



Irrigation Practices and Their Impact to the Environment under Local Water Management

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**RIHN “Designing Local Frameworks for Integrated Water
Resources Management” Project Workshop**

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Irrigation practices and their impact to the environment under local water management

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Targets :

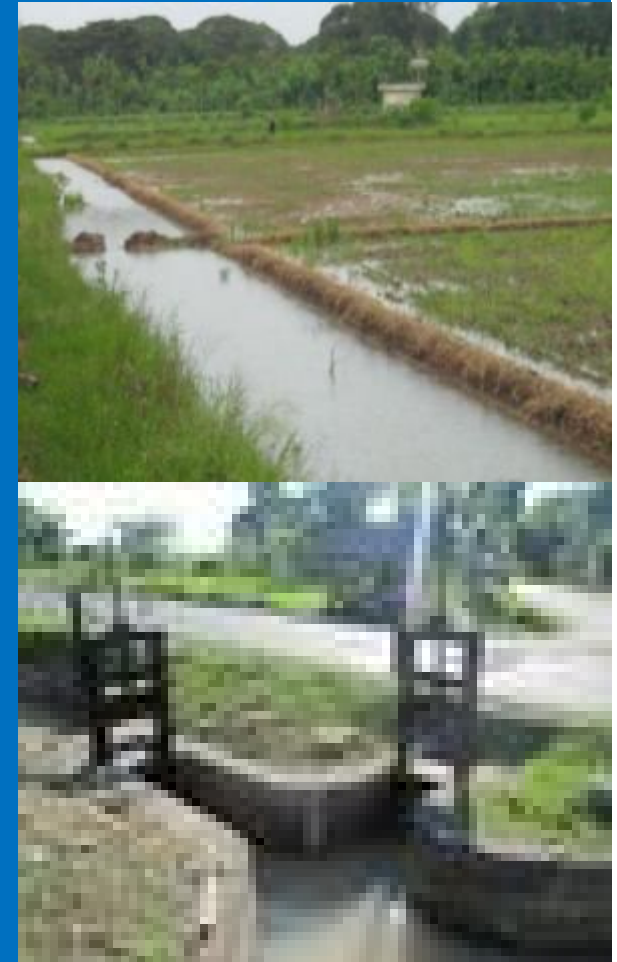
1. Understanding the current irrigation practices, the use of agricultural inputs (fertilizer, chemicals), the use of surface and groundwater.
2. Develop models of water balance and water quality of each research location.
3. Assessing possible improvement in irrigation practices to reduce impact to the environment

Methods:

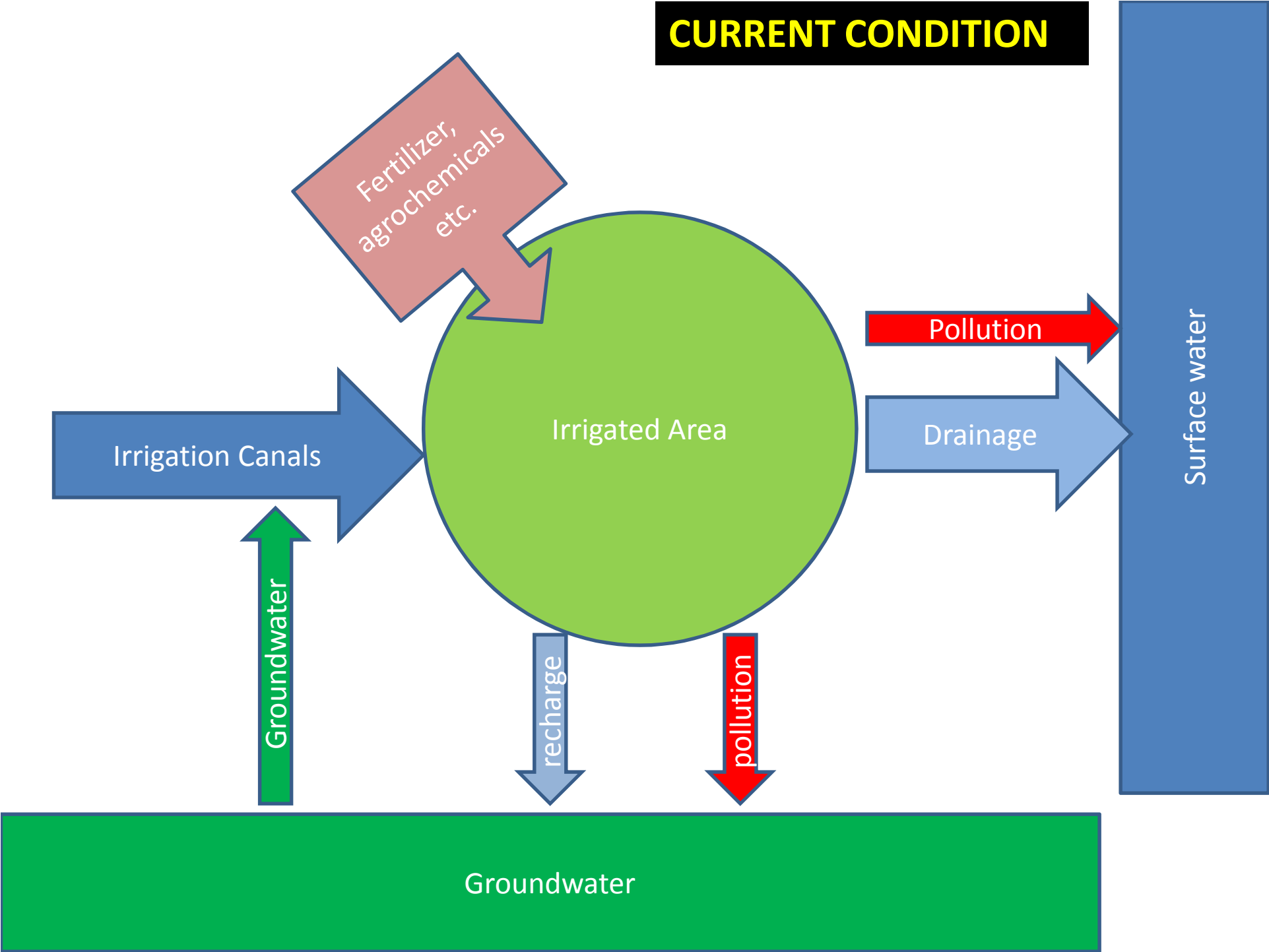
1. Continuous monitoring of weather variables, water quantity and quality in the irrigation system.
2. Observing irrigation practices, the use of fertilizers and chemicals, the use of surface and groundwater for irrigation.
3. Computer modelling for estimation and simulation of water balance and water quality

