

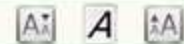
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#2720 Review

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THE ROLE OF CUSTOMARY INSTITUTIONS FOR AGRICULTURAL COMMUNITIES AND AGRICULTURAL EXTENSION

LA FUNCIÓN DE LAS INSTITUCIONES DE ADMINISTRACIÓN PARA LAS COMUNIDADES AGRÍCOLAS Y EL EXTENSIONISMO AGRÍCOLA

S Budi^{1*}, A.H Hamid², Fajri³ and Agussabti⁴

¹ Doctoral Programme in Agricultural Sciences, Universitas Syiah Kuala, Banda Aceh, Indonesia

² Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email address humanhamid@yahoo.com

³ Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email address lonfajri@gmail.com

⁴ Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email address agussabti@unsyiah.ac.id

*Corresponding Author: s.budiunimal@gmail.com

SUMMARY

The purpose of this study is to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers. *Keujruen Blang* is a customary institution rooted in Aceh Province, Indonesia. This study uses qualitative research method by applying case study with qualitative descriptive approach in which data processing through non parametric static with data measurement using Likert Scale. The results showed that farmers still perceive the existence of *Keujruen Blang* in terms of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community. Beside farmers, the role of *Keujruen Blang* is also felt by agricultural extension agents. They stated that *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This research recommends the involvement of *Keujruen Blang* in formulating extension work plan, implementation and evaluation of extension program to rice farmer breeders in supporting the effectiveness of agricultural extension to increase farmer production and welfare.

RESUMEN

El propósito de este estudio es determinar el papel de *Keujruen Blang* en la implementación del modelo de extensión agrícola para los agricultores de semillas de arroz. *Keujruen Blang* es una institución tradicional arraigada en la provincia de Aceh, Indonesia. Este estudio utiliza el método de investigación cualitativa mediante la aplicación de un estudio de caso con un enfoque cualitativo descriptivo en el que el procesamiento de datos se realiza mediante estática no paramétrica con medición de datos mediante la escala de Likert. Los resultados mostraron que los agricultores aún perciben la existencia de *Keujruen Blang* en términos de; (1) establecer la división de agua entre los productores de arroz, (2) determinar y coordinar el programa de siembra de arroz (3) resolver disputas entre productores de arroz (4) coordinar *khanduri blang* (5) socializar e imponer sanciones a los agricultores que infrinjan la costumbre la ley y (6) recogen pequeñas contribuciones a la comunidad de productores de arroz. Además de los agricultores, el papel de *Keujruen Blang* también lo sienten los agentes de extensión agrícola. Afirmaron que *Keujruen Blang* fue instrumental en ayudar a los agricultores, especialmente en la regulación del agua y la implementación de cultivos simultáneos. De extensión agrícola para aumentar la producción y el bienestar de los agricultores.

Keywords: Extension partnership; Farmer institution; Irrigation management; *Keujruen blang*; Local wisdom; Water user association

INTRODUCTION

Institutions play an important role in agricultural development in Indonesia. A development approach that is similar to the production approach, by means of new cultivation techniques, can not solve all the agricultural problems, especially on the use of rural farmers' resources. Many agricultural problems can only be solved through partnerships from various institutions existing in rural farming societies. In the community, several institutions can

be found that have the function of regulating the attitudes and behavior of its citizens which is also a guide for them on interacting with each other.

As a part of society in Indonesia, the people of Aceh have local wisdom in managing rice farming through customary institutions named *Keujruen Blang*. The role of *Keujruen Blang* as a custom institution is regulated in Aceh Official Regulations (Qanun) no 10 on customary institutions, while its duties were stipulated in the Governor Regulation of Aceh no. 45, 2015. Another familiar institution that manage irrigation system is *Subak* that was found in Bali, Indonesia. Referring to various studies, Sriartha *et al.* (2015) noted that “*subak* can be used as a model of harmonious community life and management of sustainable resources at scale of wider areas and communities”.

Based on Qanun no 10, , the roles of *Keujruen Blang* are; (1) setting the division of water to the rice farmers, (2) determining and coordinating the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (a customary ceremony done by farmers in Aceh Province in which they pray for their planting then eat together), (5) socializing and imposing sanctions on farmers who violate customary law and (6) picking up small contributions from the rice farming community.

Keujruen Blang is an indigenous tool within the Acehnese community that has the duty and responsibility to organize, assist and cultivate rice farmers including irrigation water user association. It support Dick (2014) who believe that collective action through customary institutions or newly developed user groups, and even market mechanism can play a role in the development of irrigation systems. Particularly, Narata *et al.* (2015) also emphasize the participation of water user association member in improving water management efficiency.

In Aceh, like in in Japan as reported by Arase *et al.* (2016), irrigation is mainly connected with rice fields. The role of *Keujruen Blang* is considered to be quite dominant in empowering the farmers, as it performs tasks such as coordinating clean-up cleaning activities, coordinating channel tracking up to water sources, dividing water up to the rice fields, helping *Geuchiek* (the head of a village) to coordinate *khanduri blang* activities, and resolve the problems that arise between members of the community with regard to disputes over the distribution of water and agricultural land in the fields.

The existence of agricultural extension partnership with *Keujruen Blang* institution that has been rooted in the farming community provides an opportunity to answer various obstacles in rural farming process, so as to support the improvement of living and welfare level for the farming community. It is in line with Wheeler *et al.* (2017) as cited by Pittock *et al.* (2017) who note that “extension services were identified as the main source for information for the majority of irrigation farmers, and it was also found that those who use irrigation extension services are more likely to adopt hard-technology innovation.

Indraningsih, Sugihen, Tjitropranoto, Asngari and Wijayanto (2010) also stated that the role of agricultural extension can only be felt by the farmer group members only. More time was spent for administrative activities compared to extension activities, as well as the burden of the target area to 3-6 villages for each extension worker. This condition requires an agricultural extension partnership system with various parties including customary institutions in order to ease the burden and synergy between innovation producers, extension agents and farmers as well as to manage and develop irrigation system. It is in line with Dick (2014) who noted that “the development of irrigation systems that serve more than one farm require coordination systems and some form of property rights to at least identify who has what rights to use, manage, and exclude others from the associated land, infrastructure, and water”. Furthermore, Ojcha and Morin (2001) and Agussabti (2002) also argued that the partnership will increase the effectiveness of empowerment to the community. The key to successful partnerships is complementary business. To achieve this complementary there must be mutual understanding and respect for the strengths and weaknesses of each. Based on this background, this study aims to find out the role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers in Aceh Utara Regency, Aceh Province. Therefore, this study aims to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers in Aceh, Indonesia.

RESEARCH METHODOLOGY

This research conducted in Sawang District, North Aceh Regency. The population of this study were *keujruen blang*, agricultural extension agents and member of rice farmer association named ‘Sapue Pakat’ who participated in the agricultural extension program of North Aceh Regency government with universities-Bogor Agriculture Institute and Syiah Kuala University. The population in this study also became a sample. The total population to be sampled in this study amounted to 128 farmers, 34 agricultural extension agents and 4 *keujruen blang* at different level. All of them were surveyed

The scope of the study was limited only to see the role of *Keujruen Blang* in the implementation of an agricultural extension model for rice farmers. The research objects were agricultural extension agents and members of farmer association who have given the assessment to role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers.

To measure and analyze the data, the authors used Likert-scale scoring data. The authors distributed the questionnaires for all farmers, agricultural extension agents and *keujruen blang* who were sampled in this study. The questionnaires were served in closed forms using the five-point Likert Scale. Beside questionnaires, the author also conducted interviews with 34 agricultural extension agents and 4 *Keujruen Blang* at different levels to obtain in-depth information about the subject of this study.

The data covered the indicators of *Keujruen Blang's* role which consist of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions from the rice farming community.

Besides, this research also attempt to see the role of the *Keujruen Blang* in assisting the work of agricultural extension workers. The role can be seen through indicators such as (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups.

RESULT AND DISCUSSION

In Aceh, agricultural extension agents have long established cooperation with *Keujruen Blang* institutions. This is based on mutual interest in the role of each institution. Information from *Keujruen Blang* institute on rice farming activity in Aceh Province is very useful for the perpetrator of agriculture extension activity, such as information about *khanduri blang* activities, planting schedule and distribution of irrigation water in one area. The information will be aligned with agricultural extension practices that cover the implementation stage, the materials, methods and intensity of extension conducted for seed farmers at this research site.

Table 1 demonstrates that in general, seed farmers in the research location assessing *Keujruen Blang* institutions play a role in farming activities of breeding seeds that they do. It is in line with Azis (2018) who found that 85.5% of respondents gave a positive answer to the existence of the *Keujruen blang* customary institution in increasing the rice production of farmers in Manggeng, Aceh Barat Daya, Indonesia. The institutional role of *Keujruen Blang* that has been rooted in the farming community in this research location is also difficult to be replaced by government institutions such as Water User Association prevailing throughout the archipelago.

Partially, the role of *Keujruen Blang* in arranging the distribution of water is very significant. The role of the *Keujruen Blang* to regulate water distribution is a key role in comparison with a number of other roles implemented by customary institutions of *Keujruen Blang*. The implementation of water distribution is done by *Keujruen Blang* in accordance with the agreement of the distribution of irrigation water. In that case, even if the farmers live in one area, they may get the turn of irrigation water with different schedule. This condition cannot be separated from the arrangement made by *Keujruen Syik* (*Keujruen Blang* at subdistrict level) in irrigation water management. It support Rosegrant and Cai, 2002; Yang *et al.*, 2003 as cited by Zhang *et al.* (2013) who argues that “technical innovations as well as water policy and management reforms are required to improve water use efficiency in agriculture to meet growing food demands”.

So far, if the farmer is constrained in getting water then the first institution once contacted is *Keujruen Blang* at *gampong* level. According to the farmers' perception, during this time, farmers' report to *Keujruen Blang* about irrigation water constraints always get follow up to solve the problem of water availability. The coordination of *Keujruen Blang* institutions both at village level and sub-district level with farmers and agricultural extension workers is very good. All activities about extension and agriculture innovation are coordinated with *Keujruen Blang* to ensure that the program has supported the availability of water at every stage of rice cultivation process conducted by farmers.

The role of *Keujruen Blang* in determining and coordinating the schedule of rice planting is also considered to be very significant. By following the schedule, farmers are able to start rice cultivation activities simultaneously then facilitate the process of applying innovation, pest and disease control and distribution of irrigation water.

Determination of the schedule begins with a meeting conducted by *keujruen syik*. At the meeting, there are all *Geuchiek*, *Imum Mukim* (the head of government under subdistrict area), agricultural extension workers, *Keujruen Blang* at *gampong* level, and elements of the district government. In the meeting, it is determined the schedule of rice planting, *khanduri blang* day and irrigation water distribution. Meanwhile, the extension workers conveyed which rice seed that should be sown in this growing season and information if there is a government assistance program to farmers in the study location.

After the district-level meeting on the schedule of rice planting, *Keujruen Blang* at *gampong* level coordinates the implementation of *gotong royong* (an activity done by farmers to clean irrigation channels). All farmers in the area should attend unless then there is a provision that is must pay some money to *Keujruen Blang* to replace the farmer's absence at the time of *gotong royong*.

The role of *Keujruen Blang* in resolving disputes between rice farmers is also very significant. The forms of disputes resolved by the institution and the village apparatus are limited only to the regulation of water and disputes in the cultivation process on rice field. Any form of dispute on water regulation and farming process among farmers is reported to *Keujruen Blang* at *gampong* level and then discussed with the *gampong* apparatus and *imum mukim* to find a solution based on customary law.

Some forms of dispute obtained in the research location are the case of seizure of water, the destruction of water channels, illegal water taking, and the destruction of crops by livestock. Completion of the dispute between farmers always involves *Keujruen Blang* either directly or indirectly (only asked for his opinion). Usually custom settlement of disputes is adhered to and obeyed by the parties to the dispute.

The role of *Keujruen Blang* in coordinating the implementation of *khanduri blang* is also considered significant in the study location. In implementing *khanduri blang*, *Keujruen Blang* coordinates with *keujruen syik*, religious leaders and agricultural extension workers. *Keujruen Blang* announces the schedule of *khanduri blang* and what preparations should be brought by each farmer. In addition to the provision of farmers, *Keujruen Blang* also prepares supplies in accordance with the farmers' contributions earned in the previous planting season. The procedure of *khanduri blang* generally is done by slaughtering animals such as chickens or ducks. Some *gampong* also butcher sheep. The skin sheep then is cut into pieces and placed in the rice field area.

The extension workers at the time of *khanduri blang* are given the opportunity to conduct extension by giving information about the procedure of land, nursery and planting. While the religious leaders lead prayer activities for the safety and smoothness of farming activities that will be done.

There are two implementation of *khanduri blang* coordinated by *keujruen* in one planting season; (1) starting to plan (*tron u blang*) and (2) post planting (*tob blang*). But there are also some farmers who do *khanduri blang* once again when ready to harvest, but this *khanduri blang* is not coordinated by *Keujruen Blang*. Based on information from *Keujruen Blang*, the implementation of *khanduri blang* becomes routine that must be done although with self-help preparation and a little fund from membership fee. The extension workers seek to take advantage of opportunities to inform counseling and information from the government because the participation of rice farmers to attend *khanduri blang* is very high.

The role of *Keujruen Blang* in giving socialization and sanction for unlawful farmers is considered significant. Socialization is usually done at the time of *khanduri blang* activities by delivering the customary law of rice farming and new agreement which resulted in the meeting at *Keujruen Syik* level. Based on the researchers' observations in the research location, because the socialization is done on the activities of *khanduri blang*, not all farmers focus on listening to socialization because they involve in cooking activities to prepare food menu for *khanduri blang*.

With regard to sanctions imposed on those who violate customary law of rice farming, there is a shift in which *Keujruen Blang* is not the principal institution that imposes sanctions, but it still involved in decision-making sanctions given to customary law-breakers. It is in line with Yulia *et. al* (2012) who reported that in the settlement of the dispute, *keujruen blang* is still coordinating with *geuchiek*.

Sanctions are granted by *gampong* apparatus in accordance with *reusam* (social regulation at *gampong* level) which in detail regulates the forms of sanctions granted to indigenous law-violator farmers. The sanctions for instance, when there is a fight and the blood get out, the guilty party is required to butcher a goat for *peusijuek* (one of customary ceremony in Aceh). Another form of sanction also involves paying a penalty to a party whose crops are damaged by other peasant livestock. In this case, paying a penalty is not only to the farmers whose crops are damaged but also to customary institutions which are then referred to as livestock redemption. The fund is managed by the *gampong* apparatus for the operations and ceremonial activities of the indigenous communities.

The role of *Keujruen Blang* in picking up small contributions to the rice farming community is in the last rank but it is also significant. The contribution picking is done by *Keujruen Blang* at harvest time. The contribution is in the crops form in the amount of which is adjusted to the area owned by the farmers who get water regulation services by *Keujruen Blang* at *gampong* level. The amount of contribution is also in accordance with the agreement of meeting during *khanduri blang* in every planting season.

The allocation of contributions is divided into 3 (three) allocations including (1) the salary of *Keujruen Blang*, (2) the cost of *khanduri blang* and (3) the village cash for customary institutional activities with the composition (40: 30: 30). Along with the prospect of profit value (profit) obtained by the *Keujruen Blang* then every year more and more people are interested to be elected as *Keujruen Blang* at *gampong* level. Based on the information from *Keujruen Blang*, in every season planting (4 months), one *Keujruen Blang* commonly gets Rp. 5.200.000 up to 6.000.000 from the farmers' contribution. This variation is highly depends on the crops picked and the price of rice that prevailed during the harvest.

According to Yulia *et al.* (2012), the contribution picking has become a common practice and is considered very helpful in maintaining the harmonization and social dynamics of rice farmers in rural Aceh province.

Furthermore, Putra, Hariadi, and Harsoyo (2012) note that indirectly, *Keujruen Blang* activities also helps the success of farmer empowerment activities in establishing good communication and coordination as well as the success of agricultural development activities for the farming community.

In addition to being felt by farmers, the role of *Keujruen Blang* is also felt by agricultural extension workers. Some of the roles of *Keujruen Blang* in assisting agricultural extension work can be seen through indicators (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups. The results of the perception of the role of agricultural extension partnerships with *Keujruen Blang* can be seen in Table 2;

Table 2 shows that a very large role is the aid of evenly regulating water according to the needs of rice plants at each stage of the development of rice plants. Availability of water amid global climate change with a good regulatory system will make agricultural land productive and produce high production. This is in line with the findings of the benefits of the Subak system water management in the Balinese and the Nagari Padang laweh Malalo system for the people of West Sumatra (David and Ploeger, 2014).

Extension workers and farmers also strongly agreed that the existence of *Keujruen Blang* was very helpful in the simultaneous planting program. Simultaneous planting has a positive impact on the maintenance of rice plants. Simultaneous planting allows reduced pest attacks due to the breakdown of the pest cycle due to simultaneous land cultivation in one area. Simultaneous planting is inseparable from the stages of farming activities established by the *Keujruen Blang* for all farmers in an area in Aceh Province. The stage starts from the schedule of descending, seeding, planting until the harvest.

