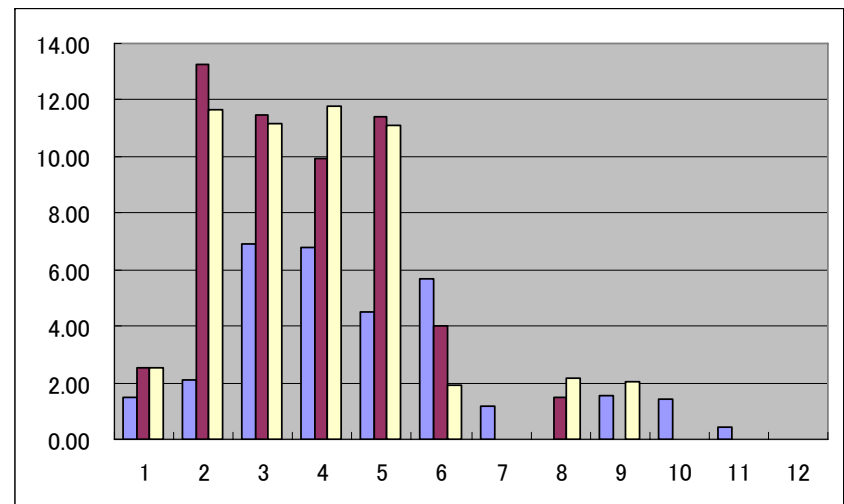
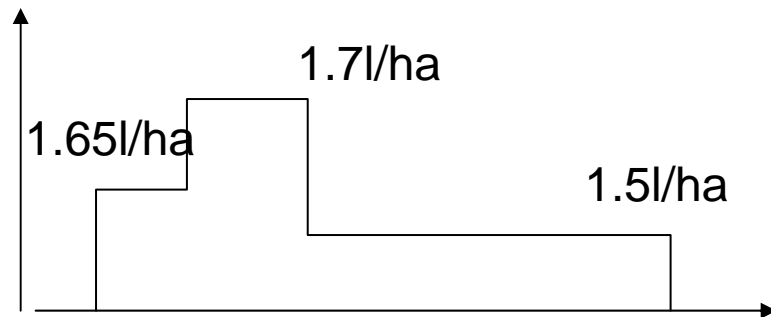


Water management of pilot projects

Naoki HORIKAWA
National Institute for Rural Engineering

Num Houm

- Supplementary irrigation in the rainy season
- High performance in the rainy season
- Water supply in the rainy season don't reflect water situation of paddy field.



Irrigation Plan

	NH	HL	KP	GC
Seasonal Irrigation Plan	November (dry) None (wet)	December (dry) June (wet)	November	December May
Functions	<u>Crop area</u> <u>Rotation</u>	<u>Crop</u> <u>Irrigated area</u> Delivery schedule Discharge (main, Lateral)	Area Irrigation times	
Estimation		Average rainfall		
Procedure	Meeting	Registration of farmers Meeting with IWUG	Community PWUC	Water council
Allocation	Non-rotation Concentrated	Rotated Distributed	Non-rotation Concentrated	
Water allocated to next season	allocated		allocated	
Concentration	Rotated 2 (water shortage year)		Concentrated	

Operation

		Operation
A	Flow rate control (measurement) at main turnouts	From upstream to downstream
B		Several times a day
C	Flow rate control (measurement) at key points Water level control (measurement) at main turnout	Several trial (experience)
D	Water level control (measurement) at main turnouts	Several trial
E		Rotation between turnouts
F		Proportional distribution without reflection of changing demand



7. Technical and managerial aspects

Water requirement
Monitoring
Organization

1. Water allocation
(Seasonal Irrigation plan)

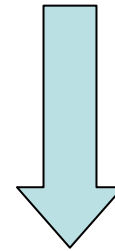
2. Water Distribution
(Irrigation scheduling)

