Japan-ASEAN Science, Technology and Innovation Platform (JASTIP)
Report of JASTIP-Net Activity

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<table>
<tr><td rowspan="5">1. Research partner</td><td colspan="3">Affiliated Organization</td></tr>
<tr><td>Name</td><td colspan="2">Takashi Kume</td></tr>
<tr><td>Affiliation</td><td colspan="2">Graduate school of Agriculture, Ehime University</td></tr>
<tr><td>Position</td><td>Associate Professor</td><td></td></tr>
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<tr><td>2. Collaborative research</td><td>Collaborative research theme</td><td colspan="2">Headquarters
■ To Develop Operational Linkages and Human Resources among Academic Sector, Government Agencies, and Private Sectors in ASEAN countries and Japan.
☐ To Introduce Various STI Collaborations for Effectively and Efficiently into the Society based on the three joint laboratories' activities.

Energy & Environment Joint Lab
☐ Studies on Rural/Community Renewable Energy.
☐ Development of Renewable Energy Technology adapted to the ASEAN region.
☐ Studies on Energy Policy/Security in the ASEAN region.

Bioresources & Biodiversity Lab
☐ Studies on Biodiversity in the ASEAN Region Contributing to the</td></tr>
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		Improvement of Identification, Collection and/or Information. ☐ Sustainable Utilization of Bioresources for Biorefinery, Bioremediation, Wood Construction, Food or Medicine. ☐ Plant Improvement for Agroforestry Systems and Carbon Sequestration Contributing to the Mitigation of and/or Adaptation to Climate Change. **Disaster Prevention Joint Lab** ☐ Innovative Ideas on Disaster Prevention, Mitigation and Recovery Technologies and Policies Peculiar to Each ASEAN Country. ☐ How to Cope with Trans-Boundary Disasters in the ASEAN Region Such as Tsunami, Flood, Drought and Haze. ☐ Understanding and Quantitative Evaluation of Disaster Risks Peculiar to ASEAN Countries.
	Collaborative research title	Building transdisciplinary network and controlling uncertainty of societal implementation of scientific technology toward achievement of SDGs
	Host core-researcher	Dr. Chuleemas B. Iwai Department of Agriculture, Khon Kaen University, Thailand

3. Members

Name	Fumikazu Ubukata		
Affiliation	Okayama University	Position	Professor
Name	Tetsuya Shimamura		
Affiliation	Ehime University	Position	Associate Professor
Name	Chuleemas B. Iwai		
Affiliation	Khon Kane University	Position	Associate Professor

4. Report of activities

Research purposes of fiscal year 2017 are 1) to enhance collaborative activities among collaborators for building transdisciplinary network, 2) to understand farmers' history and current status, and 3) to develop new conceptual model of salt management system which may enhance resilience of farmers to various economic shock. Collaborative action among diverse stakeholders and societal implementation of engineering technology are indispensable to achieve Sustainable Development Goals (SDGs). Research members visited Thailand from 5th to 13th of September, 2017. We visited head quarter office of LDD (Land Development Department) in Bangkok and three villages in Khon Kaen Province.

In this research, we set soil salinization problem in Kohn Kaen, Thailand as specific environmental issue, and we try to find technical and social solution of the problem and building transdisciplinary network which is consisted from stakeholders such as local farmers, governmental officers and researchers and so on (as

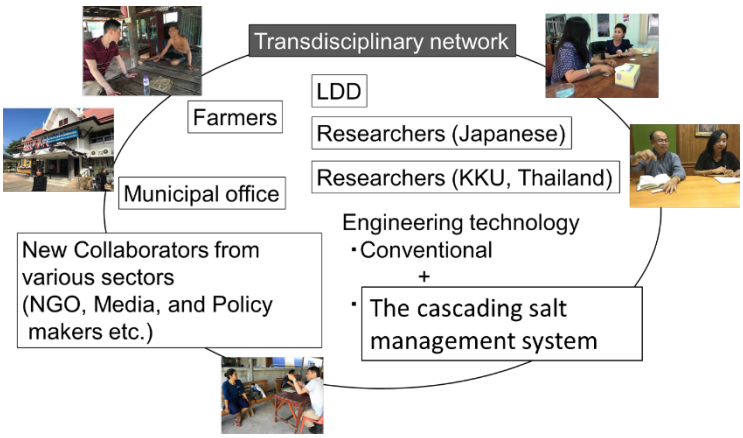

Fig. 1 Transdisciplinary network and engineering technology

shown in Fig.1).

We discussed about soil salinization problem in the office of LDD and we set research fields in Khon Kaen province. LDD provided us information on soil data which can be utilized for evaluation of soil salinization in the province. One of the most important purposes of our discussion is implementation of installing new engineering technology for desalinization, in other words to manage regional soil salinization problem, which is combining conventional engineering technology and local environmental knowledge. We reviewed papers, posters and presentations together, and finally we developed conceptual model of the cascading salt management system in agricultural fields as shown in Fig.2.

Basic idea of the model is using natural hydrological system in research fields and increasing concentration of salt from up-stream to down-stream. Water of low salt concentration is utilized for irrigation water of paddy in upper stream and high salt concentration water is utilized for salt production by traditional way of farmers. The cascading system may need less construction fee and easy to manage canals.

We conducted interview surveys (Photo 1) at several villages in the province. We found that farmers' recognitions, perceptions and stances about soil salinization are totally different from farmer to farmer. Some farmers recognize soil salinization as big problem however some don't think so. We found that farmers who doesn't recognize soil salinization as big problem have other optional works to increase their income and some abandoned their salinized fields. This may be said that resilience of those farmers to soil salinization is high and their income may be recovered even if something negative environmental – societal invents happen because their thought seems to be flexible and they may transform their job and life style without any difficulties.

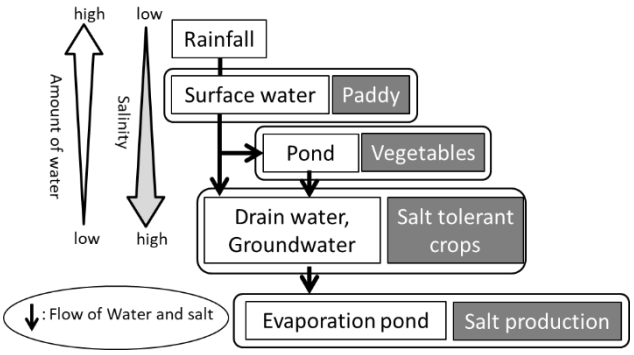

Fig. 2 The cascading salt management system

Photo 1 Interview survey in Khon Kaen

Our next step is to tighten relationship between stakeholders and

enhance transdisciplinary network. Implementation of installing the cascading salt management system may enhance resilience of farmers to various economic shocks, and it may also promote achievement of SDGs in terms of soil and water management.

5. List of publications

No publications are issued.

6. List of oral presentations

Takashi Kume, Building Transdisciplinary Network and Controlling Uncertainty of Societal Implementation of Scientific Technology toward Achievement of SDGs, The 3rd JASTIP Symposium -ASEAN-JAPAN STI Collaboration for SDGs-, Feb., 2017, Bangkok