During this time, according to farmers' acknowledgment, the majority of farmers in the research location were very obedient to the farming schedule rules stipulated by the party of *Keujruen Blang*. This role indirectly influences food security for rice farming communities and is also able to contribute to increased production.

A series of activities held by *Keujruen Blang* institutions involving large numbers of farmers were also often used by extension agents to convey a number of technologies for wetland rice cultivation and other information planned by the government. *Keujruen Blang* in ceremonial descent into the rice fields (*khanduri Blang*) often gives instructors 30 to 60 minutes to convey important information such as refresher land management methods, seeding the initial planting and fertilizing seeds. According to the extension instructor, this opportunity is very meaningful to socialize programs and events for the transfer of new technology to farmers in the cultivation of paddy rice.

Another opportunity that is often given by the *Keujruen Blang* institution to extension workers is when the farmers are gathered at the *Toep Blang* festive activity (thanksgiving when planting rice is finished). On the occasion, the instructor conveyed the method of continued fertilization, pest and disease control, harvesting, post-harvest handling and various alternative market information produced by farmers. At the same time *Keujruen Blang* also had the opportunity to reiterate a number of customary rules for farmers that must be a concern during a production cycle.

So far, the concept developed by *Keujruen Blang* synergized with agricultural extension agents. Based on interview results with *Keujruen Blang*, the concept are as follows:

1). Water is a blessing for a shared life that must be grateful. Therefore, water must be managed properly and fairly for prosperity and mutual welfare.

2). The values of togetherness and mutual cooperation among farmers are taken through the management of several traditional ceremonies. The ceremony is

- a. *Khanduri Abah Lueng*. This ceremony is carried out by rice farmers in one sub-district in every year. This ceremony functions as: a). increasing the togetherness of rice farmers in the same irrigation area.
- b). eradicate rats, snails and other pests in wider rice fields and c). reduce the attack of pests when the rice produces fruit.
- b. *Khanduri Blang*. This ceremony was coordinated by *Keujruen Cut*, carried out at the village level and usually held by paddy farmers after the *Khanduri Abah Lueng* ceremony at the sub-district level.
- c. *Khanduri Rhet Bijeh*. This ceremony is often referred to as *Khanduri Nabi Adam*.
- d. *Khanduri* when rice is attacked by pests. There is no special name for this ceremony.

3). Concept of Environmental Management through Self-financing

In order to increase the source of funds, *Keujruen Blang* can take several techniques in accordance with Qanun Number 10 year 2005. They are cover a). contributions, which are obtained at harvest in accordance with the area of land managed by each farmer, b). donations or other non-binding assistance, c). other businesses that are lawful and d). finances violation funds.

To increase the source of funds, *Keujruen Blang* is also allowed to conduct farming or cooperatives. This last activity has not been implemented in almost all research areas in Aceh. Even though the sources of funds have

already been mentioned in the qanun, there is no *Keujreun Chiek* requesting funds from farmers in accordance with this points.

4). The concept of channel security and maintenance, channel construction and irrigation is generally carried out by the Department of Water Public Works. However, safeguards and treatments, especially tertiary and quaternary channels, are carried out through joint efforts of local rice farmers' members by strengthening the spirit of togetherness of members.

The research results showed that farmers consider *Keujruen Blang* as a potential party to connect farmers' aspirations with the government or other parties related to the empowerment of farmers. The cooperation between the *Keujruen Blang* institution and the farmers was also felt by extension agents in developing farmer groups. This is inseparable from the contribution of *Keujruen Blang* who actively shares information and becomes one of the parties connecting the aspirations of farmers with the government.

CONCLUSION

In general, rice seed farmers consider that *Keujruen Blang* plays a significant role in the process of rice farming cultivation. In order of importance the role of *Keujruen Blang* on seed farmers was: (1) Set the allocation of water to rice farmers, (2) Determine and coordinate the schedule of planting rice, (3) Resolving disputes between rice farmers, (4) Coordinating *khanduri blang*, (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions from the rice farming community.

Keujruen Blang's role was very helpful for extension workers in delivering information and implementation of innovations delivered for seed farmers. We recommend to increase the involvement of *Keujruen Blang* in formulating the extension work plan in the implementation and evaluation of the extension program to increase farmers' production and welfare.

In addition, the cooperation between the *Keujruen Blang* institution and the farmers was also acknowledged by agriculture extension agents in developing farmer groups. The agriculture extension agents stated that the *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and in the implementation of simultaneous cultivation. This is because *Keujruen Blang* was always actively sharing information and was one of the links between the aspirations of farmers and the government and other relevant parties.

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Table1. Value of Role Index of *Keujruen Blang* on Rice Seed Farmer

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Set the division of water to the rice farmers	86.52	Very significant
2	Determine and coordinate the schedule rice	87.83	Very significant
3	Coordinate the implementation of <i>khanduri blang</i>	73.98	Significant
4	Resolving disputes between rice rice farmers	82.89	Very significant
5	Socialize and sanction farmers who violate customary law	69.07	Significant
6	Pick up small contributions from the rice farming community	68.62	Significant

The role commontly	78.15	Significant
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Source : Data Primer Analysis, 2017

Table 2. The role of agricultural extension partnerships with *Keujruen Blang*

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Implementation of planting (cultivation) simultaneously	84.79	Very significant
2	Helping farmers in water management	89.32	Very significant
3	Opportunities to convey agricultural information	81.56	Very Significant
4	Connectors of agricultural aspirations to agricultural extension workers	72.64	Significant
5	Farmer group development	68.39	Significant
The role commontly		79.34	Significant

Source : Primer Data Analysis, 2017

The Role of Customary Institutions for Agricultural Communities and Agricultural Extension

Setia Budi ^{1*}, Ahmad Humam Hamid², Fajri² and Agussabti²

¹ Doctoral Programme in Agricultural Sciences, Universitas Syiah Kuala, Banda Aceh, Indonesia

² Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia

*Corresponding Author: s.budiunimal@gmail.com

ABSTRACT

The purpose of this study is to determine the role of *Keujruen Blang* in the implementation of an agricultural extension model for rice seed farmers. *Keujruen Blang* is a customary institution rooted in Aceh Province, Indonesia. This study uses the qualitative research method of case studies with a qualitative-descriptive approach in which data processing using Likert Scale is done through non parametric statistics with data measurement. The results showed that farmers still perceive the role of *Keujruen Blang* in terms of: (1) determining the allocation of water to the rice farmers, (2) establishing and coordinating the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing?? and imposing sanctions on farmers who violate customary law and (6) pick up small contributions from the rice farming community. Beside farmers, the role of *Keujruen Blang* is also felt by agricultural extension agents as they stated that *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This research recommends the involvement of *Keujruen Blang* in formulating the extension work plan, implementation and evaluation of an extension program for rice farmer breeders to support the effectiveness of agricultural extension to increase farmer production and welfare.

Comentado [JRV1]: This is a modified abstract.

Keywords:

The purpose of this study is to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers. *Keujruen Blang* is a customary institution rooted in Aceh Province, Indonesia. This study uses qualitative research method by applying case study with qualitative descriptive approach in which data processing through non parametric static with data measurement using Likert Scale. The results showed that farmers still perceive the existence of *Keujruen Blang* in terms of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6)) pick up small contributions to the rice farming community. Beside farmers, the role of *Keujruen Blang* is also felt by agricultural extension agents. They stated that *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This research recommends the involvement of *Keujruen Blang* in formulating extension work plan, implementation and evaluation of extension program to rice farmer breeders in supporting the effectiveness of agricultural extension to increase farmer production and welfare.

Comentado [JRV2]: Do not use words from the title.

Keywords: Agricultural Communities, Agriculture extension; Customary institution; *Keujruen Blang*'s role; Rice seed farmers.

INTRODUCTION

Institutions ~~is~~ ~~are~~ ~~one~~ ~~of~~ ~~element~~ ~~that~~ plays an important role in agricultural development in Indonesia. A development approach that ~~was~~ ~~is~~ ~~similarized~~ to the production approach, by means of new cultivation techniques, can not solve all the agricultural problems, especially on the use of rural farmers' resources. Many agricultural problems can only be solved through partnerships from various institutions existing in rural farming societies. In the community, several institutions ~~it~~ can be found ~~several institutions~~ that have the function of regulating the attitudes and behavior of its citizens which is also a guide for them ~~in~~ ~~interacti~~ ~~eng~~ with each other.

As a part of society in Indonesia, the people of Aceh have local wisdom in managing rice farming through customary institutions named *Keujruen Blang*. The role of *Keujruen Blang* as a custom institution is regulated in Aceh Official Regulations (Qanun) ~~no.umber~~ 10 ~~Year~~ ~~(2008)~~ on customary institutions, while its duties were stipulated in the Governor Regulation of Aceh no. 45 ~~of~~ (2015).

Based on the regulation, the roles of *Keujruen Blang* are: (1) Setting the division of water to the rice farmers, (2) determineing and coordinateing the schedule of planting rice, (3) resolving disputes between rice farmers, (4) coordinating *khanduri blang* (a customary ceremony done by farmers in Aceh Province in which they pray for their planting then eat together), (5) socializing and imposing sanctions on farmers who violate customary law and (6) picking up small contributions ~~to~~ from the rice farming community.

Keujruen Blang is an indigenous tool within the Acehnese community that has the duty and responsibility to organize, assist and cultivate rice farmers including irrigation water user association. It support Dick (2014) who believe that collective action through customary institutions or newly developed user groups, and even market mechanism can play a role in the development of irrigation systems. Particularly, Narata *et al.* (2015) also emphasize the participation of water user association member in improving water management efficiency.

In Aceh, like in Japan as reported by Arase *et al.* (2016), irrigation is mainly connected with rice fields. The role of *Keujruen Blang* is considered to be quite dominant in empowering the farmers, as it performs tasks such as coordinating clean-up cleaning activities, coordinating channel tracking up to water sources, dividing water up to the rice fields, helping *Geuchiek* (the head of a village) to coordinate *khanduri blang* activities, and resolve the problems that arise between members of the community with regard to disputes over the distribution of water and agricultural land in the fields.

The existence of agricultural extension partnership with *Keujruen Blang* institution that has been rooted in the farming community provides an opportunity to answer various obstacles in rural farming process, so as to support the improvement of living and welfare level for the farming community. It is in line with Wheeler *et al.* (2017) as cited by Pittocket *et al.* (2017) who notes that “extension services were identified as the main source for information for the majority of irrigation farmers, and it was also found that those who use irrigation extension services are more likely to adopt hard-technology innovation.

Indraningsih *et al.* (2010) also stated that the role of agricultural extension can only be felt by the farmer group members only. More time was spent for administrative activities compared to extension activities, as well as the burden of the target area to 3-6 villages for each extension worker. This condition requires an agricultural extension partnership system with various parties including customary institutions in order to ease the burden and synergy between innovation producers, extension agents and farmers as well as to manage and develop irrigation system. It is in line with Dick (2014) who noted that “the development of irrigation systems that serve more than one farm require coordination systems and some form of property rights to at least identify who has what rights to use, manage, and exclude others from the associated land, infrastructure, and water”.

Furthermore, Ojcha and Morin (2001) and Agussabti (2002) also argued that the partnership will increase the effectiveness of empowerment to the community. The key to successful partnerships is complementary business. To achieve this complementary there must be mutual understanding and respect for the strengths and weaknesses of each. Based on this background, this study aims to find out the role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers in Aceh Utara Regency, Aceh Province. Therefore, this study aims to.....

Comentado [JRV3]: State the objectives of this study.

RESEARCH METHODOLOGY

This research was conducted in Sawang District, North Aceh Regency. The population of this study are were agricultural extension agents and members of the rice farmer association named ‘Sapue Pakat’ who reer-participated in the agricultural extension program of North Aceh Regency government with universities-Bogor Agriculture Institute and Syiah Kuala University. The total population to be sampled in this study amounted to 128 farmers and 34 agricultural extension agents.

Comentado [JRV4]: Use past tense always

Con formato: Inglés (Estados Unidos)

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Comentado [JRV5]: How many of them were surveyed? How the sample size was determined?

The scope of the study is limited only to see the role of *Keujruen Blang* in the implementation of an agricultural extension model for rice farmers. The research objects are agricultural extension agents and members of farmer association who have given the assessment to role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers.

To measure and analyze the data, the authors used the measurement of Likert-scale scoring data. The authors distributed the questions that were served in closed forms using the five-point Likert Scale (namely strongly agree, agree, not sure, disagree and strongly disagree).

The data cover the indicators of *Keujruen Blang*'s role which consists of: (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions ~~to~~from the rice farming community.

Con formato: Inglés (Estados Unidos)

Besides, this research also attempted to see the role of the *Keujruen Blang* in assisting the work of agricultural extension workers. The role can be seen through indicators such as (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups.

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RESULT AND DISCUSSION

~~*Keujruen Blang* is one of the custom institutions in Aceh that contained in Qanun Number 10 Year 2008 on Customary Institutions. In other provinces outside Aceh, one of institution which has similar roles is Water User Farmers Association. Another familiar Institution that Manage Irrigation System is Subak that was found in Bali, Indonesia. Referring to various studies, Sriartha *et al.* (2015) noted that "subak can be used as a model of harmonious community life and management of sustainable resources at scale of wider areas and communities".~~

Comentado [JRV6]: These paragraphs sound repetitive and are not results.

~~In Aceh, agricultural extension agents have long established cooperation with *Keujruen Blang* institutions. This is based on mutual interest in the role of each institution. Information from *Keujruen Blang* institute on rice farming activity in Aceh Province is very useful for the perpetrator of agriculture extension activity, such as information about *khanduri blang* activities, planting schedule and distribution of irrigation water in one area. The information will be aligned with agricultural extension practices that cover the implementation stage, the materials, methods and intensity of extension conducted for seed farmers at this research site.~~

~~Several *Keujruen Blang*'s role viewed in this research are (1) Set the division of water to the rice farmers, (2) Determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) Coordinating *Khanduri Blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community.~~

~~Table 1 demonstrates shows that in general, setting the division of water to the rice~~

~~farmers, determining and coordinating the schedule rice planting ? and resolving~~

~~disputes between rice rice farmers were the most important roles of *Keujruen Blang* on~~

~~Rice Seed Farmers (Table 1).~~

~~seed farmers in the research location assessing *Keujruen Blang* institutions play a role in farming activities of breeding seeds that they do. The institutional role of *Keujruen Blang* that has been rooted in the farming community in this research location is difficult to be replaced by government institutions such as Water User Association prevailing throughout the archipelago.~~

Comentado [JRV7]: Very confusing, re-type or delete.

Partially, the role of *Keujruen Blang* in arranging the distribution of water ~~was~~ very significant ($P < 0.01$??). The role of the *Keujruen Blang* to regulate water distribution is

Comentado [JRV8]: How was this significance determined ?

a key role in comparison with a number of other roles implemented by customary institutions of *Keujruen Blang*. The implementation of water distribution is done by *Keujruen Blang* in accordance with the agreement of the distribution of irrigation water. In that case, even if the farmers live in one area, they may get the turn of irrigation water with different schedule. This condition cannot be separated from the arrangement made by *Keujruen Syik* (*Keujruen Blang* at subdistrict level) in irrigation water management. It support Rosegrant and Cai, 2002; Yang *et al.*, 2003 as cited by Zhang *et al.* (2013) who argues that “technical innovations as well as water policy and management reforms are required to improve water use efficiency in agriculture to meet growing food demands”.

So far, if the farmer is constrained in getting water then the first institution once contacted is *Keujruen Blang* at *gampong* level. According to the farmers' [confession perception](#), during this time, farmers' report to *Keujruen Blang* about irrigation water constraints always get follow up to solve the problem of water availability. The coordination of *Keujruen Blang* institutions both at village level and sub-district level with farmers and agricultural extension workers is very good. All activities about extension and agriculture innovation are coordinated with *Keujruen Blang* to ensure that the program has supported the availability of water at every stage of rice cultivation process conducted by farmers.

The role of *Keujruen Blang* in determining and coordinating the schedule of rice planting is also considered to be very significant. By following the schedule, farmers are able to start rice cultivation activities simultaneously then facilitate the process of applying innovation, pest and disease control and distribution of irrigation water.

Determination of the schedule begins with a meeting conducted by *keujruen syik*. At the meeting, there are all *Geuchiek*, *ImumMukim* (the head of government under subdistrict area), agricultural extension workers, *Keujruen Blang* at *gampong* level, and elements of the district government. In the meeting, it is determined the schedule of rice planting, *khanduri blang* day and irrigation water distribution. Meanwhile, the extension workers conveyed which rice seed that should be sown in this growing season and information if there is a government assistance program to farmers in the study location.

After the district-level meeting on the schedule of rice planting, *Keujruen Blang* at *gampong* level coordinates the implementation of *gotong royong* (an activity done by farmers to clean irrigation channels). All farmers in the area should attend unless then there is a provision that is must pay some money to *Keujruen Blang* to replace the farmer's absence at the time of *gotong royong*.