#1 Understanding of irrigation practices under local water management

- Irrigation infrastructures
- Irrigation practices and water management
- The use of fertilizers and agrochemicals
- The use of groundwater



CURRENT CONDITION



Paddy Field Impact to The Environment

Positive

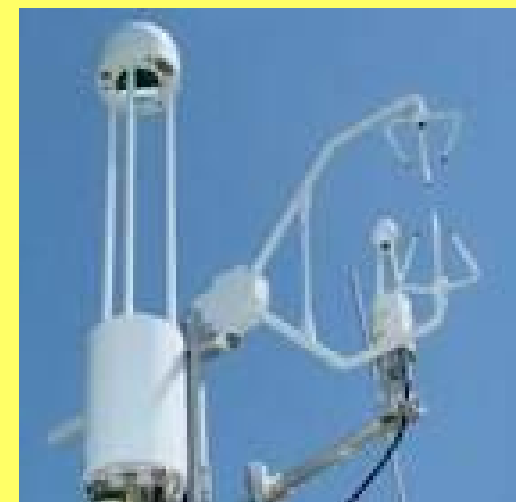
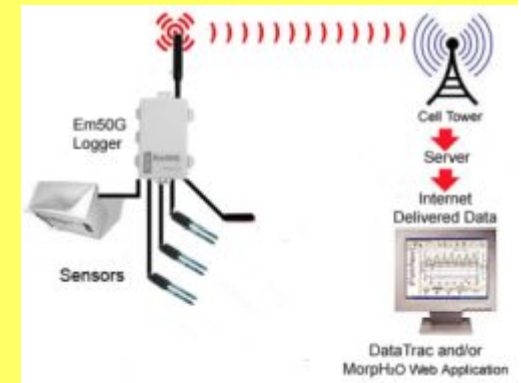
- **Conserves wetland and aquatic environment**
- **Water Buffer**
- **Thermal buffer**
- **Groundwater recharge**

Negative

- **Drawn much water**
- **Soil degradation**
- **Surface water pollution**
- **Groundwater pollution**

Measurement

- Continuous monitoring of weather variables, soil moisture, water quantity and water quality.
- Soil and water sampling for lab. analysis.
- Temporal observation of other parameters whenever possible (surface fluxes, GHG emission etc.)
- Remote monitoring system is preferable



