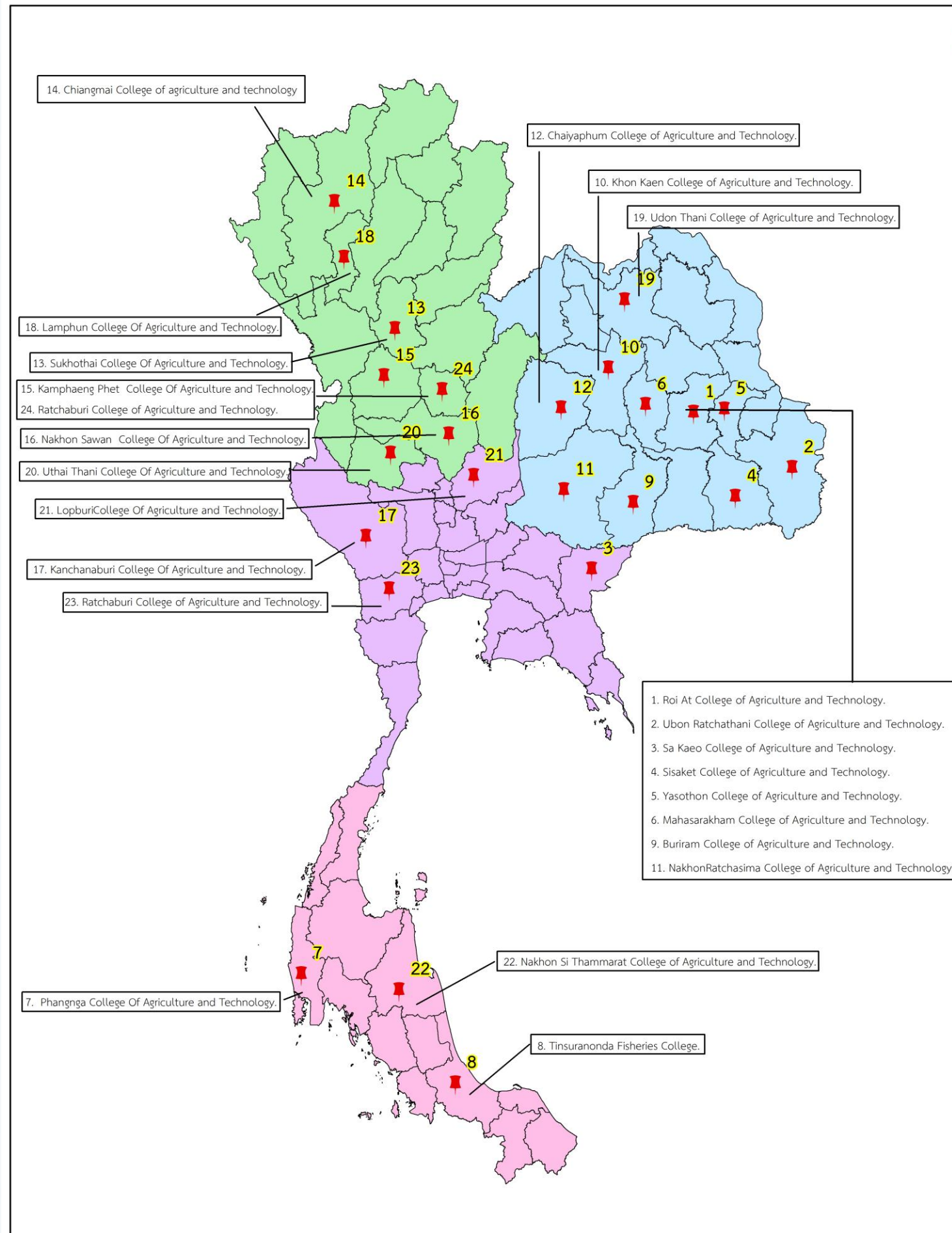


## จ.อุบลราชธานี

วิทยาลัยเกษตร  
และเทคโนโลยีอุบลราชธานี

Ubon Ratchathani College  
of Agriculture And Technology









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<https://cwmri.com/>



<https://www.youtube.com/watch?v=15LZJX8NZdo>

News & Press: Illinois Section AWWA News

Email to a Friend

### Thai Delegation Visits ISAWWA

Friday, December 9, 2022 (0 Comments)

