



Impacts of Saltwater Upconing on Fresh Groundwater Resources in Sisaket Province, Thailand



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OUTLINES .



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INTRODUCTION

02

METHODOLOGY

03

RESULTS AND DISCUSSION

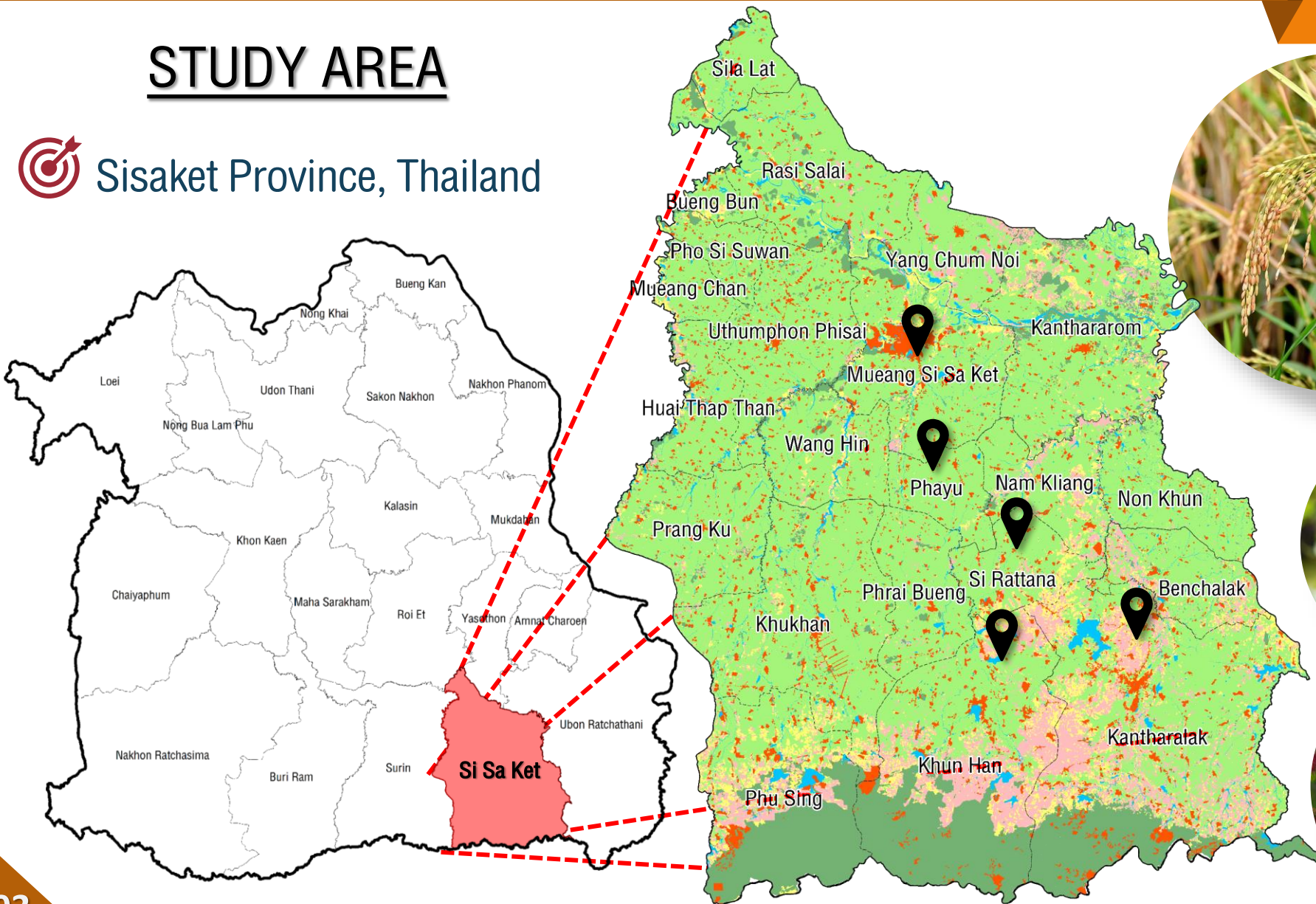
04

CONCLUSIONS



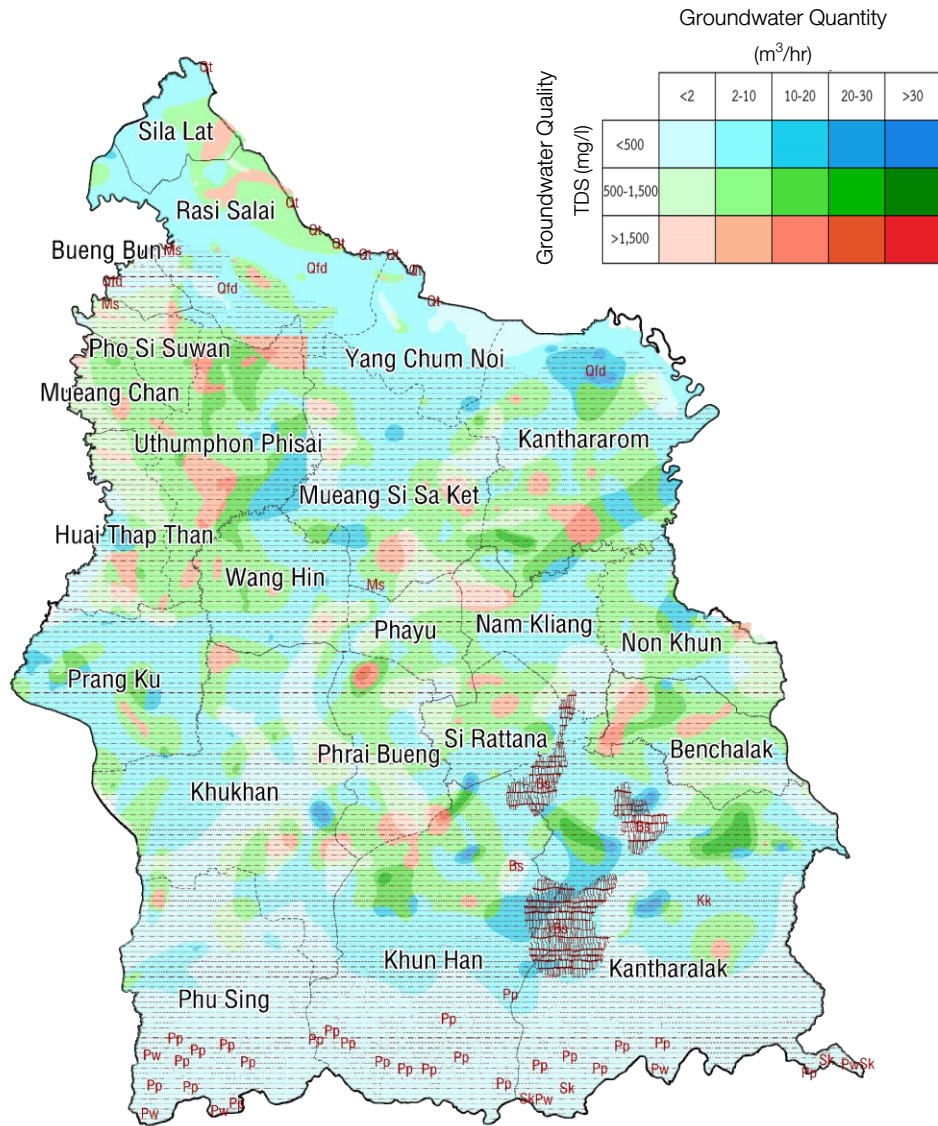
STUDY AREA

 Sisaket Province, Thailand