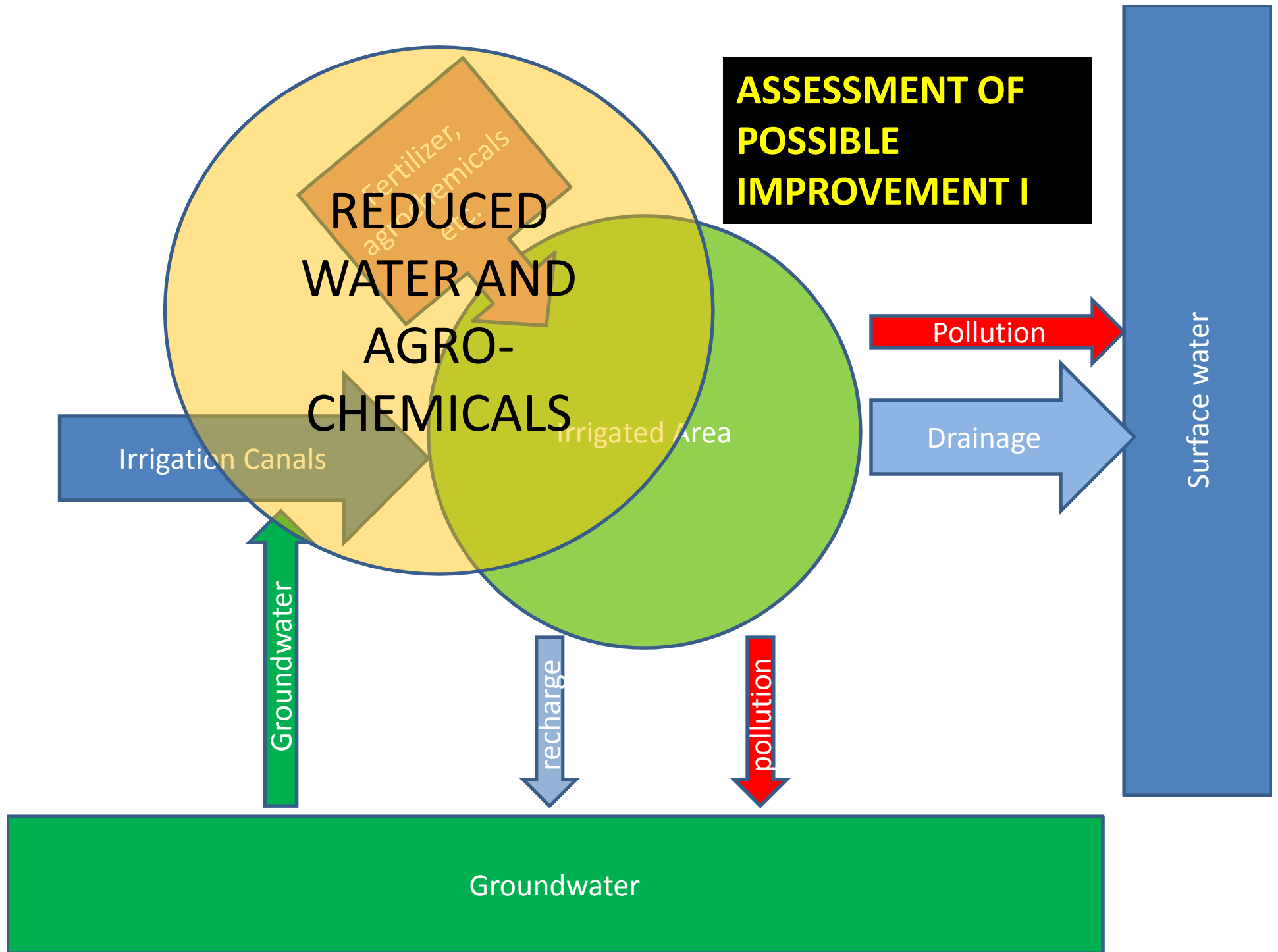
#2 Modelling

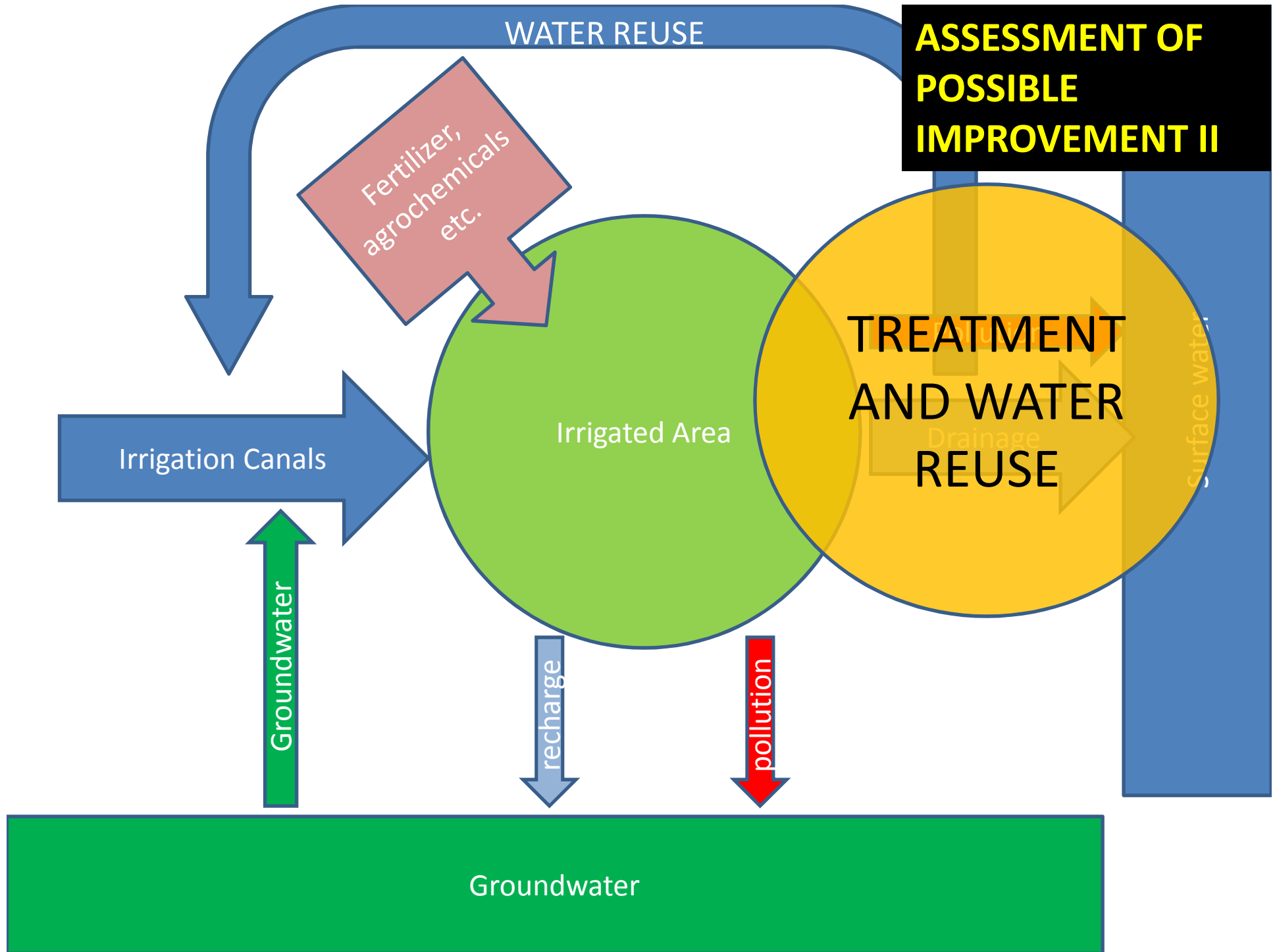
Models will be developed or modified from the availables for estimation and simulation, examples are :

- Water balance model.
- Soil water flow, groundwater flow and solute transport model.
- Nitrogen balance model.

#3 Assessment of possible improvement

- Reducing water use for irrigation
- Reducing fertilizers and agrochemicals regarding the reduce of water
- Optimization use of groundwater
- Treatment of drainage water and reuse





Remarks

The research will take part at the on-farm and local scale, following the framework of hydrological evaluation out of the three frameworks in the project's research strategy.

Examining environment (soil and water use, hydrology) part in water management.

Focusing on the improvement of irrigation practices to save water and reduce impact to the environment and hydro-geological system with extensive use of hydrological and regional meteorology information.

Greetings from home...

Dear all,

