International Journal of Agricultural Technology 2017 Vol. 13(5): 603-611
Available online http://www.ijat-aatsea.com
ISSN 1686-9141

Participatory Knowledge Management Process of Agricultural Officers of Local Administrative Organizations and Rice Farmer Groups in Tak

Chalida Tooksoon*

Department of Agricultural Extension and Rural Development, Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200 Thailand.

Chalida Tooksoon (2017). Participatory Knowledge Management Process of Agricultural Officers of Local Administrative Organizations and Rice Farmer Groups. International Journal of Agricultural Technology 13(5): 603-611.

The purpose of this study was to develop a participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups and other agencies through the participatory action research (PAR). The sample consisted of two groups i.e. five agricultural officers of local administrative organizations and 42 rice farmer group members from five sub-districts. Data were collected using the mixed methods including literature review, observation, interview, field trip, and group meeting. Data were analyzed through descriptive analysis and content analysis. The study found that the participatory knowledge management process has 8 steps including 1) analysis of problem of rice farmer groups and solution 2) determination of knowledge needed to solve the problems of rice growing 3) exploring the potentials and limitations in agricultural extension of agricultural officers of local administrative organizations and the potentials of rice farmer groups 4) planning and specifying the activity of participatory knowledge management 5) knowledge exchange among agricultural officers of local administrative organizations and rice farmer groups 6) creating knowledge in solving rice growing problems 7) application of knowledge in solving rice growing problems and assessment and 8) storing the knowledge. The important outcome found to be reached the five rice farmer groups in each sub-district that have been trained for conducting a research. They participated as researchers and there were agricultural officers of local administrative organizations in each sub-district to joint the learning for the entire research activity, so that rice farmer groups could solve the problem of growing rice from the practical implementation.

Keywords: participatory knowledge management process, agricultural officers of local administrative organizations, rice farmer groups

Introduction

To develop the society using the knowledge to improve professions that are fundamental to life, which further leads to human development, community

*Coressponding Author: Chalida Tooksoon; **E-mail:** srikeaw2012@gmail.com

development, and eventually, country development, many communities adopted the concept of knowledge management and used it to drive the community with community member participation. It has, so far, been acceptable that communities have been able to generate more revenue and create jobs for community members. It was found that communities employed the knowledge management to create community products, community planning, and problem solving within community (Pumduang *et al.*, 2013). After reviewing related studies especially one on knowledge management to develop or solve problems for the community such as Mahaprom (2010), it was found that knowledge management helped restore the traditional wisdom system and combine it with newly acquired external knowledge. Subsequently, the derived knowledge was applied to the development of community funds and businesses. Similarly, Chuchan (2009) discovered that the process of knowledge management on cultural resources of community leaders could create new knowledge sets and have more control on knowledge utilization.

In developing agricultural extension, many agencies employed the knowledge management approach to guide and drive staff developments to ensure they are prepared and ready to help farmers tackling agricultural problems. In terms of agricultural extension by local administrative organizations, the researcher believes that the process of knowledge management should be implemented to develop or solve problems related to agriculture. The process of knowledge management should be used as an instrument to agricultural extension among agricultural officers of local administrative organizations and farmer groups therefore it is imperative to enhance the agricultural officers' understanding on knowledge management so that it can be properly utilized with maximum efficiency in operations.

Problem statement

Tak province is in the lower northern region of Thailand where most of the population mainly engaged in agriculture, especially in-season rice production, which is a major economic crop. Therefore, many relevant agencies operate in the area to develop and promote rice production. Their main mission is to enhance the knowledge of rice production to farmers. Same goes with the local administrative organizations of Tak province, they help promote rice production to farmers as well. Based on the data discovered through studying the area, the promotion of rice production by the local administrative organizations of Tak province was found to be problematic as the agricultural officers were solely the team to transfer the knowledge to farmers. Knowledge management was done through informal knowledge-transfer venues or channels

which are conferencing and training. In addition, most knowledge transfers on farmer professional development did not practically match the needs of farmers in the community due to the lack of the need analysis. Moreover, it was also found that the operational nature of agricultural officers varies among each sub-district local administrative organization in which they tended to separately remain working in their operational zones and collaboration or consultation rarely occurred both among internal offices and with externally relevant agencies. This caused duplication in tasks and it could not effectively solve the rice problem.