The role of *Keujruen Blang* in resolving disputes between rice farmers is also very significant. The forms of disputes resolved by the institution and the village apparatus are limited only to the regulation of water and disputes in the cultivation process on rice field. Any form of dispute on water regulation and farming process among farmers is reported to *Keujruen Blang* at *gampong* level and then discussed with the *gampong* apparatus and *imam mukim* to find a solution based on customary law.

Some forms of dispute obtained in the research location are the case of seizure of water, the destruction of water channels, illegal water taking, and the destruction of crops by livestock. Completion of the dispute between farmers always involves *Keujruen Blang* either directly or indirectly (only asked for his opinion). Usually custom settlement of disputes is adhered to and obeyed by the parties to the dispute.

The role of *Keujruen Blang* in coordinating the implementation of *khanduri blang* is also considered significant in the study location. In implementing *khanduri blang*, *Keujruen Blang* coordinates with *keujruen syik*, religious leaders and agricultural extension workers. *Keujruen Blang* announces the schedule of *khanduri blang* and what preparations should be brought by each farmer. In addition to the provision of farmers,

Keujruen Blang also prepares supplies in accordance with the farmers' contributions earned in the previous planting season. The procedure of *khanduri blang* generally is done by slaughtering animals such as chickens or ducks. Some *gampong* also butcher sheep. The skin sheep then is cut into pieces and placed in the rice field area.

The extension workers at the time of *khanduriblang* are given the opportunity to conduct extension by giving information about the procedure of land, nursery and planting. While the religious leaders lead prayer activities for the safety and smoothness of farming activities that will be done.

There are two implementation of *khandur iblang* coordinated by *keujruen* in one planting season; (1) starting to plan (*tron u blang*) and (2) post planting (*tob blang*). But there are also some farmers who do *khanduri blang* once again when ready to harvest, but this *khanduri blang* is not coordinated by *Keujruen Blang*. Based on information from *Keujruen Blang*, the implementation of *khanduri blang* becomes routine that must be done although with self-help preparation and a little fund from membership fee. The extension workers seek to take advantage of opportunities to inform counseling and information from the government because the participation of rice farmers to attend *khanduri blang* is very high.

The role of *Keujruen Blang* in giving socialization and sanction for unlawful farmers is considered significant. Socialization is usually done at the time of *khanduri blang* activities by delivering the customary law of rice farming and new agreement which resulted in the meeting at *Keujruen Syik* level. Based on the researchers' observations in the research location, because the socialization is done on the activities of *khanduri blang*, not all farmers focus on listening to socialization because they involve in cooking activities to prepare food menu for *khanduri blang*.

With regard to sanctions imposed on those who violate customary law of rice farming, there is a shift in which *Keujruen Blang* is not the principal institution that imposes sanctions, but it still involved in decision-making sanctions given to customary law-breakers. It is in line with Yulia *et. al* (2012) who reported that in the settlement of the dispute, *keujruen blang* is still coordinating with *geuchiek*.

Sanctions are granted by *gampong* apparatus in accordance with *reusam* (social regulation at *gampong* level) which in detail regulates the forms of sanctions granted to indigenous law-violator farmers. The sanctions for instance, when there is a fight and the blood get out, the guilty party is required to butcher a goat for *peusijuek* (one of customary ceremony in Aceh). Another form of sanction also involves paying a penalty to a party whose crops are damaged by other peasant livestock. In this case, paying a penalty is not only to the farmers whose crops are damaged but also to customary institutions which are then referred to as livestock redemption. The fund is managed by the *gampong* apparatus for the operations and ceremonial activities of the indigenous communities.

The role of *Keujruen Blang* in picking up small contributions to the rice farming community is in the last rank but it is also significant. The contribution picking is done by *Keujruen Blang* at harvest time. The contribution is in the crops form in the amount of which is adjusted to the area owned by the farmers who get water regulation services by *Keujruen Blang* at *gampong* level. The amount of contribution is also in accordance with the agreement of meeting during *khanduri blang* in every planting season.

The allocation of contributions is divided into 3 (three) allocations including (1) the salary of *Keujruen Blang*, (2) the cost of *khanduri blang* and (3) the village cash for customary institutional activities with the composition (40: 30: 30). Along with the prospect of profit value (profit) obtained by the *Keujruen Blang* then every year more and more people are interested to be elected as *Keujruen Blang* at *gampong* level. Based on the information from *Keujruen Blang*, in every season planting (4 months), one *Keujruen*

Blang commonly gets Rp. 5.200.000 up to 6.000.000 from the farmers' contribution. This variation is highly depends on the crops picked and the price of rice that prevailed during the harvest.

According to Yulia *et al.* (2012), the contribution picking has become a common practice and is considered very helpful in maintaining the harmonization and social dynamics of rice farmers in rural Aceh province. Furthermore, Syahputra and Wira, (2012) note that indirectly, *Keujruen Blang* activities also helps the success of farmer empowerment activities in establishing good communication and coordination as well as the success of agricultural development activities for the farming community.

In addition to being felt by farmers, the role of *Keujruen Blang* is also felt by agricultural extension workers. Some of the roles of *Keujruen Blang* in assisting agricultural extension work can be seen through indicators (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups. The results of the perception of the role of agricultural extension partnerships with *Keujruen Blang* can be seen in Table 2;

Table 2 shows that a very large role is the aid of evenly regulating water according to the needs of rice plants at each stage of the development of rice plants. Availability of water amid global climate change with a good regulatory system will make agricultural land productive and produce high production. This is in line with the findings of the benefits of the Subak system water management in the Balinese and the Nagari Padang laweh Malalo system for the people of West Sumatra (David and Ploeger, 2014).

Extension workers and farmers also strongly agreed that the existence of *Keujruen Blang* was very helpful in the simultaneous planting program. Simultaneous planting has a positive impact on the maintenance of rice plants. Simultaneous planting allows reduced pest attacks due to the breakdown of the pest cycle due to simultaneous land cultivation in one area. Simultaneous planting is inseparable from the stages of farming activities established by the *Keujruen Blang* for all farmers in an area in Aceh Province. The stage starts from the schedule of descending, seeding, planting until the harvest.

During this time, according to farmers' acknowledgment, the majority of farmers in the research location were very obedient to the farming schedule rules stipulated by the party of *Keujruen Blang*. This role indirectly influences food security for rice farming communities and is also able to contribute to increased production.

A series of activities held by *Keujruen Blang* institutions involving large numbers of farmers were also often used by extension agents to convey a number of technologies for wetland rice cultivation and other information planned by the government. *Keujruen Blang* in ceremonial descent into the rice fields (*kenduri Blang*) often gives instructors 30 to 60 minutes to convey important information such as refresher land management methods, seeding the initial planting and fertilizing seeds. According to the extension instructor, this opportunity is very meaningful to socialize programs and events for the transfer of new technology to farmers in the cultivation of paddy rice.

Another opportunity that is often given by the *Keujruen Blang* institution to extension workers is when the farmers are gathered at the *Toep Blang* festive activity (thanksgiving when planting rice is finished). On the occasion, the instructor conveyed the method of continued fertilization, pest and disease control, harvesting, post-harvest handling and various alternative market information produced by farmers. At the same time *Keujruen Blang* also had the opportunity to reiterate a number of customary rules for farmers that must be a concern during a production cycle.

So far, the concept developed by *Keujreun Blang* synergized with agricultural extension agents. The concept is as follows:

1). Water is a blessing for a shared life that must be grateful. Therefore, water must be managed properly and fairly for prosperity and mutual welfare.

2). The values of togetherness and mutual cooperation among farmers are taken through the management of several traditional ceremonies. The ceremony is

a. *Khanduri Abah Lueng*. This ceremony is carried out by rice farmers in one sub-district in every year. This ceremony functions as: a). increasing the togetherness of rice farmers in the same irrigation area. b). eradicate rats, snails and other pests in wider rice fields and c). reduce the attack of pests when the rice produces fruit.

b. *Khanduri Blang*. This ceremony was coordinated by *Keujruen Cut*, carried out at the village level and usually held by paddy farmers after the *Khanduri Abah Lueng* ceremony at the sub-district level.

c. *Khanduri Rhet Bijeh*. This ceremony is often referred to as *Khanduri Nabi Adam*.

d. *Khanduri* when rice is attacked by pests. There is no special name for this ceremony.

3). Concept of Environmental Management through Self-financing

In order to increase the source of funds, *Keujreun Blang* can take several techniques in accordance with Qanun Number 10 year 2005. They are cover a). contributions, which are obtained at harvest in accordance with the area of land managed by each farmer, b). donations or other non-binding assistance, c). other businesses that are lawful and d). finances violation funds.

To increase the source of funds, *Keujreun Blang* is also allowed to conduct farming or cooperatives. This last activity has not been implemented in almost all research areas in Aceh. Even though the sources of funds have already been mentioned in the *Qanun*, there is no *Keujreun Chiek* requesting funds from farmers in accordance with this points.

4). The concept of channel security and maintenance, channel construction and irrigation is generally carried out by the Department of Water Public Works. However, safeguards and treatments, especially tertiary and quaternary channels, are carried out through joint efforts of local rice farmers' members by strengthening the spirit of togetherness of members.

The research results showed that farmers consider *Keujruen Blang* as a potential party to connect farmers' aspirations with the government or other parties related to the empowerment of farmers. The cooperation between the *Keujruen Blang* institution and the farmers was also felt by extension agents in developing farmer groups. This is inseparable from the contribution of *Keujruen Blang* who actively shares information and becomes one of the parties connecting the aspirations of farmers with the government.

CONCLUSION

In general, rice seed farmers consider *that Keujruen Blang* plays a significant role in the process of rice farming cultivation. In *order of importance sequence* the role of *Keujruen Blang* on seed farmers *are was*: (1) Set the *divisallocation* of water to *the* rice farmers, (2) Determine and coordinate the schedule of planting rice, (3) Resolving disputes between rice farmers, (4) Coordinating *khanduri blang*, (5) socializing and imposing sanctions on farmers who violate customary law, and (6) pick up small contributions *to from* the rice farming community.

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Keujruen Blang's role ~~was~~ very helpful for extension workers in delivering information and implementation of innovations ~~delivered to for~~ seed farmers. ~~This research~~ We recommends ~~to increase~~ the involvement of *Keujruen Blang* in formulating ~~the~~ extension work plan ~~and in the~~ implementation and evaluation of ~~the~~ extension program ~~to rice farmer in supporting the effectiveness of agricultural extension~~ to increase farmers' production and welfare.

In addition, the cooperation between the *Keujruen Blang* institution and the farmers was also ~~acknowledged felt~~ by agriculture extension agents in developing farmer groups. The agriculture extension agents stated that the *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This is because *Keujruen Blang* ~~was~~ always actively sharing information and ~~was~~ one of the links between the aspirations~~?~~ of farmers and the government and other relevant parties.

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Table1. Value of Role Index of *Keujruen Blang* on Rice Seed Farmer

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Set the division of water to the rice farmers	86.52	Very significant
2	Determine and coordinate the schedule down the rice <u>planting</u>	87.83	Very significant
3	Coordinate the implementation of khanduri blang	73.98	Significant
4	Resolving disputes between rice rice farmers	82.89	Very significant
5	Socialize and sanction farmers who violate customary law	69.07	Significant
6	Pick up small contributions to <u>from</u> the rice farming community	68.62	Significant
	The role commontly	78.15	Significant

Source : Data Primer Analysis, 2017

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Table 2. The role of agricultural extension partnerships with *Keujruen Blang*

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Implementation of planting (cultivation) simultaneously	84.79	Very significant
2	Helping farmers in water management	89.32	Very significant
3	Opportunities to convey agricultural information	81.56	Very Significant
4	Connectors of agricultural aspirations to agricultural extension workers	72.64	Significant
5	Farmer group development	68.39	Significant
	The role commonly	79.34	Significant

Source : Primer Data Analysis, 2017

THE ROLE OF CUSTOMARY INSTITUTIONS FOR AGRICULTURAL COMMUNITIES AND AGRICULTURAL EXTENSION

LA FUNCIÓN DE LAS INSTITUCIONES DE ADMINISTRACIÓN PARA LAS COMUNIDADES AGRÍCOLAS Y LA AMPLIACIÓN AGRÍCOLA

Setia S. Budi^{1*}, Ahmad Humam A. H. Hamid², Fajri³ and Agussabti⁴

¹ Doctoral Programme in Agricultural Sciences, Universitas Syiah Kuala, Banda Aceh, Indonesia,

² Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia, Email address humamhamid@yahoo.com

³ Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia, Email address jonfajri@gmail.com

⁴ Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia, Email address agussabti@unsyiah.ac.id

² Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia

*Corresponding Author: s.budiunimal@gmail.com

ABSTRACT

The purpose of this study is to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers. *Keujruen Blang* is a customary institution rooted in Aceh Province, Indonesia. This study uses qualitative research method by applying case study with qualitative descriptive approach in which data processing through non parametric static with data measurement using Likert Scale. The results showed that farmers still perceive the existence of *Keujruen Blang* in terms of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community. Beside farmers, the role of *Keujruen Blang* is also felt by agricultural extension agents. They stated that *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This research recommends the involvement of *Keujruen Blang* in formulating extension work plan, implementation and evaluation of extension program to rice farmer breeders in supporting the effectiveness of agricultural extension to increase farmer production and welfare.

RESUMEN

El propósito de este estudio es determinar el papel de *Keujruen Blang* en la implementación del modelo de extensión agrícola para los agricultores de semillas de arroz. *Keujruen Blang* es una institución tradicional arraigada en la provincia de Aceh, Indonesia. Este estudio utiliza el método de investigación cualitativa mediante la aplicación de un estudio de caso con un enfoque cualitativo descriptivo en el que el procesamiento de datos se realiza mediante estática no paramétrica con medición de datos mediante la escala de Likert. Los resultados mostraron que los agricultores aún perciben la existencia de *Keujruen Blang* en términos de; (1) establecer la división de agua entre los productores de arroz, (2) determinar y coordinar el programa de siembra de arroz (3) resolver disputas entre productores de arroz (4) coordinar *khanduri blang* (5) socializar e imponer sanciones a los agricultores que infrinjan la costumbre la ley y (6) recogen pequeñas contribuciones a la comunidad de productores de arroz. Además de los agricultores, el papel de *Keujruen Blang* también lo sienten los agentes de extensión agrícola. Afirmaron que *Keujruen Blang* fue instrumental en ayudar a los agricultores, especialmente en la regulación del agua y la implementación de cultivos simultáneos. De extensión agrícola para aumentar la producción y el bienestar de los agricultores.

Keywords: Extension partneship; Farmer institution; Irrigation management; Keujruen blang; Local wisdom; Water user assosiation

Agricultural Communities, Agriculture extension; Customary institution; *Keujruen Blang's* role; Rice seed farmers.

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INTRODUCTION

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Institutions is one of element that plays an important role in agricultural development in Indonesia. A development approach that was is similarized to the production approach, by means of new cultivation techniques, can not solve all the agricultural problems, especially on the use of rural farmers' resources. Many agricultural problems can only be solved through partnerships from various institutions existing in rural farming societies. In the community, several institutions it can be found several institutions that have the function of regulating the attitudes and behavior of its citizens which is also a guide for them in interactiong with each other.

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As a part of society in Indonesia, the people of Aceh have local wisdom in managing rice farming through customary institutions named *Keujruen Blang*. The role of *Keujruen Blang* as a custom institution is regulated in Aceh Official Regulations (Qanun) number no. 10 Year 2008 on customary institutions, while its duties were stipulated in the Governor Regulation of Aceh no. 45, of 2015. Another familiar institution that manage irrigation system is *Subak* that was found in Bali, Indonesia. Referring to various studies, Sriartha *et al.* (2015) noted that "*subak* can be used as a model of harmonious community life and management of sustainable resources at scale of wider areas and communities".

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Based on Qanun no 10, the regulation, the roles of *Keujruen Blang* are: (1) Setting the division of water to the rice farmers, (2) Determining and coordinating the schedule of planting rice (3) Resolving disputes between rice farmers (4) Coordinating *khanduri blang* (a customary ceremony done by farmers in Aceh Province in which they pray for their planting then eat together), (5) socializing and imposing sanctions on farmers who violate customary law and (6) picking up small contributions to from the rice farming community.

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Keujruen Blang is an indigenous tool within the Acehese community that has the duty and responsibility to organize, assist and cultivate rice farmers including irrigation water user association. It support Dick (2014) who believe that collective action through customary institutions or newly developed user groups, and even market mechanism can play a role in the development of irrigation systems. Particularly, Narata *et al.* (2015) also emphasize the participation of water user association member in improving water management efficiency.

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In Aceh, like in in Japan as reported by Arase *et al.* (2016), irrigation is mainly connected with rice fields. The role of *Keujruen Blang* is considered to be quite dominant in empowering the farmers, as it performs tasks such as coordinating clean-up cleaning activities, coordinating channel tracking up to water sources, dividing water up to the rice fields, helping *Geuchiek* (the head of a village) to coordinate *khanduri blang* activities, and resolve the problems that arise between members of the community with regard to disputes over the distribution of water and agricultural land in the fields.