It is a great pleasure to have invitation from RIHN to contribute to the workshop. Unfortunately a kind of virus had infected me and made me suffered from hepatitis, and forced me to total bedrest for a while. Although I am feeling well now, my doctor forbids me to travel until I am fully recovered. Therefore I apologize for not being able to join the workshop, especially to Prof. Watanabe and the Projects Staffs who had given efforts to prepare this workshop. I wish for a successful workshop and collaboration in The projects.

With best regards,
“Dody” Saptomo



You can expect an older looking of me than this photograph ...

CV

- Name : Satyanto Krido Saptomo
- Education :
 - 1995 Agricultural Engineering IPB (Bachelor)
 - 1999 Agricultural Engineering IPB (Master)
 - 2004 Irrigation and Water Utilization, Grad School of Bioresource and Bioenvironment Sciences, Kyushu university
 - 2006-2008 JSPS Post-doctoral fellows at Kyushu University
- Affiliation: Lecturer (Assistant Prof.), Dept. Of Civil and Environmental Eng., IPB.
- Others : please visit <http://saptomo.bioenvi.net> or <http://saptomo.staff.ipb.ac.id>



 **BENDUNG : KAMPILI**
MENGAIRI : 10.548 ha
DIREHABILITASI : Th.2004

THANK YOU VERY MUCH