Posted by: Annie Storey

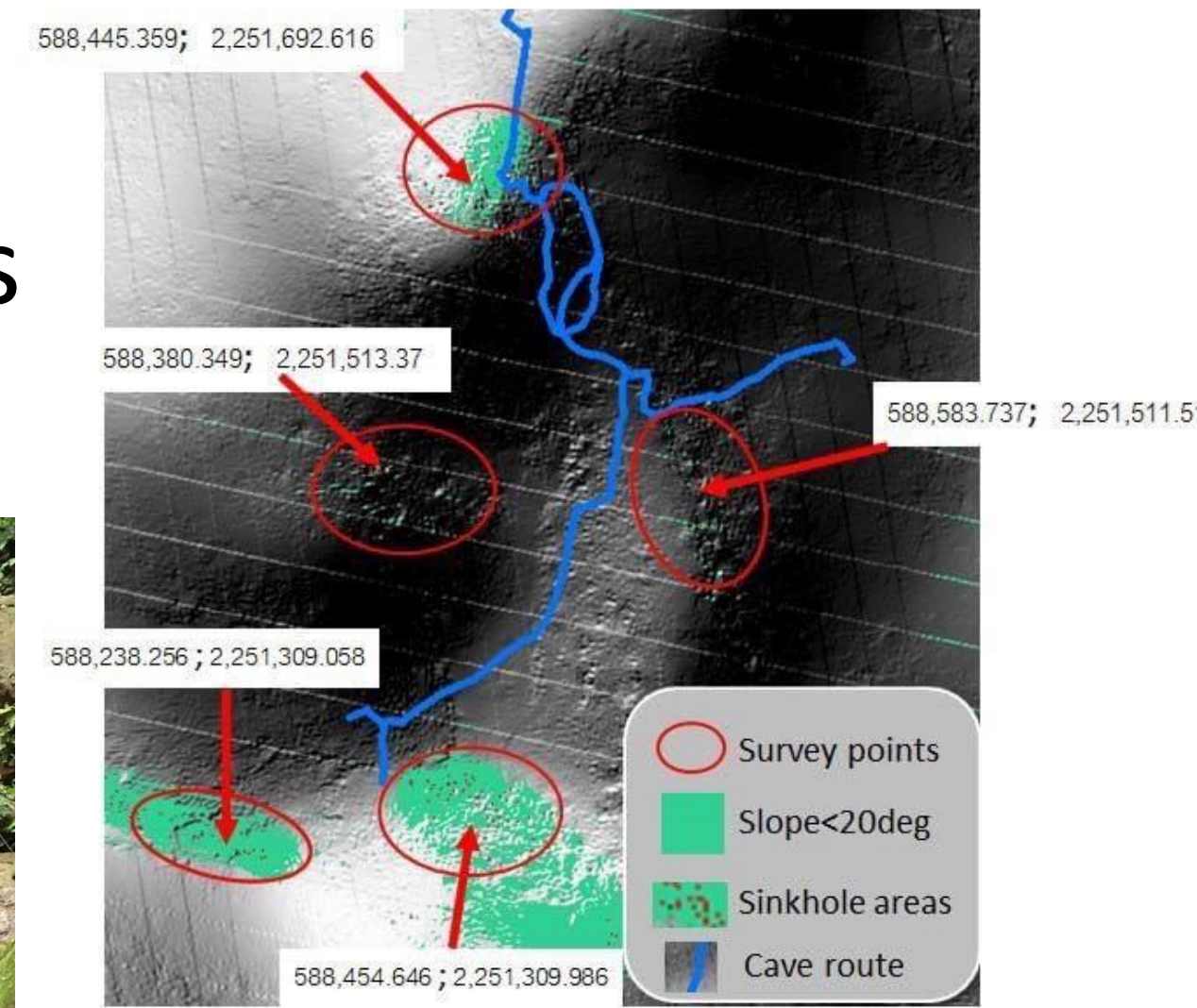
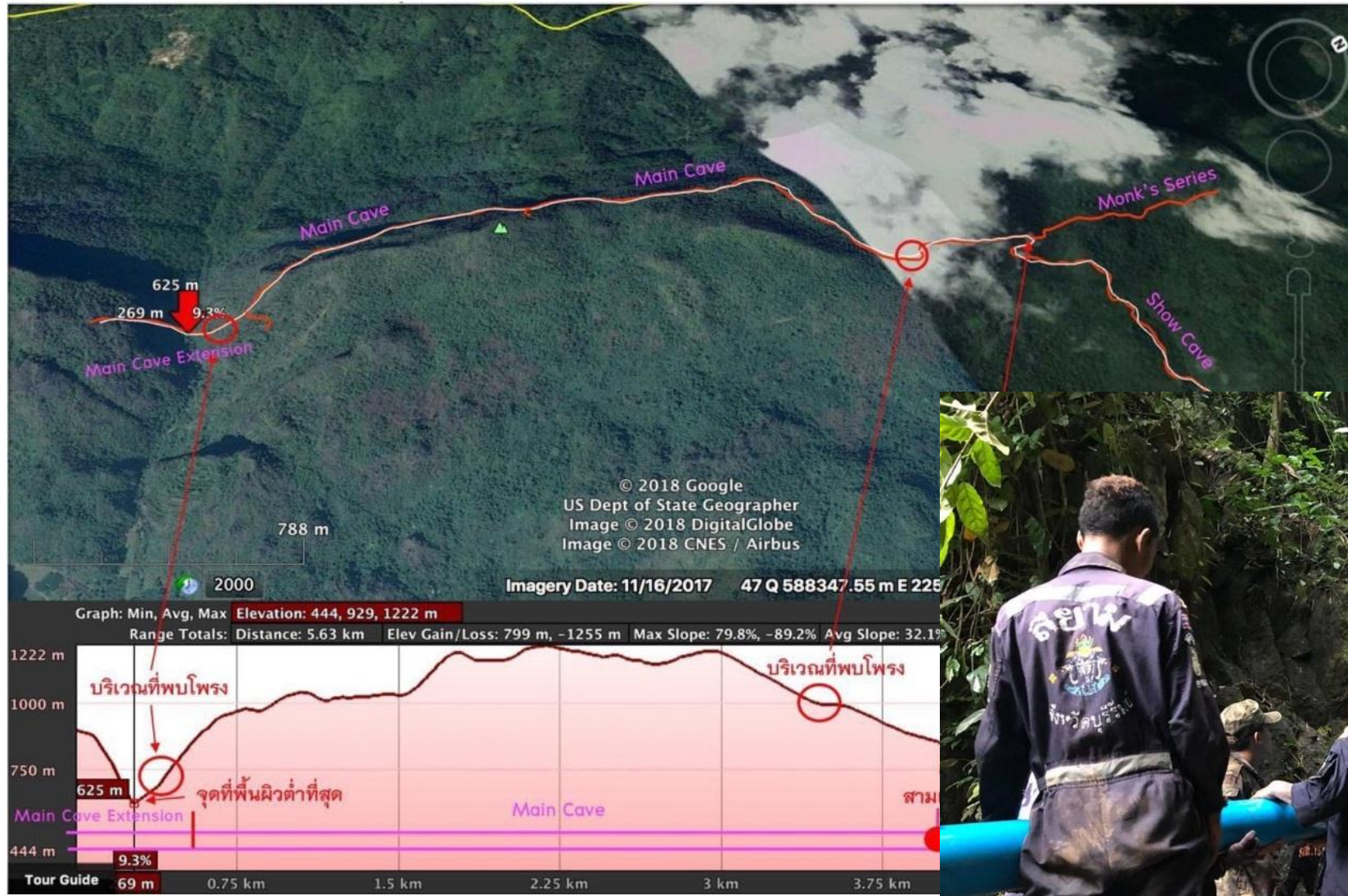
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Thai Delegation Visits ISAWWA