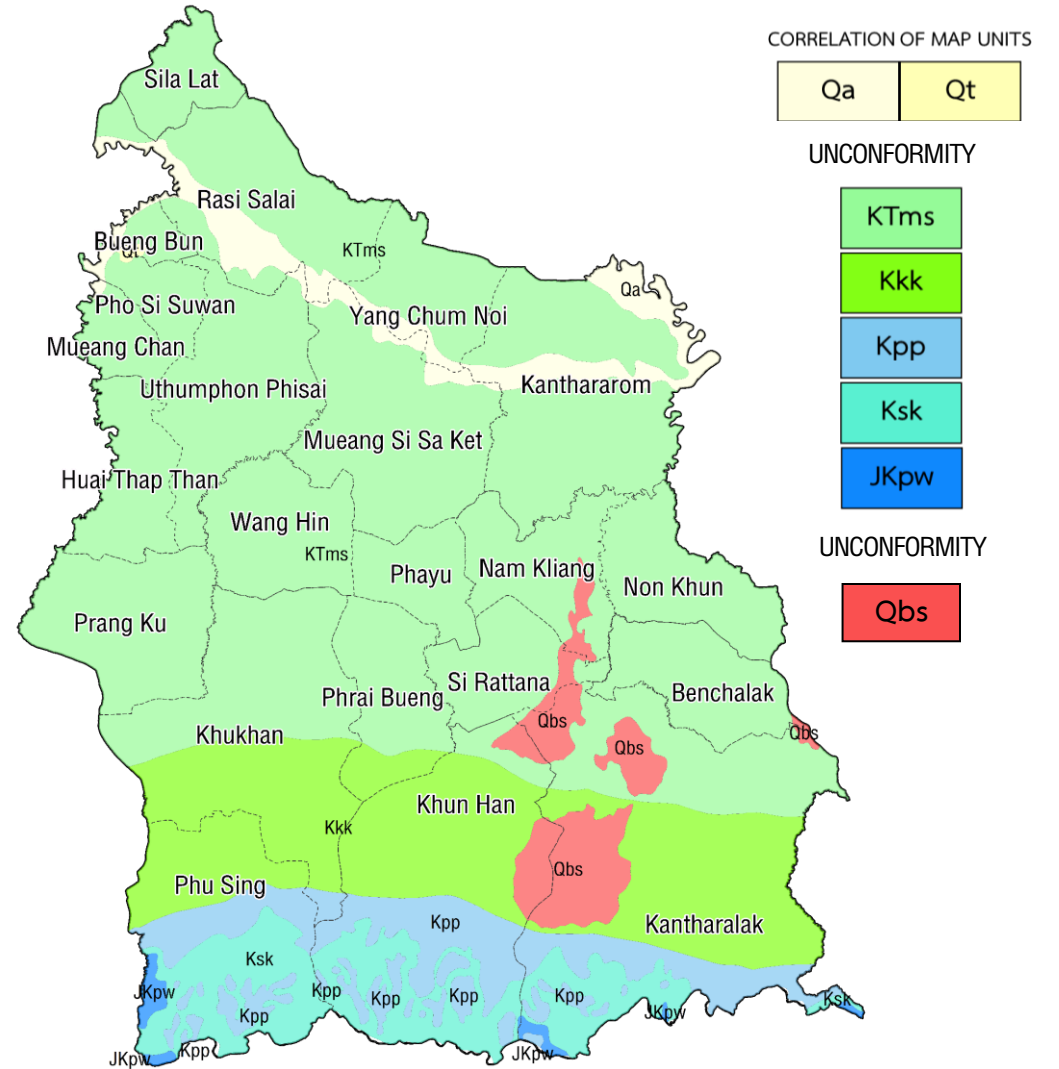




01 INTRODUCTION

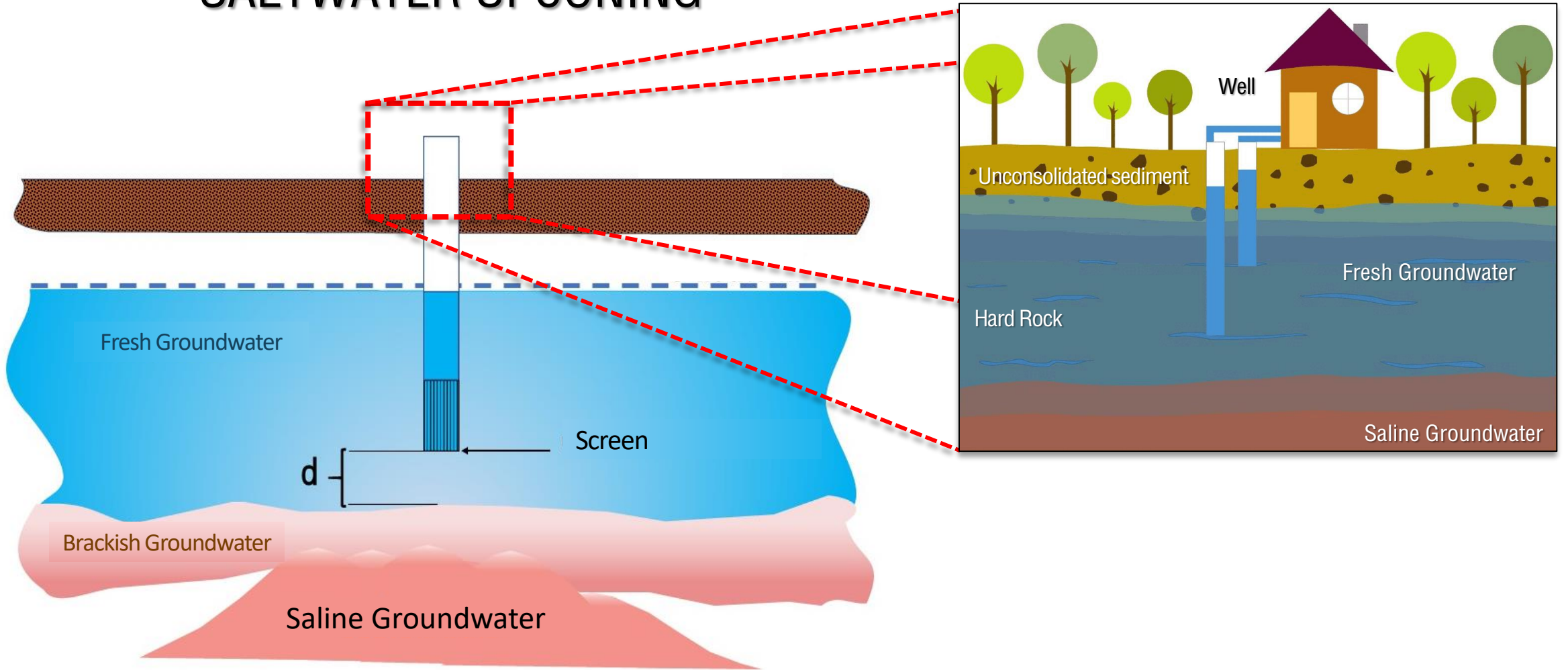


GROUNDWATER MAP



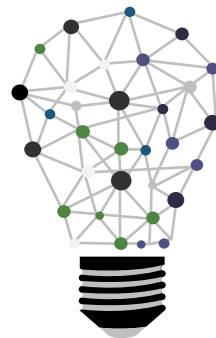
GEOLOGIC MAP

SALTWATER UPCONING



OBJECTIVES

To investigate the saltwater upconing related factors and effects of changing in shallow groundwater quality to defining measures of guidelines for groundwater development and conservation