From the mentioned problem, the researcher and agricultural officers from five sub-districts of local administrative organizations; Wang Prachop Sub-District, Nong Bua Nuea Sub-district, Nong Bua Tai Sub-district, Wang Hin Sub-district, and Mae Pa Sub-district, took special interest in potential development for agricultural officers of local administrative organizations in Tak province through knowledge management among agricultural officers with local farmers participation in solving the rice problems by transferring knowledge, exchanging experience to one another and knowledge distribution via the meeting, operating test and cooperation in the project operation. The use of participatory knowledge management processes therefore, is a potential development which benefits both agricultural officers and farmers simultaneously where the agricultural officers could learn the tools in managing knowledge to work with farmers and farmers themselves learn how to tangibly use knowledge management to solve the rice problem.

Objectives:1. To develop a participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups, and other agencies.

2. To assess the output and outcome of the participatory knowledge management process of the agricultural officers of local administrative organizations, rice farmer groups, and other agencies.

Materials and methods

This study was an application of participatory action research (PAR) which examined the potential of agricultural officers of local administrative organizations and rice farmer groups. The findings were used as a guideline to develop the participatory knowledge management process for agricultural officers of local administrative organizations and rice farmer groups which matches the following potentials and problems:

Population and sample

1. The population in this study was the agricultural officers of local administrative organizations and rice farmer groups in Tak Province.
2. The sample consisted of two main sample groups who shared the common problems. The first group contained the agricultural officers from five local administrative organizations in two districts; four samples from Muang Tak District, and one from Mae Sod District. The second group contained 42 farmers from five groups/centers in five districts namely, Wang Prachop Sub-District, Nong Bua Nuea Sub-district, Nong Bua Tai Sub-district, Wang Hin Sub-district, and Mae Pa Sub-district.

Data collection

1. The instruments used to collect the data included:
   - Semi-structured interview form
   - Field recording form
2. Data collection methods
   2.1 Contextual survey of the five rice farmer groups through group interviews.
   2.2 Group meeting to collect data on participatory knowledge management process development by agricultural officers from the local administrative organizations, rice farmer groups, and other agencies in rice growing problem solving.
   2.3 The observation and taking note.

Data analysis

Descriptive analysis and content analysis were employed to identify, interpret, and conclude the research findings. To prove the accurateness of the obtained data, the findings were rechecked for validity using data triangulation technique.

Results

The study on participatory knowledge management process of agricultural officers of local administrative organizations and rice farmer groups in Tak presented two main results matching two research objectives which were 1) to develop a participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups, and other agencies and 2) to assess the output and outcome of the participatory knowledge management

process of agricultural officers of local administrative organizations, rice farmer groups, and other agencies which can be listed as follows:

1. The development of participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups, and other agencies.

The developmentis of a participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups, and other agencies contained three operational phases containing phase one, the preparation, phase two, the operation, and phase three, the evaluation. The findings indicated that the implementation of participatory knowledge management process consisted of the following steps: 1) analysis of problem of rice farmer groups and solution 2) determination of knowledge needed to solve the problems of rice growing 3) exploring the potentials and limitations in agricultural extension of agricultural officers of local administrative organizations and the potentials of rice farmer groups 4) planning and specifying the activity of participatory knowledge management 5) knowledge exchange among agricultural officers of local administrative organizations and rice farmer groups 6) creating knowledge in solving rice growing problems 7) application of knowledge in solving rice growing problems and assessment and 8) storing the knowledge.

In the learning stages, the knowledge management team analyzed potentials and limitations of themselves and their groups including the analysis on rice growing problems. The data on potentials and limitations was then used as knowledge base for planning and organizing the knowledge management projects to tackle the rice growing problems for each group. The projects included firstly, the microorganisms production project to decompose rice stubble in rice fields by Ban Sakae Krua, Wang Prachop Sub-District, secondly, the compost production project using agricultural residues by rice-growing farmer group of Ban Pak Huai Klang, Nong Bua Nuea Sub-District, thirdly, the non-flip compost production project of the rice-grower group at Ban Nong Bua Tai, Nong Bua Tai Sub-District, fourthly, the non-flip compost production project of the Homnil rice-grower group at Ban Prajumrak, Wang Hin Sub-District, and finally, the proper gall gnats prevention and eradication project by Mae Pa Nuea Community Rice Seed Center, Mae Pa Sub-District. Each knowledge management team participated in training, field trip, and knowledge exchange among each other as well as cooperatively collected data and conducted performance evaluations on knowledge management projects from each group.

