



ViWaT-ENGINEERING



GROUNDWATER AND SURFACE WATER DYNAMICS

GROUNDWATER

SURFACE WATER

Groundwater screening

- Temporal and spatial patterns of water quality
- Water recharge and origin
- Hydrological well investigations

Groundwater sampling locations

Isotope analysis

Groundwater wells in Camau

Surface water screening

- Water availability and quality by field investigations
- Spatial water quality by remote sensing techniques
- Develop tests for fecal bacteria

Surface water sampling locations

Measurement on rivers

BIOFISH measurement

Parameters

- Organic and inorganic pollutants
- Salinization and isotopic signature
- Anthropogenic pollution, germs, xenobiotics and algae

Modeling

Development and elaboration of a hydrogeological groundwater model

Groundwater modeling

Implementations

- In-situ and online multi-sensor monitoring stations for surface water and groundwater wells
- Radar reflector field
- Land subsidence observation wells

Modeling

Modeling of water balance to estimate water availability

In-outflow channel

Irrigation

Interaction GWchannel

Evaporation

Precipitation

Interaction GWsoil

Shrimp farm

Channel

Rice

Shallow aquifer

Deep aquifer

Land subsidence

Satellite-based spatial observation

Stationary observation

Mounted radar corner reflector

NGI land subsidence observation well

AIMS

- Identification of alternative water resources and development of sustainable utilization concepts
- Identification of areas with the most urgent need for ground water substitution
- Improvement of water quality monitoring and forecast technologies in Vietnam

Utilization concepts

Measures for treatment of water from different resources

Current rain water storage tank

Small water supplier

Social Acceptance

Group interviews

Questionnaire (4 sections)

- General information
- Groundwater well information
- People habit of water use
- Awareness of the impact of groundwater extraction

Questionnaires are conducted in all districts of Camau provinces

Questionnaires in Camau

Group interview with local family

Data Management

Develop a software prototype with interfaces for all project partners and stakeholders

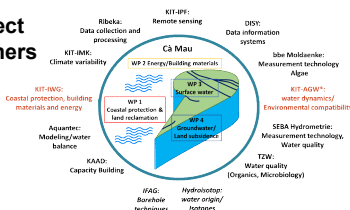
Examples of data management software from Ribeka and Disy

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Project partners



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