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The existence of agricultural extension partnership with *Keujruen Blang* institution that has been rooted in the farming community provides an opportunity to answer various obstacles in rural farming process, so as to support the improvement of living and welfare level for the farming community. It is in line with Wheeler *et al.* (2017) as cited by Pittock *et al.* (2017) who notes that "extension services were identified as the main source for information for the majority of irrigation farmers, and it was also found that those who use irrigation extension services are more likely to adopt hard-technology innovation.

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Indraningsih, Indraningsih, Sugihen, Tjitropranoto, Asngari and Wijayanto *et al.* (2010) also stated that the role of agricultural extension can only be felt by the farmer group members only. More time was spent for administrative activities compared to extension activities, as well as the burden of the target area to 3-6 villages for each extension worker. This condition requires an agricultural extension partnership system with various parties including customary institutions in order to ease the burden and synergy between innovation producers, extension agents and farmers as well as to manage and develop irrigation system. It is in line with Dick (2014) who noted that "the development of irrigation systems that serve more than one farm require coordination systems and some form of property rights to at least identify who has what rights to use, manage, and exclude others from the associated land, infrastructure, and water".

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Furthermore, Ojcha and Morin (2001) and Agussabti (2002) also argued that the partnership will increase the effectiveness of empowerment to the community. The key to successful partnerships is complementary business. To

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achieve this complementary there must be mutual understanding and respect for the strengths and weaknesses of each. Based on this background, this study aims to find out the role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers in Aceh Utara Regency, Aceh Province. Therefore, this study aims to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers in Aceh, Indonesia.

RESEARCH METHODOLOGY

This research ~~was~~ conducted in Sawang District, North Aceh Regency. The population of this study ~~are were~~ *keujruen blang*, agricultural extension agents and member of rice farmer association named 'Sapue Pakat' who ~~received-participated in the~~ agricultural extension program of North Aceh Regency government with universities-Bogor Agriculture Institute and Syiah Kuala University. The population in this study also became a sample. The total population to be sampled in this study amounted to 128 farmers, ~~and~~ 34 agricultural extension agents ~~and~~ 4 *keujruen blang* at different level. All of them were surveyed.

The scope of the study ~~is-was~~ limited only to see the role of *Keujruen Blang* in the implementation of an agricultural extension model for rice farmers. The research objects ~~are-were~~ agricultural extension agents and members of farmer association who have given the assessment to role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers.

To measure and analyze the data, the authors used the measurement of Likert-scale scoring data. The authors distributed the questionnaires for all farmers, agricultural extension agents and *keujruen blang* who were sampled in this study, that The questionnaires were served in closed forms using the five-point Likert Scale (~~namely strongly agree, agree, not sure, disagree and strongly disagree~~). Beside questionnaires, the author also conducted interviews with 34 agricultural extension agents and 4 *Keujruen Blang* at different levels to obtain in-depth information about the subject of this study.

The data covered the indicators of *Keujruen Blang's* role which consists of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions ~~to-from~~ the rice farming community.

Besides, this research also attempt to see the role of the *Keujruen Blang* in assisting the work of agricultural extension workers. The role ~~can~~ be seen through indicators such as (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups.

RESULT AND DISCUSSION

~~*Keujruen Blang* is one of the custom institutions in Aceh that contained in Qanun Number 10 Year 2008 on Customary Institutions. In other provinces outside Aceh, one of institution which has similar roles is Water User Farmers Association. Another familiar Institution that Manage Irrigation System is Subak that was found in Bali, Indonesia. Referring to various studies, Sriartha et al. (2015) noted that "subak can be used as a model of harmonious community life and management of sustainable resources at scale of wider areas and communities".~~

In Aceh, agricultural extension agents have long established cooperation with *Keujruen Blang* institutions. This is based on mutual interest in the role of each institution. Information from *Keujruen Blang* institute on rice farming activity in Aceh Province is very useful for the perpetrator of agriculture extension activity, such as information about *khanduri blang* activities, planting schedule and distribution of irrigation water in one area. The information will be aligned with agricultural extension practices that cover the implementation stage, the materials, methods and intensity of extension conducted for seed farmers at this research site.

~~Several *Keujruen Blang's* role viewed in this research are (1) Set the division of water to the rice farmers, (2) Determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) Coordinating *Khanduri Blang* (5) socializing and imposing sanetions on farmers who violate customary law and (6)) pick up small contributions to the rice farming community.~~

Table 1 demonstrates that in general, seed farmers in the research location assessing *Keujruen Blang* institutions play a role in farming activities of breeding seeds that they do. It is in line with Azis (2018) who found that 85.5% of respondents gave a positive answer to the existence of the *Keujruen blang* customary institution in increasing the rice production of farmers in Manggeng, Aceh Barat Daya, Indonesia. The institutional role of *Keujruen Blang* that has been rooted in the farming community in this research location is also difficult to be replaced by government institutions such as Water User Association prevailing throughout the archipelago.

Partially, the role of *Keujruen Blang* in arranging the distribution of water is very significant. The role of the *Keujruen Blang* to regulate water distribution is a key role in comparison with a number of other roles implemented by customary institutions of *Keujruen Blang*. The implementation of water distribution is done by *Keujruen Blang* in

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accordance with the agreement of the distribution of irrigation water. In that case, even if the farmers live in one area, they may get the turn of irrigation water with different schedule. This condition cannot be separated from the arrangement made by *Keujruen Syik* (*Keujruen Blang* at subdistrict level) in irrigation water management. It support Rosegrant and Cai, 2002; Yang *et al.*, 2003 as cited by Zhang *et al.* (2013) who argues that “technical innovations as well as water policy and management reforms are required to improve water use efficiency in agriculture to meet growing food demands”.

So far, if the farmer is constrained in getting water then the first institution once contacted is *Keujruen Blang* at *gampong* level. According to the farmers’ [confessionperception](#), during this time, farmers’ report to *Keujruen Blang* about irrigation water constraints always get follow up to solve the problem of water availability. The coordination of *Keujruen Blang* institutions both at village level and sub-district level with farmers and agricultural extension workers is very good. All activities about extension and agriculture innovation are coordinated with *Keujruen Blang* to ensure that the program has supported the availability of water at every stage of rice cultivation process conducted by farmers.

The role of *Keujruen Blang* in determining and coordinating the schedule of rice planting is also considered to be very significant. By following the schedule, farmers are able to start rice cultivation activities simultaneously then facilitate the process of applying innovation, pest and disease control and distribution of irrigation water.

Determination of the schedule begins with a meeting conducted by *keujruen syik*. At the meeting, there are all *Geuchiek*, *Imum Mukim* (the head of government under subdistrict area), agricultural extension workers, *Keujruen Blang* at *gampong* level, and elements of the district government. In the meeting, it is determined the schedule of rice planting, *khanduri blang* day and irrigation water distribution. Meanwhile, the extension workers conveyed which rice seed that should be sown in this growing season and information if there is a government assistance program to farmers in the study location.

After the district-level meeting on the schedule of rice planting, *Keujruen Blang* at *gampong* level coordinates the implementation of *gotong royong* (an activity done by farmers to clean irrigation channels). All farmers in the area should attend unless then there is a provision that is must pay some money to *Keujruen Blang* to replace the farmer’s absence at the time of *gotong royong*.

The role of *Keujruen Blang* in resolving disputes between rice farmers is also very significant. The forms of disputes resolved by the institution and the village apparatus are limited only to the regulation of water and disputes in the cultivation process on rice field. Any form of dispute on water regulation and farming process among farmers is reported to *Keujruen Blang* at *gampong* level and then discussed with the *gampong* apparatus and *imum mukim* to find a solution based on customary law.

Some forms of dispute obtained in the research location are the case of seizure of water, the destruction of water channels, illegal water taking, and the destruction of crops by livestock. Completion of the dispute between farmers always involves *Keujruen Blang* either directly or indirectly (only asked for his opinion). Usually custom settlement of disputes is adhered to and obeyed by the parties to the dispute.

The role of *Keujruen Blang* in coordinating the implementation of *khanduri blang* is also considered significant in the study location. In implementing *khanduri blang*, *Keujruen Blang* coordinates with *keujruen syik*, religious leaders and agricultural extension workers. *Keujruen Blang* announces the schedule of *khanduri blang* and what preparations should be brought by each farmer. In addition to the provision of farmers, *Keujruen Blang* also prepares supplies in accordance with the farmers’ contributions earned in the previous planting season. The procedure of *khanduri blang* generally is done by slaughtering animals such as chickens or ducks. Some *gampong* also butcher sheep. The skin sheep then is cut into pieces and placed in the rice field area.

The extension workers at the time of *khanduri blang* are given the opportunity to conduct extension by giving information about the procedure of land, nursery and planting. While the religious leaders lead prayer activities for the safety and smoothness of farming activities that will be done.

There are two implementation of *khanduri blang* coordinated by *keujruen* in one planting season; (1) starting to plan (*tron u blang*) and (2) post planting (*tob blang*). But there are also some farmers who do *khanduri blang* once again when ready to harvest, but this *khanduri blang* is not coordinated by *Keujruen Blang*. Based on information from *Keujruen Blang*, the implementation of *khanduri blang* becomes routine that must be done although with self-help preparation and a little fund from membership fee. The extension workers seek to take advantage of opportunities to inform counseling and information from the government because the participation of rice farmers to attend *khanduri blang* is very high.

The role of *Keujruen Blang* in giving socialization and sanction for unlawful farmers is considered significant. Socialization is usually done at the time of *khanduri blang* activities by delivering the customary law of rice farming and new agreement which resulted in the meeting at *Keujruen Syik* level. Based on the researchers’ observations in the research location, because the socialization is done on the activities of *khanduri blang*, not all

farmers focus on listening to socialization because they involve in cooking activities to prepare food menu for *khanduri blang*.

With regard to sanctions imposed on those who violate customary law of rice farming, there is a shift in which *Keujruen Blang* is not the principal institution that imposes sanctions, but it still involved in decision-making sanctions given to customary law-breakers. It is in line with Yulia *et. al* (2012) who reported that in the settlement of the dispute, *keujruen blang* is still coordinating with *geuchiek*.

Sanctions are granted by *gampong* apparatus in accordance with *reusam* (social regulation at *gampong* level) which in detail regulates the forms of sanctions granted to indigenous law-violator farmers. The sanctions for instance, when there is a fight and the blood get out, the guilty party is required to butcher a goat for *peusijuek* (one of customary ceremony in Aceh). Another form of sanction also involves paying a penalty to a party whose crops are damaged by other peasant livestock. In this case, paying a penalty is not only to the farmers whose crops are damaged but also to customary institutions which are then referred to as livestock redemption. The fund is managed by the *gampong* apparatus for the operations and ceremonial activities of the indigenous communities.

The role of *Keujruen Blang* in picking up small contributions to the rice farming community is in the last rank but it is also significant. The contribution picking is done by *Keujruen Blang* at harvest time. The contribution is in the crops form in the amount of which is adjusted to the area owned by the farmers who get water regulation services by *Keujruen Blang* at *gampong* level. The amount of contribution is also in accordance with the agreement of meeting during *khanduri blang* in every planting season.

The allocation of contributions is divided into 3 (three) allocations including (1) the salary of *Keujruen Blang*, (2) the cost of *khanduri blang* and (3) the village cash for customary institutional activities with the composition (40: 30: 30). Along with the prospect of profit value (profit) obtained by the *Keujruen Blang* then every year more and more people are interested to be elected as *Keujruen Blang* at *gampong* level. Based on the information from *Keujruen Blang*, in every season planting (4 months), one *Keujruen Blang* commonly gets Rp. 5.200.000 up to 6.000.000 from the farmers' contribution. This variation is highly depends on the crops picked and the price of rice that prevailed during the harvest.

According to Yulia *et al.* (2012), the contribution picking has become a common *practice* and is considered very helpful in maintaining the harmonization and social dynamics of rice farmers in rural Aceh province. Furthermore, Putra, Hariadi, and Harsoyo, Syahputra and Wira, (2012) note that indirectly, *Keujruen Blang* activities also helps the success of farmer empowerment activities in establishing good communication and coordination as well as the success of agricultural development activities for the farming community.

In addition to being felt by farmers, the role of *Keujruen Blang* is also felt by agricultural extension workers. Some of the roles of *Keujruen Blang* in assisting agricultural extension work can be seen through indicators (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups. The results of the perception of the role of agricultural extension partnerships with *Keujruen Blang* can be seen in Table 2;

Table 2 shows that a very large role is the aid of evenly regulating water according to the needs of rice plants at each stage of the development of rice plants. Availability of water amid global climate change with a good regulatory system will make agricultural land productive and produce high production. This is in line with the findings of the benefits of the Subak system water management in the Balinese and the Nagari Padang laweh Malalo system for the people of West Sumatra (David and Ploeger, 2014).

Extension workers and farmers also strongly agreed that the existence of *Keujruen Blang* was very helpful in the simultaneous planting program. Simultaneous planting has a positive impact on the maintenance of rice plants. Simultaneous planting allows reduced pest attacks due to the breakdown of the pest cycle due to simultaneous land cultivation in one area. Simultaneous planting is inseparable from the stages of farming activities established by the *Keujruen Blang* for all farmers in an area in Aceh Province. The stage starts from the schedule of descending, seeding, planting until the harvest.

During this time, according to farmers' acknowledgment, the majority of farmers in the research location were very obedient to the farming schedule rules stipulated by the party of *Keujruen Blang*. This role indirectly influences food security for rice farming communities and is also able to contribute to increased production.

A series of activities held by *Keujruen Blang* institutions involving large numbers of farmers were also often used by extension agents to convey a number of technologies for wetland rice cultivation and other information planned by the government. *Keujruen Blang* in ceremonial descent into the rice fields (*khanduri Blang*) often gives instructors 30 to 60 minutes to convey important information such as refresher land management methods, seeding the initial planting and fertilizing seeds. According to the extension instructor, this opportunity is very meaningful to socialize programs and events for the transfer of new technology to farmers in the cultivation of paddy rice.

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Another opportunity that is often given by the *Keujruen Blang* institution to extension workers is when the farmers are gathered at the *Toep Blang* festive activity (thanksgiving when planting rice is finished). On the occasion, the instructor conveyed the method of continued fertilization, pest and disease control, harvesting, post-harvest handling and various alternative market information produced by farmers. At the same time *Keujruen Blang* also had the opportunity to reiterate a number of customary rules for farmers that must be a concern during a production cycle.

So far, the concept developed by *Keujruen Blang* synergized with agricultural extension agents. Based on interview results with *Keujruen Blang*, the concept is as follows:

- 1). Water is a blessing for a shared life that must be grateful. Therefore, water must be managed properly and fairly for prosperity and mutual welfare.
- 2). The values of togetherness and mutual cooperation among farmers are taken through the management of several traditional ceremonies. The ceremony is
 - a. *Khanduri Abah Lueng*. This ceremony is carried out by rice farmers in one sub-district in every year. This ceremony functions as: a). increasing the togetherness of rice farmers in the same irrigation area. b). eradicate rats, snails and other pests in wider rice fields and c). reduce the attack of pests when the rice produces fruit.
 - b. *Khanduri Blang*. This ceremony was coordinated by *Keujruen Cut*, carried out at the village level and usually held by paddy farmers after the *Khanduri Abah Lueng* ceremony at the sub-district level.
 - c. *Khanduri Rhet Bijeh*. This ceremony is often referred to as *Khanduri Nabi Adam*.
 - d. *Khanduri* when rice is attacked by pests. There is no special name for this ceremony.

3). Concept of Environmental Management through Self-financing

In order to increase the source of funds, *Keujruen Blang* can take several techniques in accordance with Qanun Number 10 year 2005. They are cover a). contributions, which are obtained at harvest in accordance with the area of land managed by each farmer, b). donations or other non-binding assistance, c). other businesses that are lawful and d). finances violation funds.

To increase the source of funds, *Keujruen Blang* is also allowed to conduct farming or cooperatives. This last activity has not been implemented in almost all research areas in Aceh. Even though the sources of funds have already been mentioned in the qanun, there is no *Keujruen Chiek* requesting funds from farmers in accordance with this points.

4). The concept of channel security and maintenance, channel construction and irrigation is generally carried out by the Department of Water Public Works. However, safeguards and treatments, especially tertiary and quaternary channels, are carried out through joint efforts of local rice farmers' members by strengthening the spirit of togetherness of members.

The research results showed that farmers consider *Keujruen Blang* as a potential party to connect farmers' aspirations with the government or other parties related to the empowerment of farmers. The cooperation between the *Keujruen Blang* institution and the farmers was also felt by extension agents in developing farmer groups. This is inseparable from the contribution of *Keujruen Blang* who actively shares information and becomes one of the parties connecting the aspirations of farmers with the government.

CONCLUSION

In general, rice seed farmers consider that *Keujruen Blang* plays a significant role in the process of rice farming cultivation. In order of importance sequence the role of *Keujruen Blang* on seed farmers are: (1) Set the division of water to the rice farmers, (2) Determine and coordinate the schedule of planting rice, (3) Resolving disputes between rice farmers, (4) Coordinating *khanduri blang*, (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions from the rice farming community.