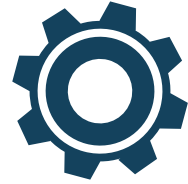
DATA
ACQUISITION



PROCESSING



DEFINING
MEASURES AND GUIDELINES



DATA ACQUISITION



GROUNDWATER
QUALITY



GROUNDWATER USE

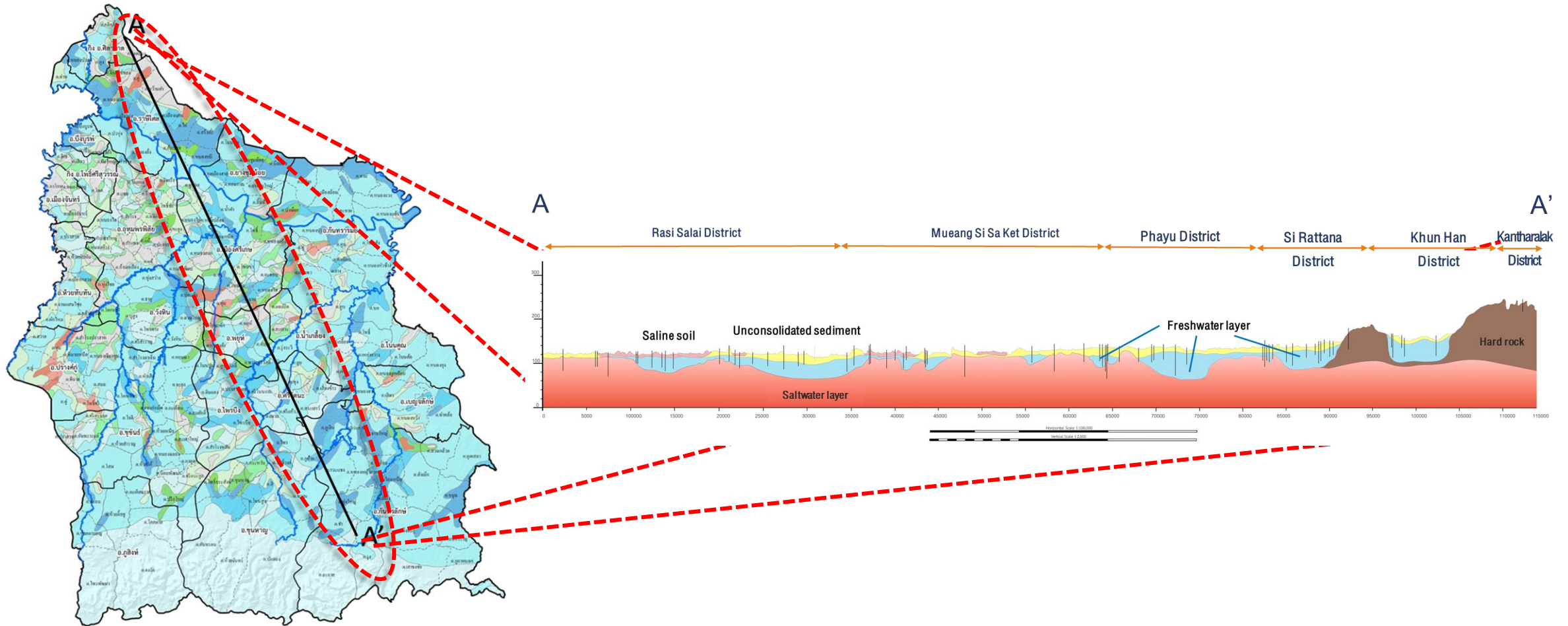


HYDROGEOLOGICAL
CHARACTERISTICS



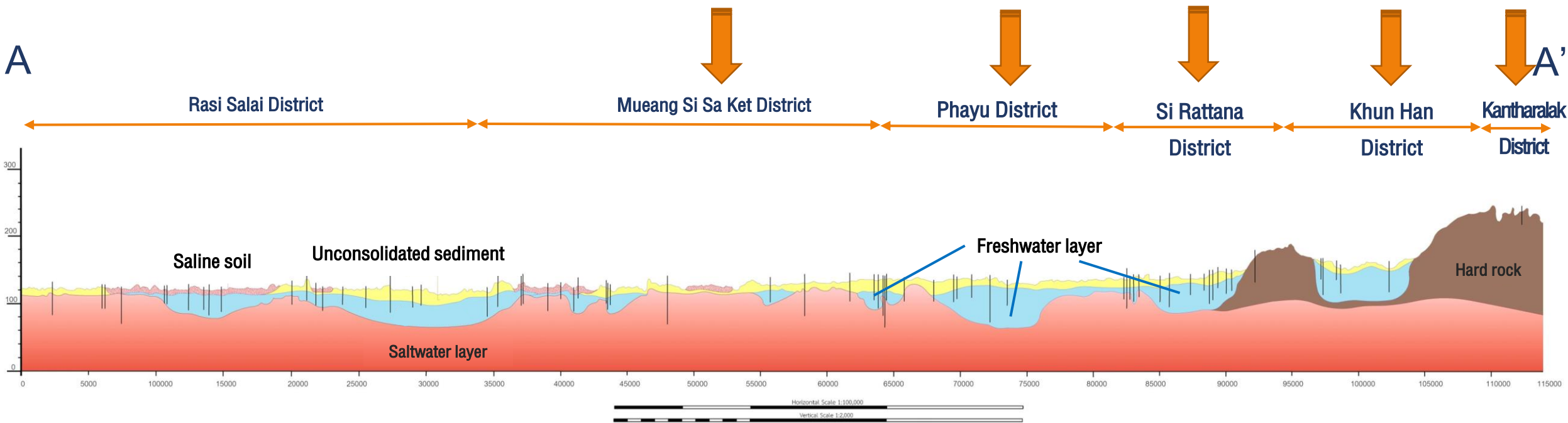


HYDROGEOLOGICAL CROSS-SECTION

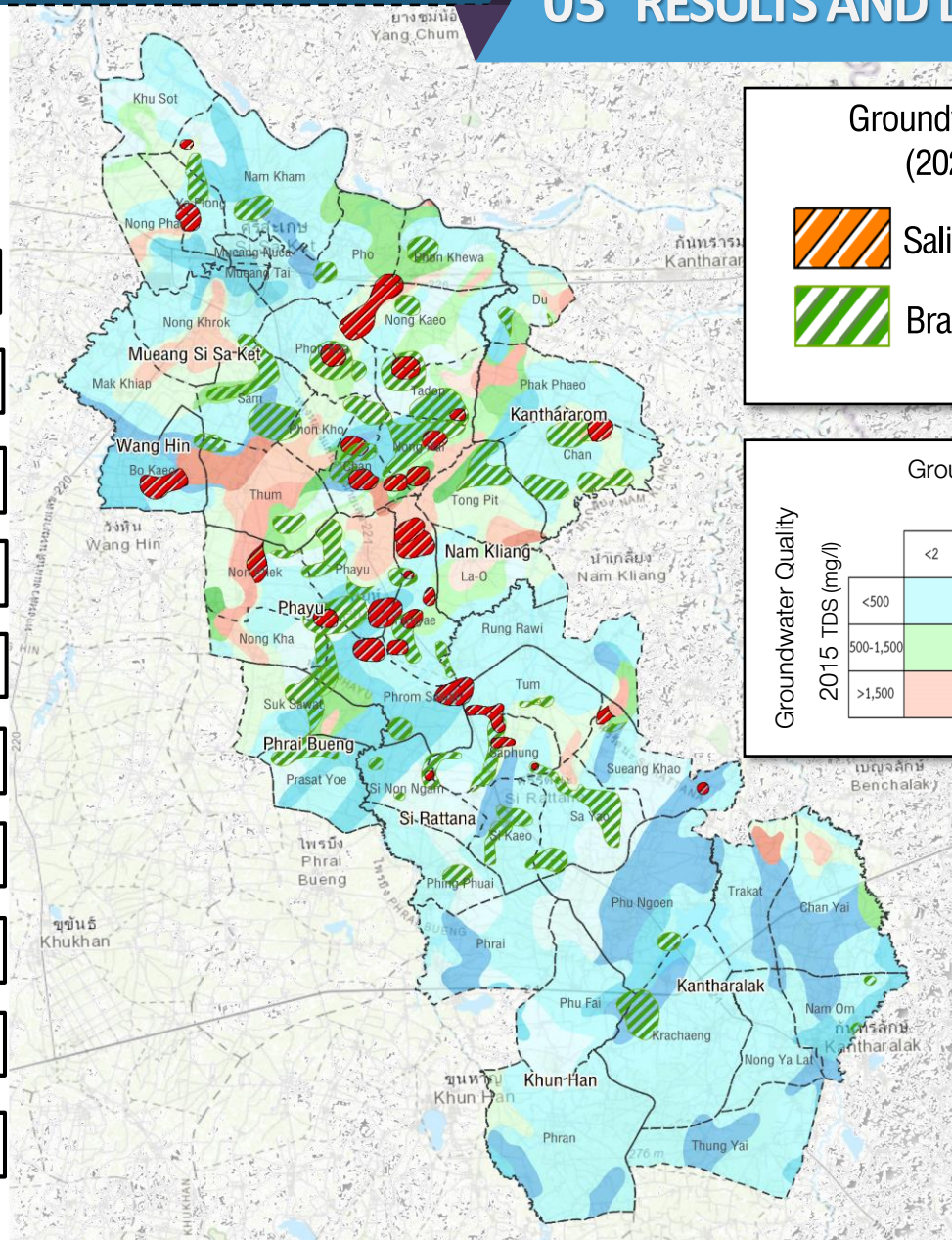
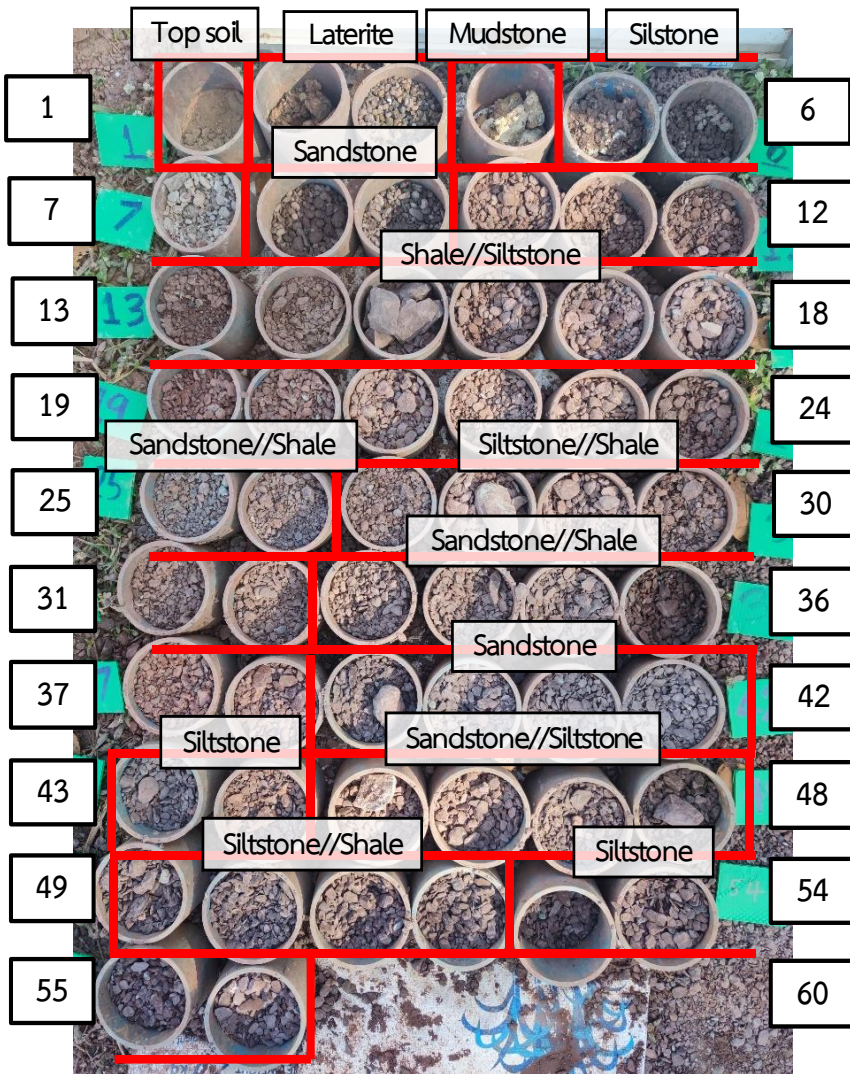




HYDROGEOLOGICAL CROSS-SECTION



The brackish-saltwater area has increased by **12.21%**





CONCLUSIONS

Based on spatial analysis, the freshwater area has decreased whereas the brackish-saltwater area has increased by 12.21% of the total area

The factors involved in saltwater upconing :

- The interface depth between freshwater layer and brackish-saltwater layer
- Drilling and development of groundwater deeper than the freshwater layer
- The excessive pumping per day.
- The distance between the wells is less than 50 m which may cause overlapping of cone of depression
- The amount of latent water pumping that does not included in database



CONCLUSIONS

Defining measures of guidelines for groundwater development and conservation:

- Not permitted to drilling and using groundwater in saline soil areas and in the depth of brackish-saltwater layer
- Controlling the depth of well development and construction
- Limiting the volume and duration of groundwater pumping per day

A clear glass is being filled with water, with a stream of water pouring from the top. The background is a soft-focus green and blue. A semi-transparent dark circle with a dashed border is centered over the glass, containing the text 'Thank you'. There are decorative double-line graphics in the top right and bottom left corners.

Thank you