

Improvement of the Saline Land by Application of Solar Pumping System for Controlling Groundwater Level

Koji TAMAKI*, Makoto ANASE**, Fusakazu AI*, Shuichi SUGI***,
Kiyoshi TAJIMA*, Junya TATSUNO*, Pimta Wong Korakot**** and Yohei HASHIMOTO*

*Faculty of Regional Environment Science, Tokyo University of Agriculture

**Nodai Research Institute, Tokyo University of Agriculture

***Faculty of Agriculture, Natural Resource and Environment, Naresuan University, Thailand

****Graduate school, Tokyo University of Agriculture

Summary

Northeast Thailand has been recognized as one of countries severely suffering from the soil salinity problem in the world. In fact, approximate 60% of area of Northeast region is estimated as salinized or hazardous area of salinization before long. It is clear that salinization occurring in Northeast Thailand affects adversely agricultural productivity in this region. However, it is as urgent issue to improve saline problem for creating proper environment of agricultural production in Northeast Thailand because GDP of Thailand depends on agricultural production in approximately 80% of all.

In this study, we applied the solar-pumping system and subsurface drainage system for improvement on the saline land in Northeast Thailand. The combination of these two elements was assumed to be effective to lower the groundwater level and this system prevented salt-accumulation from ground surface. As result of experiment, this study indicates that an application of the solar-pumping system and subsurface drainage system has potential as an improvement method of soil or groundwater Salinity in northeast Thailand. Under the field of application of the solar-pumping system and subsurface drainage system, electrical conductivity of groundwater (ECe) was readily changeable especially in precipitation term. This experimental result implies the possibility that the solar-pumping system and subsurface drainage system may have a leaching effect of Salinity.