Keujruen Blang's role is very helpful for extension workers in delivering information and implementation of innovations delivered for seed farmers. This research recommends to increase the involvement of *Keujruen Blang* in formulating the extension work plan, in the implementation and evaluation of the extension program to rice farmer in supporting the effectiveness of agricultural extension to increase farmers' production and welfare.

In addition, the cooperation between the *Keujruen Blang* institution and the farmers was also acknowledged by agriculture extension agents in developing farmer groups. The agriculture extension agents stated that the *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and in the implementation of simultaneous cultivation. This is because *Keujruen Blang* is always actively sharing information and is one of the links between the aspirations of farmers and the government and other relevant parties.

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Table 1. Value of Role Index of *Keujruen Blang* on Rice Seed Farmer

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Set the division of water to the rice farmers	86.52	Very significant
2	Determine and coordinate the schedule down the rice	87.83	Very significant
3	Coordinate the implementation of khanduri blang	73.98	Significant
4	Resolving disputes between rice rice farmers	82.89	Very significant
5	Socialize and sanction farmers who violate customary law	69.07	Significant
6	Pick up small contributions to from the rice farming community	68.62	Significant
	The role commonly	78.15	Significant

Source : Data Primer Analysis, 2017

Table 2. The role of agricultural extension partnerships with *Keujruen Blang*

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Implementation of planting (cultivation) simultaneously	84.79	Very significant
2	Helping farmers in water management	89.32	Very significant
3	Opportunities to convey agricultural information	81.56	Very Significant
4	Connectors of agricultural aspirations to agricultural	72.64	Significant

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5	extension workers Farmer group development	68.39	Significant
	The role commonly	79.34	Significant
Source : Primer Data Analysis, 2017			

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The Role of Customary Institutions for Agricultural Communities and Agricultural Extension

Setia Budi ^{1*}, Ahmad Humam Hamid², Fajri² and Agussabti²

¹ Doctoral Programme in Agricultural Sciences, Universitas Syiah Kuala, Banda Aceh, Indonesia

² Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia

*Corresponding Author: s.budiunimal@gmail.com

ABSTRACT

The purpose of this study is to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers. *Keujruen Blang* is a customary institution rooted in Aceh Province, Indonesia. This study uses qualitative research method by applying case study with qualitative descriptive approach in which data processing through non parametric static with data measurement using Likert Scale. The results showed that farmers still perceive the existence of *Keujruen Blang* in terms of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community. Beside farmers, the role of *Keujruen Blang* is also felt by agricultural extension agents. They stated that *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This research recommends the involvement of *Keujruen Blang* in formulating extension work plan, implementation and evaluation of extension program to rice farmer breeders in supporting the effectiveness of agricultural extension to increase farmer production and welfare.

Keywords: Agricultural Communities, Agriculture extension; Customary institution; *Keujruen Blang's* role; Rice seed farmers.

INTRODUCTION

Institution is one of element that plays an important role in agricultural development in Indonesia. A development approach that was similarized to the production approach, by means of new cultivation, can not solve agricultural problems, especially on the use of rural farmers' resources. Many agricultural problems can only be solved through partnerships from various institutions existing in rural farming societies. In the community, it can be found several institutions that have the function of regulating the attitudes and behavior of its citizens which is also a guide for them in interaction with each other.

As a part of society in Indonesia, the people of Aceh have local wisdom in managing rice farming through customary institutions named *Keujruen Blang*. The role of *Keujruen Blang* as a custom institution is regulated in Aceh Official Regulations (Qanun) number 10 Year 2008 on customary institutions, while its duties were stipulated in the Governor Regulation of Aceh no. 45 of 2015.

Based on the regulation, the role of *Keujruen Blang* are; (1) Set the division of water to the rice farmers, (2) Determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) Coordinating *khanduri blang* (a customary ceremony done by farmers in Aceh Province in which they pray for their planting then eat together) (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community.

Keujruen Blang is an indigenous tool within the Acehese community that has the duty and responsibility to organize, assist and cultivate rice farmers including irrigation water userassociation. It support Dick (2014) who believe that collective action through customary institutions or newly developed user groups, and even market mechanism can play a role in the development of irrigation systems. Particularly, Narata *et al.* (2015) also emphasize the participation of water user association member in improving water management efficiency.

In Aceh, like in in Japan as reported by Arase *et al.* (2016), irrigation is mainly connected with rice fields. The role of *Keujruen Blang* is considered to be quite dominant in empowering the farmers, as it performs tasks such as coordinating clean-up cleaning activities, coordinating channel tracking up to water sources, dividing water up to the rice fields, helping *Geuchiek*(the head of a village) to coordinate *khanduri blang* activities, and resolve the problems that arise between members of the community with regard to disputes over the distribution of water and agricultural land in the fields.

The existence of agricultural extension partnership with *Keujruen Blang* institution that has been rooted in the farming community provides an opportunity to answer various obstacles in rural farming process, so as to support the improvement of living and welfare level for the farming community. It is in line with Wheeler *et al.* (2017) as cited by Pittocket *al.* (2017) who notes that "extension services were identified as the main source for information for the majority of irrigation farmers, and it was also found that those who use irrigation extension services are more likely to adopt hard-technology innovation.

Indraningsih *et al.* (2010) also stated that the role of agricultural extension can only be felt by the farmer group members only. More time was spent for administrative activities compared to extension activities, as well as the burden of the target area to 3-6 villages for each extension worker. This condition requires an agricultural extension partnership system with various parties including customary institutions in order to ease the burden and synergy between innovation producers, extension agents and farmers as well as to manage and develop irrigation system. It is in line with Dick (2014) who noted

that “the development of irrigation systems that serve more than one farm require coordination systems and some form of property rights to at least identify who has what rights to use, manage, and exclude others from the associated land, infrastructure, and water”.

Furthermore, Ojcha and Morin (2001) and Agussabti (2002) also argued that the partnership will increase the effectiveness of empowerment to the community. The key to successful partnerships is complementary business. To achieve this complementary there must be mutual understanding and respect for the strengths and weaknesses of each. Based on this background, this study aims to find out the role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers in Aceh Utara Regency, Aceh Province.

RESEARCH METHODOLOGY

This research was conducted in Sawang District, North Aceh Regency. The population of this study are agricultural extension agents and member of rice farmer association named ‘Sapue Pakat’ who received agricultural extension program of North Aceh Regency government with universities-Bogor Agriculture Institute and Syiah Kuala University. The total population to be sampled in this study amounted to 128 farmers and 34 agricultural extension agents.

The scope of the study is limited only to see the role of *Keujruen Blang* in the implementation of agricultural extension model for rice farmers. The research objects are agricultural extension agents and members of farmer association who have given the assessment to role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers.

To measure and analyze the data, the authors use the measurement of Likert-scale scoring data. The authors distributed the questions that were served in closed forms using the five-point Likert Scale (namely strongly agree, agree, not sure, disagree and strongly disagree).

The data cover the indicator of *Keujruen Blang*’s role which consists of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community.

Besides, this research also attempt to see the role of the *Keujruen Blang* in assisting the work of agricultural extension workers. The role can be seen through indicators (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups.

RESULT AND DISCUSSION

Keujruen Blang is one of the custom institutions in Aceh that contained in Qanun Number 10 Year 2008 on Customary Institutions. In other provinces outside Aceh, one of institution which has similar roles is Water User Farmers Association. Another familiar Institution that Manage Irrigation System is Subak that was found in Bali, Indonesia. Referring to various studies, Sriartha *et al.* (2015) noted that “*subak* can be used as a model of harmonious community life and management of sustainable resources at scale of wider areas and communities”.

In Aceh, agricultural extension agents have long established cooperation with *Keujruen Blang* institutions. This is based on mutual interest in the role of each institution. Information from *Keujruen Blang* institute on rice farming activity in Aceh Province is

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very useful for the perpetrator of agriculture extension activity, such as information about *khanduri blang* activities, planting schedule and distribution of irrigation water in one area. The information will be aligned with agricultural extension practices that cover the implementation stage, the materials, methods and intensity of extension conducted for seed farmers at this research site.

Several *Keujruen Blang*'s role viewed in this research are (1) Set the division of water to the rice farmers, (2) Determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) Coordinating *Khanduri Blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community.

Table 1 demonstrates that in general, seed farmers in the research location assessing *Keujruen Blang* institutions play a role in farming activities of breeding seeds that they do. The institutional role of *Keujruen Blang* that has been rooted in the farming community in this research location is difficult to be replaced by government institutions such as Water User Association prevailing throughout the archipelago.

Partially, the role of *Keujruen Blang* in arranging the distribution of water is very significant. The role of the *Keujruen Blang* to regulate water distribution is a key role in comparison with a number of other roles implemented by customary institutions of *Keujruen Blang*. The implementation of water distribution is done by *Keujruen Blang* in accordance with the agreement of the distribution of irrigation water. In that case, even if the farmers live in one area, they may get the turn of irrigation water with different schedule. This condition cannot be separated from the arrangement made by *Keujruen Syik* (*Keujruen Blang* at subdistrict level) in irrigation water management. It support Rosegrant and Cai, 2002; Yang *et al.*, 2003 as cited by Zhang *et al.* (2013) who argues that "technical innovations as well as water policy and management reforms are required to improve water use efficiency in agriculture to meet growing food demands".

So far, if the farmer is constrained in getting water then the first institution once contacted is *Keujruen Blang* at *gampong* level. According to the farmers' confession, during this time, farmers' report to *Keujruen Blang* about irrigation water constraints always get follow up to solve the problem of water availability. The coordination of *Keujruen Blang* institutions both at village level and sub-district level with farmers and agricultural extension workers is very good. All activities about extension and agriculture innovation are coordinated with *Keujruen Blang* to ensure that the program has supported the availability of water at every stage of rice cultivation process conducted by farmers.

The role of *Keujruen Blang* in determining and coordinating the schedule of rice planting is also considered to be very significant. By following the schedule, farmers are able to start rice cultivation activities simultaneously then facilitate the process of applying innovation, pest and disease control and distribution of irrigation water.

Determination of the schedule begins with a meeting conducted by *keujruen syik*. At the meeting, there are all *Geuchiek*, *ImumMukim* (the head of government under subdistrict area), agricultural extension workers, *Keujruen Blang* at *gampong* level, and elements of the district government. In the meeting, it is determined the schedule of rice planting, *khanduri blang* day and irrigation water distribution. Meanwhile, the extension workers conveyed which rice seed that should be sown in this growing season and information if there is a government assistance program to farmers in the study location.

After the district-level meeting on the schedule of rice planting, *Keujruen Blang* at *gampong* level coordinates the implementation of *gotong royong* (an activity done by farmers to clean irrigation channels). All farmers in the area should attend unless then there is a provision that is must pay some money to *Keujruen Blang* to replace the farmer's absence at the time of *gotong royong*.

The role of *Keujruen Blang* in resolving disputes between rice farmers is also very significant. The forms of disputes resolved by the institution and the village apparatus are limited only to the regulation of water and disputes in the cultivation process on rice field. Any form of dispute on water regulation and farming process among farmers is reported to *Keujruen Blang* at *gampong* level and then discussed with the *gampong* apparatus and *imum mukim* to find a solution based on customary law.

Some forms of dispute obtained in the research location are the case of seizure of water, the destruction of water channels, illegal water taking, and the destruction of crops by livestock. Completion of the dispute between farmers always involves *Keujruen Blang* either directly or indirectly (only asked for his opinion). Usually custom settlement of disputes is adhered to and obeyed by the parties to the dispute.

The role of *Keujruen Blang* in coordinating the implementation of *khanduri blang* is also considered significant in the study location. In implementing *khanduri blang*, *Keujruen Blang* coordinates with *keujruen syik*, religious leaders and agricultural extension workers. *Keujruen Blang* announces the schedule of *khanduri blang* and what preparations should be brought by each farmer. In addition to the provision of farmers, *Keujruen Blang* also prepares supplies in accordance with the farmers' contributions earned in the previous planting season. The procedure of *khanduri blang* generally is done by slaughtering animals such as chickens or ducks. Some *gampong* also butcher sheep. The skin sheep then is cut into pieces and placed in the rice field area.

The extension workers at the time of *khanduriblang* are given the opportunity to conduct extension by giving information about the procedure of land, nursery and planting. While the religious leaders lead prayer activities for the safety and smoothness of farming activities that will be done.

There are two implementation of *khanduriblang* coordinated by *keujruen* in one planting season; (1) starting to plan (*tron u blang*) and (2) post planting (*tob blang*). But there are also some farmers who do *khanduri blang* once again when ready to harvest, but this *khanduri blang* is not coordinated by *Keujruen Blang*. Based on information from *Keujruen Blang*, the implementation of *khanduri blang* becomes routine that must be done although with self-help preparation and a little fund from membership fee. The extension workers seek to take advantage of opportunities to inform counseling and information from the government because the participation of rice farmers to attend *khanduri blang* is very high.

The role of *Keujruen Blang* in giving socialization and sanction for unlawful farmers is considered significant. Socialization is usually done at the time of *khanduri blang* activities by delivering the customary law of rice farming and new agreement which resulted in the meeting at *Keujruen Syik* level. Based on the researchers' observations in the research location, because the socialization is done on the activities of *khanduri blang*, not all farmers focus on listening to socialization because they involve in cooking activities to prepare food menu for *khanduri blang*.

With regard to sanctions imposed on those who violate customary law of rice farming, there is a shift in which *Keujruen Blang* is not the principal institution that imposes sanctions, but it still involved in decision-making sanctions given to customary law-breakers. It is in line with Yulia *et. al* (2012) who reported that in the settlement of the dispute, *keujruen blang* is still coordinating with *geuchiek*.

Sanctions are granted by *gampong* apparatus in accordance with *reusam* (social regulation at *gampong* level) which in detail regulates the forms of sanctions granted to indigenous law-violator farmers. The sanctions for instance, when there is a fight and the blood get out, the guilty party is required to butcher a goat for *peusijuek* (one of customary ceremony in Aceh). Another form of sanction also involves paying a penalty to a party

whose crops are damaged by other peasant livestock. In this case, paying a penalty is not only to the farmers whose crops are damaged but also to customary institutions which are then referred to as livestock redemption. The fund is managed by the *gampong* apparatus for the operations and ceremonial activities of the indigenous communities.

The role of *Keujruen Blang* in picking up small contributions to the rice farming community is in the last rank but it is also significant. The contribution picking is done by *Keujruen Blang* at harvest time. The contribution is in the crops form in the amount of which is adjusted to the area owned by the farmers who get water regulation services by *Keujruen Blang* at *gampong* level. The amount of contribution is also in accordance with the agreement of meeting during *khanduri blang* in every planting season.

The allocation of contributions is divided into 3 (three) allocations including (1) the salary of *Keujruen Blang*, (2) the cost of *khanduri blang* and (3) the village cash for customary institutional activities with the composition (40: 30: 30). Along with the prospect of profit value (profit) obtained by the *Keujruen Blang* then every year more and more people are interested to be elected as *Keujruen Blang* at *gampong* level. Based on the information from *Keujruen Blang*, in every season planting (4 months), one *Keujruen Blang* commonly gets Rp. 5.200.000 up to 6.000.000 from the farmers' contribution. This variation is highly depends on the crops picked and the price of rice that prevailed during the harvest.

According to Yulia *et al.* (2012), the contribution picking has become a common and is considered very helpful in maintaining the harmonization and social dynamics of rice farmers in rural Aceh province. Furthermore, Syahputra and Wira, (2012) note that indirectly, *Keujruen Blang* activities also helps the success of farmer empowerment activities in establishing good communication and coordination as well as the success of agricultural development activities for the farming community.

In addition to being felt by farmers, the role of *Keujruen Blang* is also felt by agricultural extension workers. Some of the roles of *Keujruen Blang* in assisting agricultural extension work can be seen through indicators (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups. The results of the perception of the role of agricultural extension partnerships with *Keujruen Blang* can be seen in Table 2;

Table 2 shows that a very large role is the aid of evenly regulating water according to the needs of rice plants at each stage of the development of rice plants. Availability of water amid global climate change with a good regulatory system will make agricultural land productive and produce high production. This is in line with the findings of the benefits of the Subak system water management in the Balinese and the Nagari Padang laweh Malalo system for the people of West Sumatra (David and Ploeger, 2014).

Extension workers and farmers also strongly agreed that the existence of *Keujruen Blang* was very helpful in the simultaneous planting program. Simultaneous planting has a positive impact on the maintenance of rice plants. Simultaneous planting allows reduced pest attacks due to the breakdown of the pest cycle due to simultaneous land cultivation in one area. Simultaneous planting is inseparable from the stages of farming activities established by the *Keujruen Blang* for all farmers in an area in Aceh Province. The stage starts from the schedule of descending, seeding, planting until the harvest.

During this time, according to farmers' acknowledgment, the majority of farmers in the research location were very obedient to the farming schedule rules stipulated by the party of *Keujruen Blang*. This role indirectly influences food security for rice farming communities and is also able to contribute to increased production.