3. Canal operation

4. Water management
of tertiary canal

5. Institution

6. Improvement of
physical structures



Reliability

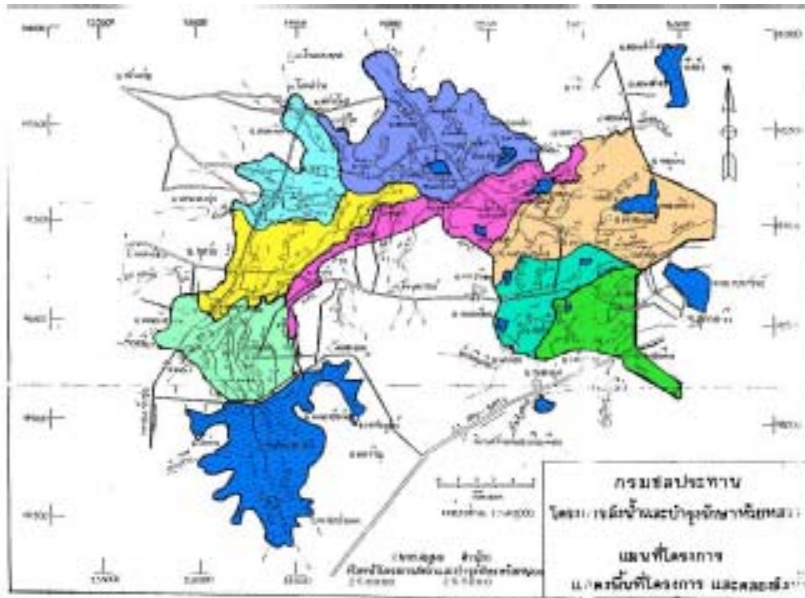
Flexibility

Equity

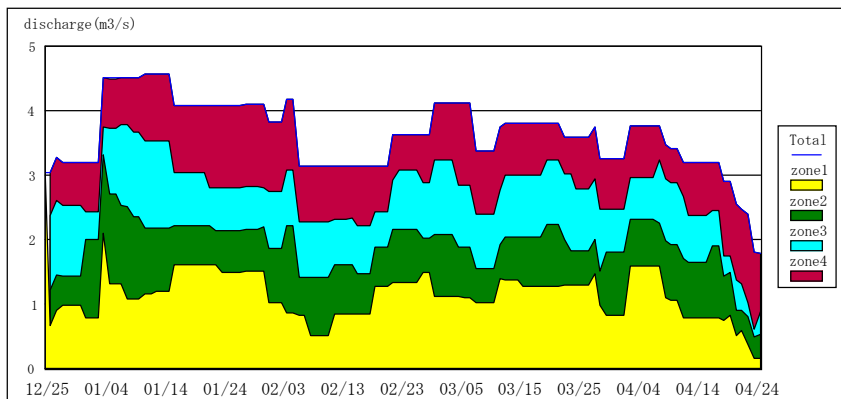
Next step

- Dry season
Rotation irrigation between
tertiary canal
 - Flexible irrigation supply
 - Optimum reservoir operation
to increase of crop intensity
- Water user Association
- Monitoring
measurement
-
- ```
graph LR; A[• Dry season
Rotation irrigation between
tertiary canal] --> B[Water user Association]; C[• Flexible irrigation supply] --> B; C --> D[Monitoring
measurement]; E[• Optimum reservoir operation
to increase of crop intensity] --> D;
```

# Huay Luang



Irrigation efficiency of the rainy season is higher than one of the dry season  
Water distribution is well controlled in each zone.



# Irrigation Plan

|                                | NH                                  | HL                                                                                        | KP                           | GC              |
|--------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------|------------------------------|-----------------|
| Seasonal Irrigation Plan       | November (dry)<br>None (wet)        | December (dry)<br>June (wet)                                                              | November                     | December<br>May |
| Functions                      | <u>Crop area</u><br><u>Rotation</u> | <u>Crop</u><br><u>Irrigated area</u><br>Delivery schedule<br>Discharge (main,<br>Lateral) | Area<br>Irrigation times     |                 |
| Estimation                     |                                     | Average rainfall                                                                          |                              |                 |
| Procedure                      | Meeting                             | Registration of farmers<br>Meeting with IWUG                                              | Community<br>PWUC            | Water council   |
| Allocation                     | Non-rotation<br>Concentrated        | Rotated<br><span style="border: 1px solid red; padding: 2px;">Distributed</span>          | Non-rotation<br>Concentrated |                 |
| Water allocated to next season | allocated                           |                                                                                           | allocated                    |                 |
| Concentration                  | Rotated 2 (water shortage year)     |                                                                                           | Concentrated                 |                 |



# Operation

|   |                                                                                                    | Operation                                                       |
|---|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| A | Flow rate control (measurement) at main turnouts                                                   | From upstream to downstream                                     |
| B |                                                                                                    | Several times a day                                             |
| C | Flow rate control (measurement) at key points<br>Water level control (measurement) at main turnout | Several trial (experience)                                      |
| D | Water level control (measurement) at main turnouts                                                 | Several trial                                                   |
| E |                                                                                                    | Rotation between turnouts                                       |
| F |                                                                                                    | Proportional distribution without reflection of changing demand |