# Thirteen lives





Through the collaborative efforts of KGEO and CMWRI, we gain access to numerous capabilities.



## Geospatial Engineering and Water Management Integration

The collaboration between KGEO and CWMRI can showcase the integration of geospatial engineering and water management in addressing water scarcity and community needs. They can jointly present case studies and research findings that highlight the application of geospatial technologies in water resource management, such as using GIS and remote sensing to assess water availability, monitor usage, and plan for sustainable water use.



## Collaborative Workshops and Presentations for the next step

KGEO and CWMRI can co-facilitate workshops and presentations that demonstrate the collaborative efforts between geospatial engineering and water management. They can jointly lead sessions on topics such as geospatial data collection techniques, water resource modeling, community engagement, and decision support systems.



# Through the collaborative efforts of KGEO and CMWRI, we gain access to numerous capabilities.



## Scholar Exchange Opportunities for long term

The collaboration can create opportunities for scholar exchanges between the participating institutions. KGEO and CWMRI can discuss potential research collaborations, joint projects, and knowledge-sharing initiatives between scholars and researchers from Thailand, China, and the United States. This exchange can foster cross-cultural learning and encourage interdisciplinary approaches to water management challenges.



## Best Practices and Lessons Learned for joint research and funding

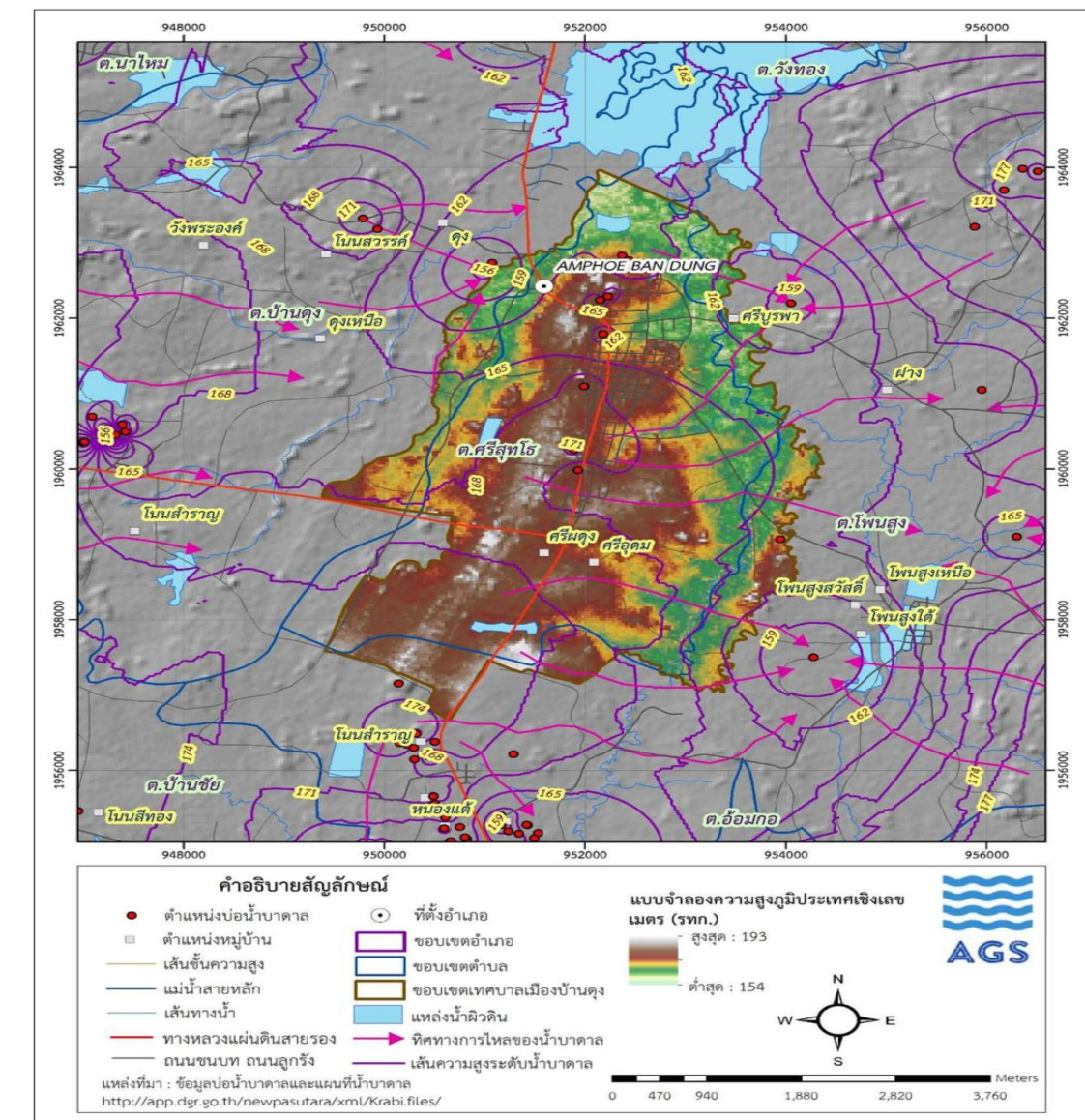
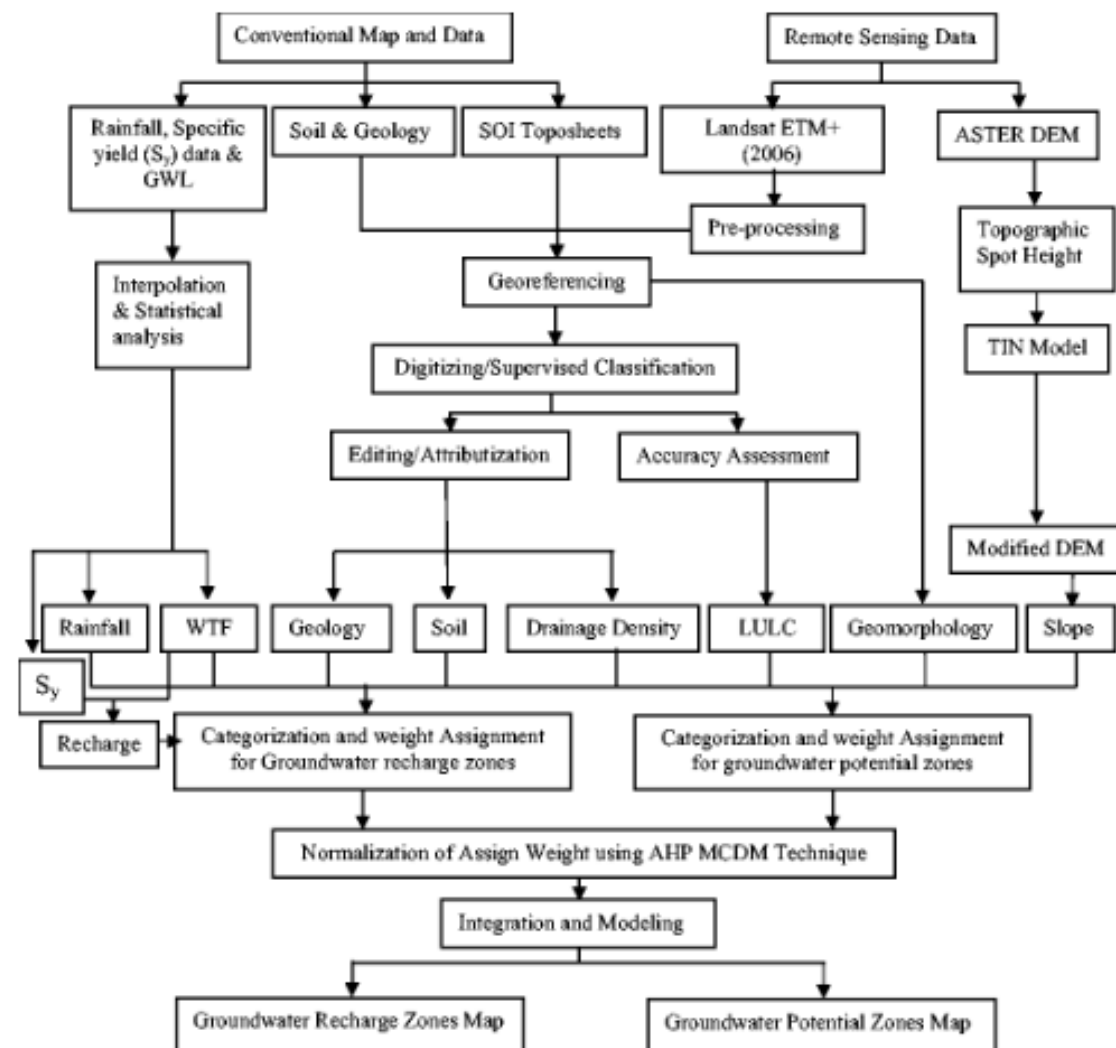
KGEO and CWMRI can share their best practices and lessons learned in geospatial engineering and community-based water management. They can present success stories and case studies from their respective projects, highlighting the strategies and approaches that have yielded positive outcomes. This sharing of experiences can inspire participants and provide valuable insights for future collaborative efforts.