A series of activities held by *Keujruen Blang* institutions involving large numbers of farmers were also often used by extension agents to convey a number of technologies for wetland rice cultivation and other information planned by the government. *Keujruen Blang* in ceremonial descent into the rice fields (*kenduri Blang*) often gives instructors 30 to 60 minutes to convey important information such as refresher land management methods, seeding the initial planting and fertilizing seeds. According to the extension instructor, this opportunity is very meaningful to socialize programs and events for the transfer of new technology to farmers in the cultivation of paddy rice.

Another opportunity that is often given by the *Keujruen Blang* institution to extension workers is when the farmers are gathered at the *Toep Blang* festive activity (thanksgiving when planting rice is finished). On the occasion, the instructor conveyed the method of continued fertilization, pest and disease control, harvesting, post-harvest handling and various alternative market information produced by farmers. At the same time *Keujruen Blang* also had the opportunity to reiterate a number of customary rules for farmers that must be a concern during a production cycle.

So far, the concept developed by *Keujruen Blang* synergized with agricultural extension agents. The concept is as follows:

1). Water is a blessing for a shared life that must be grateful. Therefore, water must be managed properly and fairly for prosperity and mutual welfare.

2). The values of togetherness and mutual cooperation among farmers are taken through the management of several traditional ceremonies. The ceremony is

a. *Khanduri Abah Lueng*. This ceremony is carried out by rice farmers in one sub-district in every year. This ceremony functions as: a). increasing the togetherness of rice farmers in the same irrigation area. b). eradicate rats, snails and other pests in wider rice fields and c). reduce the attack of pests when the rice produces fruit.

b. *Khanduri Blang*. This ceremony was coordinated by *Keujruen Cut*, carried out at the village level and usually held by paddy farmers after the *Khanduri Abah Lueng* ceremony at the sub-district level.

c. *Khanduri Rhet Bijeh*. This ceremony is often referred to as *Khanduri Nabi Adam*.

d. *Khanduri* when rice is attacked by pests. There is no special name for this ceremony.

3). Concept of Environmental Management through Self-financing

In order to increase the source of funds, *Keujruen Blang* can take several techniques in accordance with Qanun Number 10 year 2005. They are cover a). contributions, which are obtained at harvest in accordance with the area of land managed by each farmer, b). donations or other non-binding assistance, c). other businesses that are lawful and d). finances violation funds.

To increase the source of funds, *Keujruen Blang* is also allowed to conduct farming or cooperatives. This last activity has not been implemented in almost all research areas in Aceh. Even though the sources of funds have already been mentioned in the qanun, there is no *Keujruen Chiek* requesting funds from farmers in accordance with this points.

4). The concept of channel security and maintenance, channel construction and irrigation is generally carried out by the Department of Water Public Works. However, safeguards and treatments, especially tertiary and quaternary channels, are carried out through joint efforts of local rice farmers' members by strengthening the spirit of togetherness of members.

The research results showed that farmers consider *Keujruen Blang* as a potential party to connect farmers' aspirations with the government or other parties related to the

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empowerment of farmers. The cooperation between the *Keujruen Blang* institution and the farmers was also felt by extension agents in developing farmer groups. This is inseparable from the contribution of *Keujruen Blang* who actively shares information and becomes one of the parties connecting the aspirations of farmers with the government.

CONCLUSION

In general, rice seed farmers consider *Keujruen Blang* play a significant role in the process of rice farming cultivation. In sequence the role of *Keujruen Blang* on seed farmers are: (1) Set the division of water to the rice farmers, (2) Determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) Coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community.

Keujruen Blang's role is very helpful for extension workers in delivering information and implementation of innovation delivered to seed farmers. This research recommends the involvement of *Keujruen Blang* in formulating extension work plan, implementation and evaluation of extension program to rice farmer in supporting the effectiveness of agricultural extension to increase farmers' production and welfare.

In addition, the cooperation between the *Keujruen Blang* institution and the farmers was also felt by agriculture extension agents in developing farmer groups. The agriculture extension agents stated that the *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This is because *Keujruen Blang* is always actively sharing information and is one of the links between the aspirations of farmers and the government and other relevant parties.

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Table1. Value of Role Index of *Keujruen Blang* on Rice Seed Farmer

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Set the division of water to the rice farmers	86.52	Very significant
2	Determine and coordinate the schedule down the rice	87.83	Very significant
3	Coordinate the implementation of khanduri blang	73.98	Significant

4	Resolving disputes between rice rice farmers	82.89	Very significant
5	Socialize and sanction farmers who violate customary law	69.07	Significant
6	Pick up small contributions to the rice farming community	68.62	Significant
The role commonly		78.15	Significant

Source : Data Primer Analysis, 2017

Table 2. The role of agricultural extension partnerships with *Keujruen Blang*

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Implementation of planting (cultivation) simultaneously	84.79	Very significant
2	Helping farmers in water management	89.32	Very significant
3	Opportunities to convey agricultural information	81.56	Very Significant
4	Connectors of agricultural aspirations to agricultural extension workers	72.64	Significant
5	Farmer group development	68.39	Significant
The role commonly		79.34	Significant

Source : Primer Data Analysis, 2017

THE ROLE OF CUSTOMARY INSTITUTIONS FOR AGRICULTURAL COMMUNITIES AND AGRICULTURAL EXTENSION

LA FUNCIÓN DE LAS INSTITUCIONES DE ADMINISTRACIÓN PARA LAS COMUNIDADES AGRÍCOLAS Y EL EXTENSIONISMO AGRÍCOLA

S Budi^{1*}, A.H Hamid², Fajri³ and Agussabti⁴

¹ Doctoral Programme in Agricultural Sciences, Universitas Syiah Kuala, Banda Aceh, Indonesia

² Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email address humanhamid@yahoo.com

³ Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email address lonfajri@gmail.com

⁴ Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email address agussabti@unsyiah.ac.id

*Corresponding Author: s.budiunimal@gmail.com

SUMMARY

The purpose of this study is to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers. *Keujruen Blang* is a customary institution rooted in Aceh Province, Indonesia. This study uses qualitative research method by applying case study with qualitative descriptive approach in which data processing through non parametric static with data measurement using Likert Scale. The results showed that farmers still perceive the existence of *Keujruen Blang* in terms of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) Resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community. Beside farmers, the role of *Keujruen Blang* is also felt by agricultural extension agents. They stated that *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This research recommends the involvement of *Keujruen Blang* in formulating extension work plan, implementation and evaluation of extension program to rice farmer breeders in supporting the effectiveness of agricultural extension to increase farmer production and welfare.

RESUMEN

El propósito de este estudio es determinar el papel de *Keujruen Blang* en la implementación del modelo de extensión agrícola para los agricultores de semillas de arroz. *Keujruen Blang* es una institución tradicional arraigada en la provincia de Aceh, Indonesia. Este estudio utiliza el método de investigación cualitativa mediante la aplicación de un estudio de caso con un enfoque cualitativo descriptivo en el que el procesamiento de datos se realiza mediante estática no paramétrica con medición de datos mediante la escala de Likert. Los resultados mostraron que los agricultores aún perciben la existencia de *Keujruen Blang* en términos de; (1) establecer la división de agua entre los productores de arroz, (2) determinar y coordinar el programa de siembra de arroz (3) resolver disputas entre productores de arroz (4) coordinar *khanduri blang* (5) socializar e imponer sanciones a los agricultores que infrinjan la costumbre la ley y (6) recogen pequeñas contribuciones a la comunidad de productores de arroz. Además de los agricultores, el papel de *Keujruen Blang* también lo sienten los agentes de extensión agrícola. Afirmaron que *Keujruen Blang* fue instrumental en ayudar a los agricultores, especialmente en la regulación del agua y la implementación de cultivos simultáneos. De extensión agrícola para aumentar la producción y el bienestar de los agricultores.

Keywords: Extension partnership; Farmer institution; Irrigation management; *Keujruen blang*; Local wisdom; Water user association

INTRODUCTION

Institutions play an important role in agricultural development in Indonesia. A development approach that is similar to the production approach, by means of new cultivation techniques, can not solve all the agricultural problems, especially on the use of rural farmers' resources. Many agricultural problems can only be solved through partnerships from various institutions existing in rural farming societies. In the community, several institutions can

be found that have the function of regulating the attitudes and behavior of its citizens which is also a guide for them on interacting with each other.

As a part of society in Indonesia, the people of Aceh have local wisdom in managing rice farming through customary institutions named *Keujruen Blang*. The role of *Keujruen Blang* as a custom institution is regulated in Aceh Official Regulations (Qanun) no 10 on customary institutions, while its duties were stipulated in the Governor Regulation of Aceh no. 45, 2015. Another familiar institution that manage irrigation system is *Subak* that was found in Bali, Indonesia. Referring to various studies, Sriartha *et al.* (2015) noted that “*subak* can be used as a model of harmonious community life and management of sustainable resources at scale of wider areas and communities”.

Based on Qanun no 10, , the roles of *Keujruen Blang* are; (1) setting the division of water to the rice farmers, (2) determining and coordinating the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (a customary ceremony done by farmers in Aceh Province in which they pray for their planting then eat together), (5) socializing and imposing sanctions on farmers who violate customary law and (6) picking up small contributions from the rice farming community.

Keujruen Blang is an indigenous tool within the Acehnese community that has the duty and responsibility to organize, assist and cultivate rice farmers including irrigation water user association. It support Dick (2014) who believe that collective action through customary institutions or newly developed user groups, and even market mechanism can play a role in the development of irrigation systems. Particularly, Narata *et al.* (2015) also emphasize the participation of water user association member in improving water management efficiency.

In Aceh, like in in Japan as reported by Arase *et al.* (2016), irrigation is mainly connected with rice fields. The role of *Keujruen Blang* is considered to be quite dominant in empowering the farmers, as it performs tasks such as coordinating clean-up cleaning activities, coordinating channel tracking up to water sources, dividing water up to the rice fields, helping *Geuchiek* (the head of a village) to coordinate *khanduri blang* activities, and resolve the problems that arise between members of the community with regard to disputes over the distribution of water and agricultural land in the fields.

The existence of agricultural extension partnership with *Keujruen Blang* institution that has been rooted in the farming community provides an opportunity to answer various obstacles in rural farming process, so as to support the improvement of living and welfare level for the farming community. It is in line with Wheeler *et al.* (2017) as cited by Pittock *et al.* (2017) who note that “extension services were identified as the main source for information for the majority of irrigation farmers, and it was also found that those who use irrigation extension services are more likely to adopt hard-technology innovation.

Indraningsih, Sugihen, Tjitropranoto, Asngari and Wijayanto (2010) also stated that the role of agricultural extension can only be felt by the farmer group members only. More time was spent for administrative activities compared to extension activities, as well as the burden of the target area to 3-6 villages for each extension worker. This condition requires an agricultural extension partnership system with various parties including customary institutions in order to ease the burden and synergy between innovation producers, extension agents and farmers as well as to manage and develop irrigation system. It is in line with Dick (2014) who noted that “the development of irrigation systems that serve more than one farm require coordination systems and some form of property rights to at least identify who has what rights to use, manage, and exclude others from the associated land, infrastructure, and water”. Furthermore, Ojcha and Morin (2001) and Agussabti (2002) also argued that the partnership will increase the effectiveness of empowerment to the community. The key to successful partnerships is complementary business. To achieve this complementary there must be mutual understanding and respect for the strengths and weaknesses of each. Based on this background, this study aims to find out the role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers in Aceh Utara Regency, Aceh Province. Therefore, this study aims to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers in Aceh, Indonesia.

RESEARCH METHODOLOGY

This research conducted in Sawang District, North Aceh Regency. The population of this study were *keujruen blang*, agricultural extension agents and member of rice farmer association named ‘Sapue Pakat’ who participated in the agricultural extension program of North Aceh Regency government with universities-Bogor Agriculture Institute and Syiah Kuala University. The population in this study also became a sample. The total population to be sampled in this study amounted to 128 farmers, 34 agricultural extension agents and 4 *keujruen blang* at different level. All of them were surveyed

The scope of the study was limited only to see the role of *Keujruen Blang* in the implementation of an agricultural extension model for rice farmers. The research objects were agricultural extension agents and members of farmer association who have given the assessment to role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers.

To measure and analyze the data, the authors used Likert-scale scoring data. The authors distributed the questionnaires for all farmers, agricultural extension agents and *keujruen blang* who were sampled in this study. The questionnaires were served in closed forms using the five-point Likert Scale. Beside questionnaires, the author also conducted interviews with 34 agricultural extension agents and 4 *Keujruen Blang* at different levels to obtain in-depth information about the subject of this study.

The data covered the indicators of *Keujruen Blang*'s role which consist of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions from the rice farming community.

Besides, this research also attempt to see the role of the *Keujruen Blang* in assisting the work of agricultural extension workers. The role can be seen through indicators such as (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups.

RESULT AND DISCUSSION

In Aceh, agricultural extension agents have long established cooperation with *Keujruen Blang* institutions. This is based on mutual interest in the role of each institution. Information from *Keujruen Blang* institute on rice farming activity in Aceh Province is very useful for the perpetrator of agriculture extension activity, such as information about *khanduri blang* activities, planting schedule and distribution of irrigation water in one area. The information will be aligned with agricultural extension practices that cover the implementation stage, the materials, methods and intensity of extension conducted for seed farmers at this research site.

Table 1 demonstrates that in general, seed farmers in the research location assessing *Keujruen Blang* institutions play a role in farming activities of breeding seeds that they do. It is in line with Azis (2018) who found that 85.5% of respondents gave a positive answer to the existence of the *Keujruen blang* customary institution in increasing the rice production of farmers in Manggeng, Aceh Barat Daya, Indonesia. The institutional role of *Keujruen Blang* that has been rooted in the farming community in this research location is also difficult to be replaced by government institutions such as Water User Association prevailing throughout the archipelago.

Partially, the role of *Keujruen Blang* in arranging the distribution of water is very significant. The role of the *Keujruen Blang* to regulate water distribution is a key role in comparison with a number of other roles implemented by customary institutions of *Keujruen Blang*. The implementation of water distribution is done by *Keujruen Blang* in accordance with the agreement of the distribution of irrigation water. In that case, even if the farmers live in one area, they may get the turn of irrigation water with different schedule. This condition cannot be separated from the arrangement made by *Keujruen Syik* (*Keujruen Blang* at subdistrict level) in irrigation water management. It support Rosegrant and Cai, 2002; Yang *et al.*, 2003 as cited by Zhang *et al.* (2013) who argues that "technical innovations as well as water policy and management reforms are required to improve water use efficiency in agriculture to meet growing food demands".

So far, if the farmer is constrained in getting water then the first institution once contacted is *Keujruen Blang* at *gampong* level. According to the farmers' perception, during this time, farmers' report to *Keujruen Blang* about irrigation water constraints always get follow up to solve the problem of water availability. The coordination of *Keujruen Blang* institutions both at village level and sub-district level with farmers and agricultural extension workers is very good. All activities about extension and agriculture innovation are coordinated with *Keujruen Blang* to ensure that the program has supported the availability of water at every stage of rice cultivation process conducted by farmers.

The role of *Keujruen Blang* in determining and coordinating the schedule of rice planting is also considered to be very significant. By following the schedule, farmers are able to start rice cultivation activities simultaneously then facilitate the process of applying innovation, pest and disease control and distribution of irrigation water.

Determination of the schedule begins with a meeting conducted by *keujruen syik*. At the meeting, there are all *Geuchiek*, *Imum Mukim* (the head of government under subdistrict area), agricultural extension workers, *Keujruen Blang* at *gampong* level, and elements of the district government. In the meeting, it is determined the schedule of rice planting, *khanduri blang* day and irrigation water distribution. Meanwhile, the extension workers conveyed which rice seed that should be sown in this growing season and information if there is a government assistance program to farmers in the study location.

After the district-level meeting on the schedule of rice planting, *Keujruen Blang* at *gampong* level coordinates the implementation of *gotong royong* (an activity done by farmers to clean irrigation channels). All farmers in the area should attend unless there is a provision that is must pay some money to *Keujruen Blang* to replace the farmer's absence at the time of *gotong royong*.

The role of *Keujruen Blang* in resolving disputes between rice farmers is also very significant. The forms of disputes resolved by the institution and the village apparatus are limited only to the regulation of water and disputes in the cultivation process on rice field. Any form of dispute on water regulation and farming process among farmers is reported to *Keujruen Blang* at *gampong* level and then discussed with the *gampong* apparatus and *imum mukim* to find a solution based on customary law.

Some forms of dispute obtained in the research location are the case of seizure of water, the destruction of water channels, illegal water taking, and the destruction of crops by livestock. Completion of the dispute between farmers always involves *Keujruen Blang* either directly or indirectly (only asked for his opinion). Usually custom settlement of disputes is adhered to and obeyed by the parties to the dispute.