Throughout the duration of learning stage organization collaboration, it was found that the knowledge management teams were able to accumulate more knowledge and there was a growing relationship among farmers within each group as well as the agricultural officers of the five local administrative

organizations and officers from the relevant offices. In addition, after learning from various learning stages, rice growing farmers made some behavioral changes and implemented the derived knowledge to solve their own rice growing problem in a more effective manner.

2. The output and outcome of the participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups in Tak, and other agencies

2.1 The assessment result revealed that the outputs derived from participatory knowledge management process by agricultural officers of the local administrative organizations and rice farmer groups were firstly, the awareness among the knowledge management teams on potentials and limitations of agricultural officers of the local administrative organizations and the potentials of the rice farmer groups in Tak Province, secondly, the knowledge on participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups, and other agencies, and thirdly, the knowledge on outcomes and results obtained from the participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups, and other agencies.

2.2 The assessment result also revealed that the outcomes derived from participatory knowledge management process by agricultural officers of the local administrative organizations and rice farmer groups were as follows:

- Five rice farmer groups obtained the needed skill sets to self-conduct the research and took part in every step as researchers for sub-project researches that the farmer groups were participating ranging from setting the research problem, data collection, problem solving design and performance evaluation. The agricultural officers of the local administrative organizations took the mentor position by observing and providing advice as needed to ensure smooth progress while the rice farmer groups conducted their studies.

- The rice farmer groups were able to solve their own problems through the actual operations according to their sub-districts' sub-projects. With a certain level of knowledge exchange, the derived knowledge could be applied to solve the groups' growing rice problems.

Discussions

1. The development of participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups, and other agencies.

This study employed the Knowledge Management Framework of Marquardt (1996) and Marali (2002) as a guideline to develop the participatory knowledge management process which is a model that emphasizes on problem

solving and work development. The process consists of eight steps, as outlined in the research results. Based on findings derived from the development of participatory knowledge management process, there were several issues to be discussed as follows:

- Determination of knowledge needed to solve the problems of rice growing: At this step, agricultural officers and the farmer groups had learned that tackling agricultural problems did not solely rely on learning from the agricultural officers where the farmers were only receive the knowledge. On the contrary, what is more important is how to utilize the available potentials in solving the problems and it can be done through the knowledge exchange or learning from the successful farmers. This, in fact, is a problem-solving strategy best fit with the lifestyle, capacity and readiness of farmers.

- Planning and specifying the activities of participatory knowledge management: To plan activities, each sub-district knowledge management team had a clear set of activities planned out which is a research process that can be used to solve problems systematically where groups members were assigned and defined with scopes of responsibility. The agricultural officers of each sub-district acted as mentors to carry out group activities using their own experiences and potential for each activity participation. This was consistent with the concept of group process according to the Department of Mental Health, Ministry of Health (2001) which stated that, in order to get maximum participation and achievement during activity organization, the following three important elements must present: 1) clear activity, 2) clear roles for group or member, and 3) clear work structure.

- The knowledge exchange among agricultural officers of local administrative organizations and rice farmer groups: The researcher, as a facilitator, acted as a motivator fostering the knowledge management team to make use of experiences. Each agricultural officer possesses unique experience set and that experience was shared to others which eventually led to multiple perspectives and conclusions. All obtained knowledge has led to real field practices and the experiment were reflected until the team was able to draw a more solid conclusion which formed the final concept implementable in further practices until reaching the common objectives previously set together. This is consistent with Poowipadwat (2001) which stated that learning from experience allowed the learner to relive the experience and make reflections which forms new skills, attitudes, or thinking methods. These exhibits the stages attitude development toward behavioral modification through systematic learning and problem solving.