# Analytical Hierarchical Process based Geospatial Model for Groundwater

## Objectives:

1. To estimate the groundwater recharge potential areas in the northeastern Thailand by using Remote Sensing and GIS Technologies
2. To validate the outcome of the groundwater recharge potential areas by using ground-based measurements and ROC



รูปที่ 6 แผนที่แสดงค่าเส้นชั้นระดับความสูงของน้ำบาดาลและทิศทางการไหลของน้ำบาดาล (ที่มา: จากการวิเคราะห์ข้อมูลระดับน้ำบาดาลในพื้นที่เทศบาลเมืองบ้านดุงในชั้นเบื้องต้น)



Through the collaborative efforts of KGEO and CMWRI, we gain access to numerous capabilities.

## Policy and Implementation Recommendations for long term consultant

The collaboration can also contribute policy and implementation recommendations based on the combined expertise of KGEO and CWMRI. They can offer insights into effective water management policies, community-driven approaches, and the integration of geospatial data in decision-making processes. These recommendations can inform policymakers, researchers, and practitioners on ways to address water scarcity and promote sustainable water management practices.

The collaboration between KGEO and CWMRI in the US-Thailand-china Workshop on Scholar Exchanges can showcase the potential synergy between geospatial engineering and community-based water management. Their combined expertise can contribute to interdisciplinary discussions, knowledge sharing, and the development of innovative solutions to water-related challenges.



# Thank you! Q&A



Urbanization, Land Transition Environmental Change with in the context of globalization in South East Asia

The 5th US-Thailand Workshop on Scholar Exchanges  
06/2023



+66 (0)89-247-3389



pariwate@gmail.com



kgeo.org





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