The role of *Keujruen Blang* in coordinating the implementation of *khanduri blang* is also considered significant in the study location. In implementing *khanduri blang*, *Keujruen Blang* coordinates with *keujruen syik*, religious leaders and agricultural extension workers. *Keujruen Blang* announces the schedule of *khanduri blang* and what preparations should be brought by each farmer. In addition to the provision of farmers, *Keujruen Blang* also prepares supplies in accordance with the farmers' contributions earned in the previous planting season. The procedure of *khanduri blang* generally is done by slaughtering animals such as chickens or ducks. Some *gampong* also butcher sheep. The skin sheep then is cut into pieces and placed in the rice field area.

The extension workers at the time of *khanduri blang* are given the opportunity to conduct extension by giving information about the procedure of land, nursery and planting. While the religious leaders lead prayer activities for the safety and smoothness of farming activities that will be done.

There are two implementation of *khanduri blang* coordinated by *keujruen* in one planting season; (1) starting to plan (*tron u blang*) and (2) post planting (*tob blang*). But there are also some farmers who do *khanduri blang* once again when ready to harvest, but this *khanduri blang* is not coordinated by *Keujruen Blang*. Based on information from *Keujruen Blang*, the implementation of *khanduri blang* becomes routine that must be done although with self-help preparation and a little fund from membership fee. The extension workers seek to take advantage of opportunities to inform counseling and information from the government because the participation of rice farmers to attend *khanduri blang* is very high.

The role of *Keujruen Blang* in giving socialization and sanction for unlawful farmers is considered significant. Socialization is usually done at the time of *khanduri blang* activities by delivering the customary law of rice farming and new agreement which resulted in the meeting at *Keujruen Syik* level. Based on the researchers' observations in the research location, because the socialization is done on the activities of *khanduri blang*, not all farmers focus on listening to socialization because they involve in cooking activities to prepare food menu for *khanduri blang*.

With regard to sanctions imposed on those who violate customary law of rice farming, there is a shift in which *Keujruen Blang* is not the principal institution that imposes sanctions, but it still involved in decision-making sanctions given to customary law-breakers. It is in line with Yulia *et. al* (2012) who reported that in the settlement of the dispute, *keujruen blang* is still coordinating with *geuchiek*.

Sanctions are granted by *gampong* apparatus in accordance with *reusam* (social regulation at *gampong* level) which in detail regulates the forms of sanctions granted to indigenous law-violator farmers. The sanctions for instance, when there is a fight and the blood get out, the guilty party is required to butcher a goat for *peusijuek* (one of customary ceremony in Aceh). Another form of sanction also involves paying a penalty to a party whose crops are damaged by other peasant livestock. In this case, paying a penalty is not only to the farmers whose crops are damaged but also to customary institutions which are then referred to as livestock redemption. The fund is managed by the *gampong* apparatus for the operations and ceremonial activities of the indigenous communities.

The role of *Keujruen Blang* in picking up small contributions to the rice farming community is in the last rank but it is also significant. The contribution picking is done by *Keujruen Blang* at harvest time. The contribution is in the crops form in the amount of which is adjusted to the area owned by the farmers who get water regulation services by *Keujruen Blang* at *gampong* level. The amount of contribution is also in accordance with the agreement of meeting during *khanduri blang* in every planting season.

The allocation of contributions is divided into 3 (three) allocations including (1) the salary of *Keujruen Blang*, (2) the cost of *khanduri blang* and (3) the village cash for customary institutional activities with the composition (40: 30: 30). Along with the prospect of profit value (profit) obtained by the *Keujruen Blang* then every year more and more people are interested to be elected as *Keujruen Blang* at *gampong* level. Based on the information from *Keujruen Blang*, in every season planting (4 months), one *Keujruen Blang* commonly gets Rp. 5.200.000 up to 6.000.000 from the farmers' contribution. This variation is highly depends on the crops picked and the price of rice that prevailed during the harvest.

According to Yulia *et al.* (2012), the contribution picking has become a common practice and is considered very helpful in maintaining the harmonization and social dynamics of rice farmers in rural Aceh province.

Furthermore, Putra, Hariadi, and Harsoyo (2012) note that indirectly, *Keujruen Blang* activities also helps the success of farmer empowerment activities in establishing good communication and coordination as well as the success of agricultural development activities for the farming community.

In addition to being felt by farmers, the role of *Keujruen Blang* is also felt by agricultural extension workers. Some of the roles of *Keujruen Blang* in assisting agricultural extension work can be seen through indicators (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups. The results of the perception of the role of agricultural extension partnerships with *Keujruen Blang* can be seen in Table 2;

Table 2 shows that a very large role is the aid of evenly regulating water according to the needs of rice plants at each stage of the development of rice plants. Availability of water amid global climate change with a good regulatory system will make agricultural land productive and produce high production. This is in line with the findings of the benefits of the Subak system water management in the Balinese and the Nagari Padang laweh Malalo system for the people of West Sumatra (David and Ploeger, 2014).

Extension workers and farmers also strongly agreed that the existence of *Keujruen Blang* was very helpful in the simultaneous planting program. Simultaneous planting has a positive impact on the maintenance of rice plants. Simultaneous planting allows reduced pest attacks due to the breakdown of the pest cycle due to simultaneous land cultivation in one area. Simultaneous planting is inseparable from the stages of farming activities established by the *Keujruen Blang* for all farmers in an area in Aceh Province. The stage starts from the schedule of descending, seeding, planting until the harvest.

During this time, according to farmers' acknowledgment, the majority of farmers in the research location were very obedient to the farming schedule rules stipulated by the party of *Keujruen Blang*. This role indirectly influences food security for rice farming communities and is also able to contribute to increased production.

A series of activities held by *Keujruen Blang* institutions involving large numbers of farmers were also often used by extension agents to convey a number of technologies for wetland rice cultivation and other information planned by the government. *Keujruen Blang* in ceremonial descent into the rice fields (*khanduri Blang*) often gives instructors 30 to 60 minutes to convey important information such as refresher land management methods, seeding the initial planting and fertilizing seeds. According to the extension instructor, this opportunity is very meaningful to socialize programs and events for the transfer of new technology to farmers in the cultivation of paddy rice.

Another opportunity that is often given by the *Keujruen Blang* institution to extension workers is when the farmers are gathered at the *Toep Blang* festive activity (thanksgiving when planting rice is finished). On the occasion, the instructor conveyed the method of continued fertilization, pest and disease control, harvesting, post-harvest handling and various alternative market information produced by farmers. At the same time *Keujruen Blang* also had the opportunity to reiterate a number of customary rules for farmers that must be a concern during a production cycle.

So far, the concept developed by *Keujruen Blang* synergized with agricultural extension agents. Based on interview results with *Keujruen Blang*, the concept are as follows:

1). Water is a blessing for a shared life that must be grateful. Therefore, water must be managed properly and fairly for prosperity and mutual welfare.

2). The values of togetherness and mutual cooperation among farmers are taken through the management of several traditional ceremonies. The ceremony is

- a. *Khanduri Abah Lueng*. This ceremony is carried out by rice farmers in one sub-district in every year. This ceremony functions as: a). increasing the togetherness of rice farmers in the same irrigation area. b). eradicate rats, snails and other pests in wider rice fields and c). reduce the attack of pests when the rice produces fruit.
- b. *Khanduri Blang*. This ceremony was coordinated by *Keujruen Cut*, carried out at the village level and usually held by paddy farmers after the *Khanduri Abah Lueng* ceremony at the sub-district level.
- c. *Khanduri Rhet Bijeh*. This ceremony is often referred to as *Khanduri Nabi Adam*.
- d. *Khanduri* when rice is attacked by pests. There is no special name for this ceremony.

3). Concept of Environmental Management through Self-financing

In order to increase the source of funds, *Keujruen Blang* can take several techniques in accordance with Qanun Number 10 year 2005. They are cover a). contributions, which are obtained at harvest in accordance with the area of land managed by each farmer, b). donations or other non-binding assistance, c). other businesses that are lawful and d). finances violation funds.

To increase the source of funds, *Keujruen Blang* is also allowed to conduct farming or cooperatives. This last activity has not been implemented in almost all research areas in Aceh. Even though the sources of funds have

already been mentioned in the qanun, there is no *Keujreun Chiek* requesting funds from farmers in accordance with this points.

4). The concept of channel security and maintenance, channel construction and irrigation is generally carried out by the Department of Water Public Works. However, safeguards and treatments, especially tertiary and quaternary channels, are carried out through joint efforts of local rice farmers' members by strengthening the spirit of togetherness of members.

The research results showed that farmers consider *Keujruen Blang* as a potential party to connect farmers' aspirations with the government or other parties related to the empowerment of farmers. The cooperation between the *Keujruen Blang* institution and the farmers was also felt by extension agents in developing farmer groups. This is inseparable from the contribution of *Keujruen Blang* who actively shares information and becomes one of the parties connecting the aspirations of farmers with the government.

CONCLUSION

In general, rice seed farmers consider that *Keujruen Blang* plays a significant role in the process of rice farming cultivation. In order of importance the role of *Keujruen Blang* on seed farmers was: (1) Set the allocation of water to rice farmers, (2) Determine and coordinate the schedule of planting rice, (3) Resolving disputes between rice farmers, (4) Coordinating *khanduri blang*, (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions from the rice farming community.

Keujruen Blang's role was very helpful for extension workers in delivering information and implementation of innovations delivered for seed farmers. We recommend to increase the involvement of *Keujruen Blang* in formulating the extension work plan in the implementation and evaluation of the extension program to increase farmers' production and welfare.

In addition, the cooperation between the *Keujruen Blang* institution and the farmers was also acknowledged by agriculture extension agents in developing farmer groups. The agriculture extension agents stated that the *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and in the implementation of simultaneous cultivation. This is because *Keujruen Blang* was always actively sharing information and was one of the links between the aspirations of farmers and the government and other relevant parties.

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Table1. Value of Role Index of *Keujruen Blang* on Rice Seed Farmer

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Set the division of water to the rice farmers	86.52	Very significant
2	Determine and coordinate the schedule rice	87.83	Very significant
3	Coordinate the implementation of <i>khanduri blang</i>	73.98	Significant
4	Resolving disputes between rice rice farmers	82.89	Very significant
5	Socialize and sanction farmers who violate customary law	69.07	Significant
6	Pick up small contributions from the rice farming community	68.62	Significant

The role commontly	78.15	Significant
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Source : Data Primer Analysis, 2017

Table 2. The role of agricultural extension partnerships with *Keujruen Blang*

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Implementation of planting (cultivation) simultaneously	84.79	Very significant
2	Helping farmers in water management	89.32	Very significant
3	Opportunities to convey agricultural information	81.56	Very Significant
4	Connectors of agricultural aspirations to agricultural extension workers	72.64	Significant
5	Farmer group development	68.39	Significant
The role commontly		79.34	Significant

Source : Primer Data Analysis, 2017



Forum

THE ROLE OF CUSTOMARY INSTITUTIONS FOR AGRICULTURAL COMMUNITIES AND AGRICULTURAL EXTENSION[†]

[LA FUNCIÓN DE LAS INSTITUCIONES DE ADMINISTRACIÓN PARA LAS COMUNIDADES Y EL EXTENSIONISMO AGRÍCOLAS]

S Budi^{1*}, A.H Hamid², Fajri³ and Agussabti⁴

¹ *Doctoral Programme in Agricultural Sciences, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email: s.budiunimal@gmail.com*

² *Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email: humamhamid@yahoo.com*

³ *Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email: lonfajri@gmail.com*

⁴ *Agriculture Faculty, Universitas Syiah Kuala, Banda Aceh, Indonesia. Email: agussabti@unsyiah.ac.id*

**Corresponding author*

SUMMARY

The purpose of this study is to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers. *Keujruen Blang* is a customary institution rooted in Aceh Province, Indonesia. This study uses qualitative research method by applying case study with qualitative descriptive approach in which data processing through nonparametric statistic with data measurement using Likert Scale. The results showed that farmers still perceive the existence of *Keujruen Blang* in terms of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions to the rice farming community. Beside farmers, the role of *Keujruen Blang* is also felt by agricultural extension agents. They stated that *Keujruen Blang* was instrumental in assisting farmers, especially in regulating water and the implementation of simultaneous cultivation. This research recommends the involvement of *Keujruen Blang* in formulating extension work plan, implementation and evaluation of extension program to rice farmer breeders in supporting the effectiveness of agricultural extension to increase farmer production and welfare.

Keywords: Extension partnership; farmer institution; irrigation management; Keujruen Blang; local wisdom; water user association.

RESUMEN

El propósito de este estudio es determinar el papel de *Keujruen Blang* en la implementación del modelo de extensión agrícola para los agricultores de semillas de arroz. *Keujruen Blang* es una institución tradicional arraigada en la provincia de Aceh, Indonesia. Este estudio utiliza el método de investigación cualitativa mediante la aplicación de un estudio de caso con un enfoque cualitativo descriptivo en el que el procesamiento de datos se realiza mediante estadística no paramétrica con medición de datos mediante la escala de Likert. Los resultados mostraron que los agricultores aún perciben la existencia de *Keujruen Blang* en términos de; (1) establecer la división de agua entre los productores de arroz, (2) determinar y coordinar el programa de siembra de arroz (3) resolver disputas entre productores de arroz (4) coordinar *khanduri blang* (5) socializar e imponer sanciones a los agricultores que infrinjan la costumbre la ley y (6) recogen pequeñas contribuciones a la comunidad de productores de arroz. Además de los agricultores, el papel de *Keujruen Blang* también lo sienten los agentes de extensión agrícola. Afirmaron que *Keujruen Blang* fue instrumental en ayudar a los agricultores, especialmente en la regulación del agua y la implementación de cultivos simultáneos. De extensión agrícola para aumentar la producción y el bienestar de los agricultores.

Palabras clave: Asociación de extensión; institución agrícola; gestión del riego; Keujruen Blang; sabiduría local; asociación de usuarios de agua.

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INTRODUCTION

Institutions play an important role in agricultural development in Indonesia. A development approach that is similar to the production approach, by means of new cultivation techniques, can not solve all the agricultural problems, especially on the use of rural farmers' resources. Many agricultural problems can only be solved through partnerships from various institutions existing in rural farming societies. In the community, several institutions can be found that have the function of regulating the attitudes and behavior of its citizens which is also a guide for them on interacting with each other.

As a part of society in Indonesia, the people of Aceh have local wisdom in managing rice farming through customary institutions named *Keujruen Blang*. The role of *Keujruen Blang* as a custom institution is regulated in Aceh Official Regulations (Qanun) no 10 on customary institutions, while its duties were stipulated in the Governor Regulation of Aceh no. 45, 2015. Another familiar institution that manage irrigation system is *Subak* that was found in Bali, Indonesia. Referring to various studies, Sriartha *et al.* (2015) noted that “*subak* can be used as a model of harmonious community life and management of sustainable resources at scale of wider areas and communities”.

Based on Qanun no 10, , the roles of *Keujruen Blang* are; (1) setting the division of water to the rice farmers, (2) determining and coordinating the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (a customary ceremony done by farmers in Aceh Province in which they pray for their planting then eat together), (5) socializing and imposing sanctions on farmers who violate customary law and (6) picking up small contributions from the rice farming community.

Keujruen Blang is an indigenous tool within the Acehnese community that has the duty and responsibility to organize, assist and cultivate rice farmers including irrigation water user association. It support Dick (2014) who believe that collective action through customary institutions or newly developed user groups, and even market mechanism can play a role in the development of irrigation systems. Particularly, Narata *et al.* (2015) also emphasize the participation of water user association member in improving water management efficiency.

In Aceh, like in in Japan as reported by Arase *et al.* (2016), irrigation is mainly connected with rice fields. The role of *Keujruen Blang* is considered to be quite dominant in empowering the farmers, as it performs tasks such as coordinating clean-up cleaning

activities, coordinating channel tracking up to water sources, dividing water up to the rice fields, helping *Geuchiek* (the head of a village) to coordinate *khanduri blang* activities, and resolve the problems that arise between members of the community with regard to disputes over the distribution of water and agricultural land in the fields.

The existence of agricultural extension partnership with *Keujruen Blang* institution that has been rooted in the farming community provides an opportunity to answer various obstacles in rural farming process, so as to support the improvement of living and welfare level for the farming community. It is in line with Wheeler *et al.* (2017) as cited by Pittock *et al.* (2017) who note that “extension services were identified as the main source for information for the majority of irrigation farmers, and it was also found that those who use irrigation extension services are more likely to adopt hard-technology innovation.

Indraningsih, Sugihen, Tjitropranoto, Asngari and Wijayanto (2010) also stated that the role of agricultural extension can only be felt by the farmer group members only. More time was spent for administrative activities compared to extension activities, as well as the burden of the target area to 3-6 villages for each extension worker. This condition requires an agricultural extension partnership system with various parties including customary institutions in order to ease the burden and synergy between innovation producers, extension agents and farmers as well as to manage and develop irrigation system. It is in line with Dick (2014) who noted that “the development of irrigation systems that serve more than one farm require coordination systems and some form of property rights to at least identify who has what rights to use, manage, and exclude others from the associated land, infrastructure, and water”. Furthermore, Ojcha and Morin (2001) and Agussabti (2002) also argued that the partnership will increase the effectiveness of empowerment to the community. The key to successful partnerships is complementary business. To achieve this complementary there must be mutual understanding and respect for the strengths and weaknesses of each. Based on this background, this study aims to find out the role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers in Aceh Utara Regency, Aceh Province. Therefore, this study aims to determine the role of *Keujruen Blang* in the implementation of agricultural extension model for rice seed farmers in Aceh, Indonesia.