7. Technical and managerial aspects

Water requirement  
Monitoring  
Organization

1. Water allocation  
(Seasonal Irrigation plan)

2. Water Distribution  
(Irrigation scheduling)

3. Canal operation

4. Water management  
of tertiary canal

5. Institution

6. Improvement of  
physical structures

Reliability

Flexibility

Equity

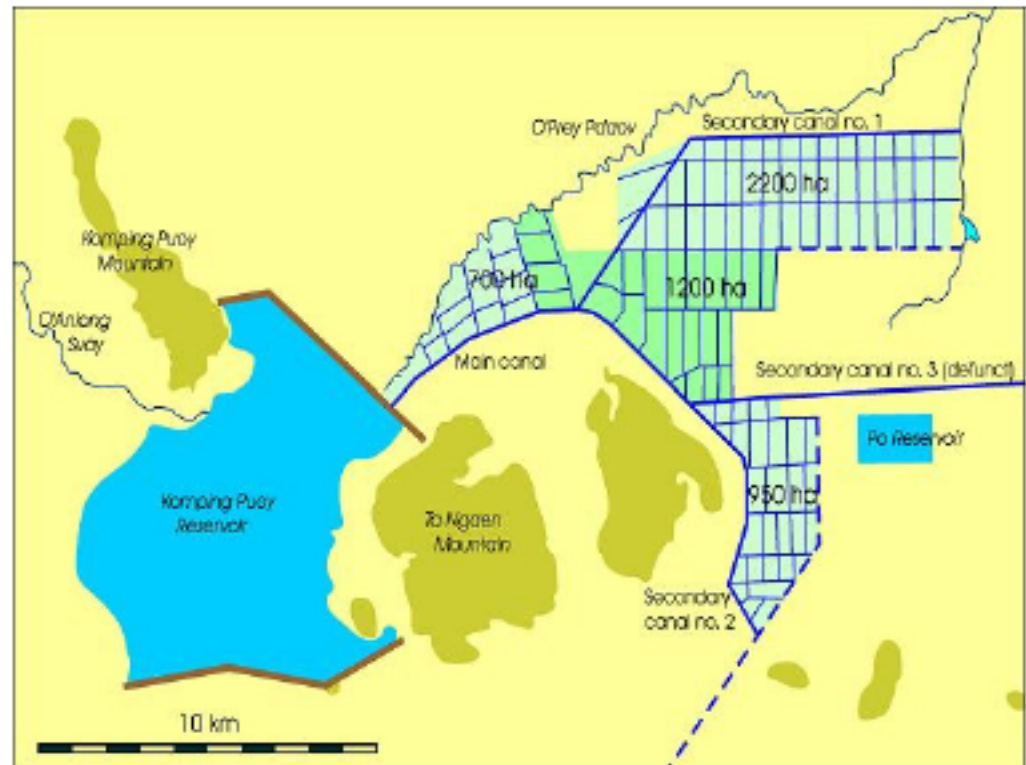


# Next step

- Flow measurements at turnouts
- Feedback to Intake (flexibility)
- Dry season crop area assignment
- Strengthen WUG (tertiary level)

# Komping Puoy

- Water is diverted from adjacent river (Mongkol Borey River)
- The canal will be extended for additional irrigation area
- Ordering system
- On-off irrigation in main canal level



# Irrigation Plan

|                                | NH                                  | HL                                                                                        | KP                           | GC              |
|--------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------|------------------------------|-----------------|
| Seasonal Irrigation Plan       | November (dry)<br>None (wet)        | December (dry)<br>June (wet)                                                              | November<br>None             | December<br>May |
| Functions                      | <u>Crop area</u><br><u>Rotation</u> | <u>Crop</u><br><u>Irrigated area</u><br>Delivery schedule<br>Discharge (main,<br>Lateral) | Area<br>Irrigation times     |                 |
| Estimation                     |                                     | Average rainfall                                                                          |                              |                 |
| Procedure                      | Meeting                             | Registration of farmers<br>Meeting with IWUG                                              | Community<br>PWUC            | Water council   |
| Allocation                     | Non-rotation<br>Concentrated        | Rotated<br>Distributed                                                                    | Non-rotation<br>Concentrated |                 |
| Water allocated to next season | allocated                           |                                                                                           | allocated                    |                 |
| Concentration                  | Rotated 2 (water shortage year)     |                                                                                           | Concentrated                 |                 |

# Operation

|   |                                                                                                    | Operation                                                       |
|---|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| A | Flow rate control (measurement) at main turnouts                                                   | From upstream to downstream                                     |
| B |                                                                                                    | Several times a day                                             |
| C | Flow rate control (measurement) at key points<br>Water level control (measurement) at main turnout | Several trial (experience)                                      |
| D | Water level control (measurement) at main turnouts                                                 | Several trial                                                   |
| E |                                                                                                    | <del>Rotation</del> between turnouts                            |
| F |                                                                                                    | Proportional distribution without reflection of changing demand |



7. Technical and managerial aspects

Water requirement  
Monitoring  
Organization

1. Water allocation  
(Seasonal Irrigation plan)

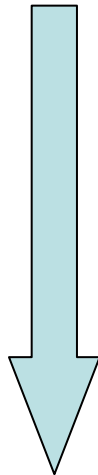
2. Water Distribution  
(Irrigation scheduling)

