KNOWLEDGE MANAGEMENT PROGRAM ON USING SPATIAL DROUGHT RISK INDEX TO IMPROVE WATER ALLOCATION AND RICE CULTIVATION EFFICIENCY

Petjaraj Techakriangkaikul*[1], Khruewan Champangern[1], Yootthapoom Potiracha[1],
Chitnucha Buddhaboon[2] and Varit Kitthanarut[3]
[1]Geo-Informatics and Space Technology Development Agency,
88 Moo 9, Thung Sukala, Siracha, Chonburi 20230, Thailand
Email: petjaraj@gistda.or.th, khruewan@gistda.or.th and ypoti@gistda.or.th

[2]Rice Department (RD),
2177, Phaholyothin Road, Ladyao, Chatuchak, Bangkok, 10900, Thailand
Email: chitnucha.b@rice.mail.go.th

[3]Buriram Rajabhat University (BRU),
439, Jira Road, Naimuang, Muang, Buriram 31000, Thailand
Email: warit.kn@bru.ac.th

KEY WORDS: Knowledge management, Spatial drought risk index, Water allocation, Rice cultivation

ABSTRACT: Knowledge management program on using spatial drought risk index to improve water allocation and rice cultivation efficiency has been developed to educate farmers and local authorities in the Nong Don Subdistrict, Lam Plai Mat District, Buriram Province, one of Thailand's highest-quality rice cultivation areas, to utilize satellite images for drought monitoring. The program begins with development of spatial drought risk index platform which generates drought-prone areas to support rice cultivation and water allocation planning.

(a) (b)

Figure 1. Spatial Drought Risk Index Platform

Following the launch of the platform, the first training session for students and faculty from Buriram Rajabhat University, a local educational institution, was held. This training for trainers aims to equip students and faculty to act as local technology transferors, passing on knowledge and information to a focused group of Jasmine Rice farmers through the second training session, "training for the farmers".

(a) (b) (c)

Figure 2. Training for Trainers at Buriram Rajabhat University, Buri Ram, Thailand

This training provides the farmers knowledge and understanding the use of the platform to support drought management and mitigation in their areas. After participating in the training and using the platform for a period of time, the targeted group was followed up with and monitored to determine the effectiveness and usability of the platform. The process consists of an interview and a questionnaire that allows the targeted group to provide comments and suggestions on individuals.

(a) (b) (c)

Figure 3. Training for The Farmers
at Supasiri-Farm, Nong Don Subdistrict, Lam Plai Mat District, Buriram Province, Thailand

The outcomes showed that every training session offered by the program and the platform provides satisfaction and helpful knowledge to the focused group which support good decision-making for water allocation and drought prevention. Moreover, the focused group also shared the expertise with farmers in other surrounding areas, which counts as local knowledge transfer into wider local community, so that it may be used to improve the focused group's everyday operations on the farm. The focused group also suggested adding more features for the platform's future development, such as showing the best times to apply fertilizer, transplant rice seedlings, and sow, as well as the current and predicted costs of fertilizers, pesticides, and harvesting. Additionally, it is necessary to expand knowledge management programs, particularly agriculture technology in modern farming, to enable farmers to apply knowledge to their social and living circumstances, resulting in the creation of sustainable income and the long-term economic growth of a community.

(a) (b) (c)

Figure 4. Workshop on “Lessons Learned for Knowledge Management Program on Using Spatial Drought Risk Index to Improve Water Allocation and Rice Cultivation Efficiency”. at Supasiri-Farm, Nong Don Subdistrict, Lam Plai Mat District, Buriram Province, Thailand