- Creating knowledge in solving rice growing problems: The creation of new knowledge came from the integration of original knowledge with the knowledge derived through the process of reflection, discussion, knowledge

exchange, training, field trip, actual practice, experience sharing, etc. These knowledge management activities create the new knowledge usable in problem-solving applications on rice growing for each group. This is in line with Tandon (1998), as cited in the Ministry of Education (2003), which mentioned that participatory action research (PAR) is an approach that creates knowledge through combining academic knowledge with folk knowledge or local wisdom. Such knowledge creation is called co-generative learning which occurred between villagers and researchers to create mutual knowledge through theoretical and practical knowledge integration.

- Application of knowledge in solving rice growing problems and assessment: In addition to performance reflection which occurred at every stage of the activity management, there was also an assessment on knowledge management process usage to solving the problem of rice growing of each sub-district. The assessment was conducted using authentic assessment which reflected the real characteristics of the agricultural officers and rice farmer groups with aim to obtain the actual data resulted from cooperation during activities engagement. This is consistent with the authentic assessment concept proposed by Tachajaruenkit (2010), Semahasan and Yooktanan (2001) which concluded that authentic assessment is an evaluation that is based on the actual performance rather than test results and the authentic assessment criteria must be relevant the learner's behavior and practice. Therefore, it is intended to collect data on knowledge generation progressed through the linking from old knowledge to new knowledge where the new knowledge is synthesized and used in life.

2. The output and outcome of the participatory knowledge management process of agricultural officers of local administrative organizations, rice farmer groups in Tak, and other agencies

The results showed that the rice farmers could solve the problem of rice growing from the actual operation with the sharing of learning from each other and it maked the five rice farmer groups to have the learning process to solve the rice growing problem of their groups. The learning process is not only the data receiving or experience but management process and application from data and experience. It is a social process because the farmers live in the society to have the continuous interaction, talking and exchanges so they can encourage the farmers to learn and to expand the perspective and scope of knowledge that can happen in all the time and everywhere to relate the life’s way, social context, environment and farmers’ culture. In addition, there was to observe that five rice farmer groups that participated in the participatory knowledge management process to solve the rice growing problem changed their behavior from the learning process systematically. One of the factors that led to the farmer groups to change their behavior change was the influence of group processes such as when the

most voice of groups agrees rationally, the group members would think correspondingly. It corresponds with the research of Subchaleom *et al.* (2012) to reported that the group processes have an influence on behavioral change in the society. This can be an intermediary to change. It is the goal of change and a conductor of change however the farmers in community who are members of the group change their farming behavior from one form to another due to the influence of group processes.

References

Chuchan, K. (2009). Knowledge Management of Cultural Resource by Community Leadership for Tourism: Ban Phamon Community, Doi Inthanon, Chiangmai Province, Thailand. Thesis in Master Degree of Arta Cultural Management College of Innovation, Thammasat University.

Mahaprom, N. (2010). Knowledge Management of Community Fund and Community Enterprises at Chamrung Village, Klaeng Sub-district, Rayong Province. Thesis in Master Degree of Social Work, Thammasat University.

Marali, Y. (2002). "Building and Developing Capabilities: A Cognitive Congruence Framework." In Knowledge Management and Organizational Competence. New York: University Press.

Marquardt, M. J. (1996). Building The Learning Organization: A Systems Approach to Quantum improvement and Global Success. New York: Mc Graw – Hill.

Mental Health Department. (2001). Participatory training manual. 4th edition. Bangkok: Wongamon Productions Limited.

Ministry of Education. (2003). Basic education curriculum BE 2544. Bangkok: Wattana Panich Publishing House.

Poowipadwat, S. (2001). Student centered learning and authentic assessment 2 nd Edition. Chiangmai: The Knowledge Center Press.

Pumduang, E., *et al.* (2013). Local Wisdom Management for Community Learning Koktao Sub district, Muaing District, Supunburi Province. Bangkok: Suandusit University.

Subchaleom, L., *et al.* (2012). Participatory Learning Process to Solve the Problem of Orchard Farming, In case of Studying in Ban Bor Hin, Taphong Subdistrict, Muang Distrcit, Rayong Province. Local research, The Thailand Research Fund.

Simahasarn, A. and Yooktanan, S. (2001). Design of measuring instruments and authentic assessment. 3rd Edition. Bangkok: Book point.

Techachoroenkit, C. (2013). Measurement and authentic assessment. Center for Vocational Education Promotion and Development, Central Region, Office of the Vocational Education Commission, Ministry of Education.

(Received 24 May 2017, accepted 30 July 2017)