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of tertiary canal

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physical structures



Reliability

Flexibility

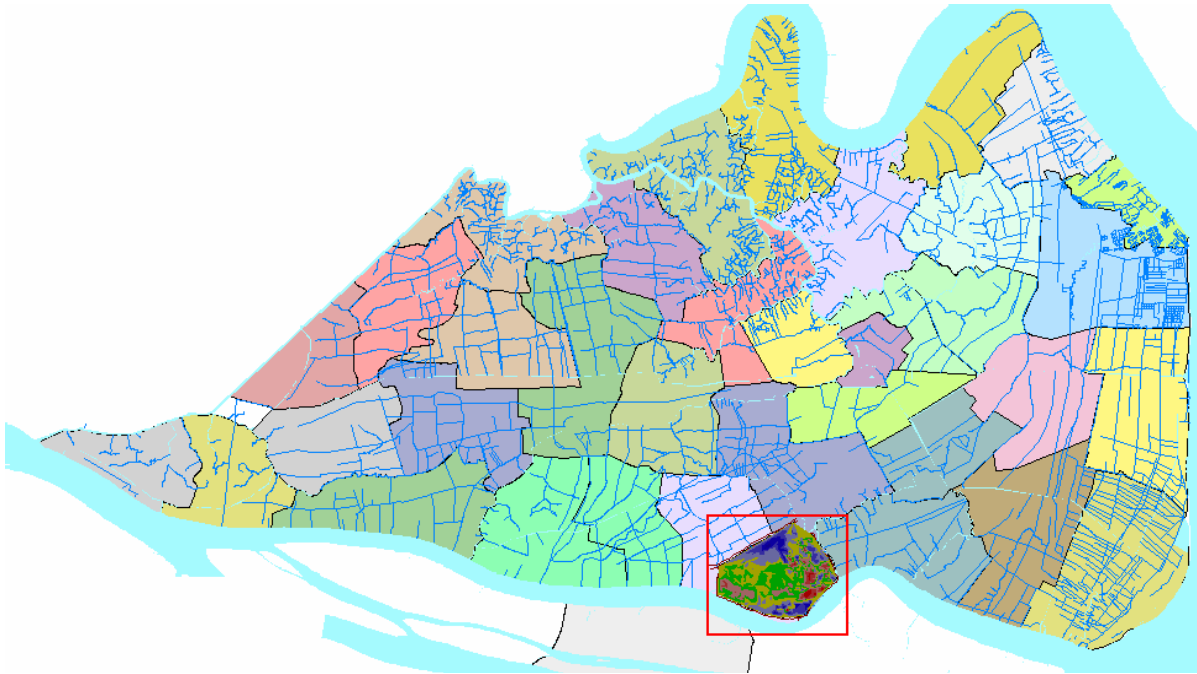
Equity

# Next step

- Monitoring of reservoirs
- Measurements of flow rate at turnout to tertiary canal
- Training of WUG leader (tertiary canal)
- Optimum reservoir operation



# Gocong



Tidal irrigation area  
3 crops a year

# Irrigation Plan

|                                | NH                                  | HL                                                                                        | KP                           | GC              |
|--------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------|------------------------------|-----------------|
| Seasonal Irrigation Plan       | November (dry)<br>None (wet)        | December (dry)<br>June (wet)                                                              | November<br>None             | December<br>May |
| Functions                      | <u>Crop area</u><br><u>Rotation</u> | <u>Crop</u><br><u>Irrigated area</u><br>Delivery schedule<br>Discharge (main,<br>Lateral) | Area<br>Irrigation times     |                 |
| Estimation                     |                                     | Average rainfall                                                                          |                              |                 |
| Procedure                      | Meeting                             | Registration of farmers<br>Meeting with IWUG                                              | Community<br>PWUC            | Water council   |
| Allocation                     | Non-rotation<br>Concentrated        | Rotated<br>Distributed                                                                    | Non-rotation<br>Concentrated |                 |
| Water allocated to next season | allocated                           |                                                                                           | allocated                    |                 |
| Concentration                  | Rotated 2 (water shortage year)     |                                                                                           | Concentrated                 |                 |

7. Technical and managerial aspects  
Water requirement  
Monitoring  
Organization

1. Water allocation  
(Seasonal Irrigation plan)

2. Water Distribution  
(Irrigation scheduling)

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4. Water management  
of tertiary canal

5. Institution

6. Improvement of  
physical structures



Reliability



Flexibility

Equity

## Next step (GoCong)

- Institutional issues
  - Quality control to reduce flush water  
water right (master plan)
- Water balance analysis