RESEARCH METHODOLOGY

This research conducted in Sawang District, North Aceh Regency. The population of this study were

keujruen blang, agricultural extension agents and member of rice farmer association named 'Sapue Pakat' who participated in the agricultural extension program of North Aceh Regency government with universities-Bogor Agriculture Institute and Syiah Kuala University. The population in this study also became a sample. The total population to be sampled in this study amounted to 128 farmers, 34 agricultural extension agents and 4 *keujruen blang* at different level. All of them were surveyed

The scope of the study was limited only to see the role of *Keujruen Blang* in the implementation of an agricultural extension model for rice farmers. The research objects were agricultural extension agents and members of farmer association who have given the assessment to role of *Keujruen Blang* in implementing agricultural extension model for rice seed farmers.

To measure and analyze the data, the authors used Likert-scale scoring data. The authors distributed the questionnaires for all farmers, agricultural extension agents and *keujruen blang* who were sampled in this study. The questionnaires were served in closed forms using the five-point Likert Scale. Beside questionnaires, the author also conducted interviews with 34 agricultural extension agents and 4 *Keujruen Blang* at different levels to obtain in-depth information about the subject of this study.

The data covered the indicators of *Keujruen Blang's* role which consist of; (1) set the division of water to the rice farmers, (2) determine and coordinate the schedule of planting rice (3) resolving disputes between rice farmers (4) coordinating *khanduri blang* (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions from the rice farming community. Besides, this research also attempt to see the role of

the *Keujruen Blang* in assisting the work of agricultural extension workers. The role can be seen through indicators such as (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups.

RESULT AND DISCUSSION

In Aceh, agricultural extension agents have long established cooperation with *Keujruen Blang* institutions. This is based on mutual interest in the role of each institution. Information from *Keujruen Blang* institute on rice farming activity in Aceh Province is very useful for the perpetrator of agriculture extension activity, such as information about *khanduri blang* activities, planting schedule and distribution of irrigation water in one area. The information will be aligned with agricultural extension practices that cover the implementation stage, the materials, methods and intensity of extension conducted for seed farmers at this research site.

Table 1 demonstrates that in general, seed farmers in the research location assessing *Keujruen Blang* institutions play a role in farming activities of breeding seeds that they do. It is in line with Azis (2018) who found that 85.5% of respondents gave a positive answer to the existence of the *Keujruen blang* customary institution in increasing the rice production of farmers in Manggeng, Aceh Barat Daya, Indonesia. The institutional role of *Keujruen Blang* that has been rooted in the farming community in this research location is also difficult to be replaced by government institutions such as Water User Association prevailing throughout the archipelago.

Table 1. Value of Role Index of *Keujruen Blang* on Rice Seed Farmer

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Set the division of water to the rice farmers	86.52	Very significant
2	Determine and coordinate the schedule rice	87.83	Very significant
3	Coordinate the implementation of <i>khanduri blang</i>	73.98	Significant
4	Resolving disputes between rice rice farmers	82.89	Very significant
5	Socialize and sanction farmers who violate customary law	69.07	Significant
6	Pick up small contributions from the rice farming community	68.62	Significant
The role commonly		78.15	Significant

Source : Data Primer Analysis, 2017

Partially, the role of *Keujruen Blang* in arranging the distribution of water is very significant. The role of the *Keujruen Blang* to regulate water distribution is a key role in comparison with a number of other roles implemented by customary institutions of *Keujruen Blang*. The implementation of water distribution is done by *Keujruen Blang* in accordance with the agreement of the distribution of irrigation water. In that case, even if the farmers live in one area, they may get the turn of irrigation water with different schedule. This condition cannot be separated from the arrangement made by *Keujruen Syik* (*Keujruen Blang* at subdistrict level) in irrigation water management. It supports Rosegrant and Cai, (2002); Yang *et al.* (2003) as cited by Zhang *et al.* (2013) who argues that “technical innovations as well as water policy and management reforms are required to improve water use efficiency in agriculture to meet growing food demands”.

So far, if the farmer is constrained in getting water then the first institution once contacted is *Keujruen Blang* at *gampong* level. According to the farmers’ perception, during this time, farmers’ report to *Keujruen Blang* about irrigation water constraints always get follow up to solve the problem of water availability. The coordination of *Keujruen Blang* institutions both at village level and sub-district level with farmers and agricultural extension workers is very good. All activities about extension and agriculture innovation are coordinated with *Keujruen Blang* to ensure that the program has supported the availability of water at every stage of rice cultivation process conducted by farmers.

The role of *Keujruen Blang* in determining and coordinating the schedule of rice planting is also considered to be very significant. By following the schedule, farmers are able to start rice cultivation activities simultaneously then facilitate the process of applying innovation, pest and disease control and distribution of irrigation water.

Determination of the schedule begins with a meeting conducted by *keujruen syik*. At the meeting, there are all *Geuchiek*, *Imum Mukim* (the head of government under subdistrict area), agricultural extension workers, *Keujruen Blang* at *gampong* level, and elements of the district government. In the meeting, it is determined the schedule of rice planting, *khanduri blang* day and irrigation water distribution. Meanwhile, the extension workers conveyed which rice seed that should be sown in this growing season and information if there is a government assistance program to farmers in the study location.

After the district-level meeting on the schedule of rice planting, *Keujruen Blang* at *gampong* level

coordinates the implementation of *gotong royong* (an activity done by farmers to clean irrigation channels). All farmers in the area should attend unless there is a provision that is must pay some money to *Keujruen Blang* to replace the farmer's absence at the time of *gotong royong*.

The role of *Keujruen Blang* in resolving disputes between rice farmers is also very significant. The forms of disputes resolved by the institution and the village apparatus are limited only to the regulation of water and disputes in the cultivation process on rice field. Any form of dispute on water regulation and farming process among farmers is reported to *Keujruen Blang* at *gampong* level and then discussed with the *gampong* apparatus and *imum mukim* to find a solution based on customary law.

Some forms of dispute obtained in the research location are the case of seizure of water, the destruction of water channels, illegal water taking, and the destruction of crops by livestock. Completion of the dispute between farmers always involves *Keujruen Blang* either directly or indirectly (only asked for his opinion). Usually custom settlement of disputes is adhered to and obeyed by the parties to the dispute.

The role of *Keujruen Blang* in coordinating the implementation of *khanduri blang* is also considered significant in the study location. In implementing *khanduri blang*, *Keujruen Blang* coordinates with *keujruen syik*, religious leaders and agricultural extension workers. *Keujruen Blang* announces the schedule of *khanduri blang* and what preparations should be brought by each farmer. In addition to the provision of farmers, *Keujruen Blang* also prepares supplies in accordance with the farmers’ contributions earned in the previous planting season. The procedure of *khanduri blang* generally is done by slaughtering animals such as chickens or ducks. Some *gampong* also butcher sheep. The skin sheep then is cut into pieces and placed in the rice field area.

The extension workers at the time of *khanduri blang* are given the opportunity to conduct extension by giving information about the procedure of land, nursery and planting. While the religious leaders lead prayer activities for the safety and smoothness of farming activities that will be done.

There are two implementations of *khanduri blang* coordinated by *keujruen* in one planting season; (1) starting to plan (*tron u blang*) and (2) post planting (*tob blang*). But there are also some farmers who do *khanduri blang* once again when ready to harvest, but this *khanduri blang* is not coordinated by *Keujruen Blang*. Based on information from *Keujruen Blang*,

the implementation of *khanduri blang* becomes routine that must be done although with self-help preparation and a little fund from membership fee. The extension workers seek to take advantage of opportunities to inform counselling and information from the government because the participation of rice farmers to attend *khanduri blang* is very high.

The role of *Keujruen Blang* in giving socialization and sanction for unlawful farmers is considered significant. Socialization is usually done at the time of *khanduri blang* activities by delivering the customary law of rice farming and new agreement which resulted in the meeting at *Keujruen Syik* level. Based on the researchers' observations in the research location, because the socialization is done on the activities of *khanduri blang*, not all farmers focus on listening to socialization because they involve in cooking activities to prepare food menu for *khanduri blang*.

About sanctions imposed on those who violate customary law of rice farming, there is a shift in which *Keujruen Blang* is not the principal institution that imposes sanctions, but it still involved in decision-making sanctions given to customary lawbreakers. It is in line with Yulia *et. al* (2012) who reported that in the settlement of the dispute, *keujruen blang* is still coordinating with *geuchiek*.

Sanctions are granted by *gampong* apparatus in accordance with *reusam* (social regulation at *gampong* level) which in detail regulates the forms of sanctions granted to indigenous law-violator farmers. The sanctions for instance, when there is a fight and the blood get out, the guilty party is required to butcher a goat for *peusijuek* (one of customary ceremony in Aceh). Another form of sanction also involves paying a penalty to a party whose crops are damaged by other peasant livestock. In this case, paying a penalty is not only to the farmers whose crops are damaged but also to customary institutions which are then referred to as livestock redemption. The fund is managed by the *gampong* apparatus for the operations and ceremonial activities of the indigenous communities.

The role of *Keujruen Blang* in picking up small contributions to the rice farming community is in the last rank but it is also significant. The contribution picking is done by *Keujruen Blang* at harvest time. The contribution is in the crops form in the amount of which is adjusted to the area owned by the farmers who get water regulation services by *Keujruen Blang* at *gampong* level. The amount of contribution is also

in accordance with the agreement of meeting during *khanduri blang* in every planting season.

The allocation of contributions is divided into 3 (three) allocations including (1) the salary of *Keujruen Blang*, (2) the cost of *khanduri blang* and (3) the village cash for customary institutional activities with the composition (40: 30: 30). Along with the prospect of profit value (profit) obtained by the *Keujruen Blang* then every year more and more people are interested to be elected as *Keujruen Blang* at *gampong* level. Based on the information from *Keujruen Blang*, in every season planting (4 months), one *Keujruen Blang* commonly gets Rp. 5.200.000 up to 6.000.000 from the farmers' contribution. This variation is highly depends on the crops picked and the price of rice that prevailed during the harvest.

According to Yulia *et al.* (2012), the contribution picking has become a common practice and is considered very helpful in maintaining the harmonization and social dynamics of rice farmers in rural Aceh province. Furthermore, Putra, Hariadi, and Harsoyo (2012) note that indirectly, *Keujruen Blang* activities also helps the success of farmer empowerment activities in establishing good communication and coordination as well as the success of agricultural development activities for the farming community.

In addition to being felt by farmers, the role of *Keujruen Blang* is also felt by agricultural extension workers. Some of the roles of *Keujruen Blang* in assisting agricultural extension work can be seen through indicators (1) implementation of simultaneous cultivation (2) helping farmers in water management (3) extension workers are given the opportunity to convey agricultural information, (4) liaison of agricultural aspirations to extension agents and government, and (5) assisting extension agents in the development of farmer groups. The results of the perception of the role of agricultural extension partnerships with *Keujruen Blang* can be seen in Table 2.

Table 2 shows that a very large role is the aid of evenly regulating water according to the needs of rice plants at each stage of the development of rice plants. Availability of water amid global climate change with a good regulatory system will make agricultural land productive and produce high production. This is in line with the findings of the benefits of the Subak system water management in the Balinese and the Nagari Padang laweh Malalo system for the people of West Sumatra (David and Ploeger, 2014).

Table 2. The role of agricultural extension partnerships with *Keujruen Blang*

N	The Role of <i>Keujruen Blang</i>	Index (%)	Interpretation
1	Implementation of planting (cultivation) simultaneously	84.79	Very significant
2	Helping farmers in water management	89.32	Very significant
3	Opportunities to convey agricultural information	81.56	Very Significant
4	Connectors of agricultural aspirations to agricultural extension workers	72.64	Significant
5	Farmer group development	68.39	Significant
	The role commonly	79.34	Significant

Source : Primer Data Analysis, 2017

Extension workers and farmers also strongly agreed that the existence of *Keujruen Blang* was very helpful in the simultaneous planting program. Simultaneous planting has a positive impact on the maintenance of rice plants. Simultaneous planting allows reduced pest attacks due to the breakdown of the pest cycle due to simultaneous land cultivation in one area. Simultaneous planting is inseparable from the stages of farming activities established by the *Keujruen Blang* for all farmers in an area in Aceh Province. The stage starts from the schedule of descending, seeding, planting until the harvest.

During this time, according to farmers' acknowledgment, the majority of farmers in the research location were very obedient to the farming schedule rules stipulated by the party of *Keujruen Blang*. This role indirectly influences food security for rice farming communities and is also able to contribute to increased production.

A series of activities held by *Keujruen Blang* institutions involving large numbers of farmers were also often used by extension agents to convey a number of technologies for wetland rice cultivation and other information planned by the government. *Keujruen Blang* in ceremonial descent into the rice fields (*khanduri Blang*) often gives instructors 30 to 60 minutes to convey important information such as refresher land management methods, seeding the initial planting and fertilizing seeds. According to the extension instructor, this opportunity is very meaningful to socialize programs and events for the transfer of new technology to farmers in the cultivation of paddy rice.

Another opportunity that is often given by the *Keujruen Blang* institution to extension workers is when the farmers are gathered at the *Toep Blang* festive activity (thanksgiving when planting rice is finished). On the occasion, the instructor conveyed the method of continued fertilization, pest and disease control, harvesting, post-harvest handling and various

alternative market information produced by farmers. At the same time *Keujruen Blang* also had the opportunity to reiterate a number of customary rules for farmers that must be a concern during a production cycle.

So far, the concept developed by *Keujruen Blang* synergized with agricultural extension agents. Based on interview results with *Keujruen Blang*, the concept are as follows:

1). Water is a blessing for a shared life that must be grateful. Therefore, water must be managed properly and fairly for prosperity and mutual welfare.

2). The values of togetherness and mutual cooperation among farmers are taken through the management of several traditional ceremonies. The ceremony is

a. *Khanduri Abah Lueng*. This ceremony is carried out by rice farmers in one sub-district in every year. This ceremony functions as: a). increasing the togetherness of rice farmers in the same irrigation area. b). eradicate rats, snails and other pests in wider rice fields and c). reduce the attack of pests when the rice produces grains.

b. *Khanduri Blang*. This ceremony was coordinated by *Keujruen Cut*, carried out at the village level and usually held by paddy farmers after the *Khanduri Abah Lueng* ceremony at the sub-district level.

c. *Khanduri Rhet Bijeh*. This ceremony is often referred to as *Khanduri Nabi Adam*.

d. *Khanduri* when rice is attacked by pests. There is no special name for this ceremony.

3). Concept of Environmental Management through Self-financing

In order to increase the source of funds, *Keujruen Blang* can take several techniques in accordance with Qanun Number 10 year 2005. They are cover a). contributions, which are obtained at

harvest in accordance with the area of land managed by each farmer, b). donations or other non-binding assistance, c). other businesses that are lawful and d). finances violation funds.

To increase the source of funds, *Keujreun Blang* is also allowed to conduct farming or cooperatives. This last activity has not been implemented in almost all research areas in Aceh. Even though the sources of funds have already been mentioned in the qanun, there is no *Keujreun Chiek* requesting funds from farmers in accordance with this points.

4). The concept of channel security and maintenance, channel construction and irrigation is generally carried out by the Department of Water Public Works. However, safeguards and treatments, especially tertiary and quaternary channels, are carried out through joint efforts of local rice farmers' members by strengthening the spirit of togetherness of members.

The research results showed that farmers consider *Keujruen Blang* as a potential party to connect farmers' aspirations with the government or other parties related to the empowerment of farmers. The cooperation between the *Keujruen Blang* institution and the farmers was also felt by extension agents in developing farmer groups. This is inseparable from the contribution of *Keujruen Blang* who actively shares information and becomes one of the parties connecting the aspirations of farmers with the government.

CONCLUSION

In general, rice seed farmers consider that *Keujruen Blang* plays a significant role in the process of rice farming cultivation. In order of importance the role of *Keujruen Blang* on seed farmers was: (1) Set the allocation of water to rice farmers, (2) Determine and coordinate the schedule of planting rice, (3) Resolving disputes between rice farmers, (4) Coordinating *khanduri blang*, (5) socializing and imposing sanctions on farmers who violate customary law and (6) pick up small contributions from the rice farming community. *Keujruen Blang's* role was very helpful for extension workers in delivering information and implementation of innovations delivered for seed farmers. We recommend to increase the involvement of *Keujruen Blang* in formulating the extension work plan in the implementation and evaluation of the extension program to increase farmers' production and welfare. In addition, the cooperation between the *Keujruen Blang* institution and the farmers was also acknowledged by agriculture extension agents in developing farmer groups. The agriculture extension agents stated that the *Keujruen Blang* was

instrumental in assisting farmers, especially in regulating water and in the implementation of simultaneous cultivation. This is because *Keujruen Blang* was always actively sharing information and was one of the links between the aspirations of farmers and the government and other relevant parties.

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