



Analysis of Social Activities Value and Economy Activities Value Agricultural Technology Park in Aceh Besar District

Irvandra Fatmal; Suyanti Kasimin; Agus Nugroho

Faculty of Agriculture, Syiah Kuala University, Banda Aceh, Indonesia

<http://dx.doi.org/10.18415/ijmmu.v7i1.1291>

Abstract

The center of the problem discussed in this study is: the value of social and economic activities from the shift of technology in the Agricultural Technology Park (TTP) of Aceh Besar District and the obstacles and solutions in the process of the technology shift to achieve the objectives of the TTP. This research uses a qualitative descriptive research method to answer the formulation of the problem comprehensively. It aims to provide facts and data about the value of social and economic activities in the TTP. Based on the results of the study it can be concluded that the value of social activities in the TTP can be seen from the education and training provided to farmers. Therefore, it creates an agricultural technological innovation that is an increase in paddy production which was only 4 tons/ha now rises to 5-6 tons/ha. The value of the economic activity of TTP can be seen from the availability of new superior varieties of rice seeds in the TTP and provides an easier way for farmers. Also, the agricultural machinery is cheaper compared to the ones outside the agricultural TTP. Furthermore, for the formulation of the third problem, namely constraints and solutions in the process of the technology shift to achieve the objectives of the TTP, there are 11 constraints obtained during the period 2015-2018 that were successfully identified. Number 11 or increasing the role of communication in delivering agricultural technology innovation to farmers is an important thing because the whole set of implementation must be accompanied by good communication. Communicating to convey information to farmers, agricultural extension workers and students can go through two communication processes, namely direct communication (face to face) or it can also be media communication.

Keywords: *Value of Social & Economic Activities; Agricultural Technology Park; Rice Seeds; Agricultural Machine Tools; Aceh Besar; Indonesia*

Introduction

It is important to calculate the analysis of social and economic activities because every development activity with capital-intensive must be able to encourage and accelerate the success of the implementation of development and community economic empowerment. The establishment of the Agricultural Technology Park is expected to have a positive impact on farmers and increase regional income. Regional development can be measured by externalities, accountability and business efficiency. The Agricultural Technology Park (TTP) of Jantho City, Aceh Besar District was built in 2015 by the Ministry of Agriculture through the Agricultural Research and Development Agency in collaboration with

the Regional Government of Aceh Besar District. Jantho City TPP development aims to personalize one of the Government's Nawacita that is the policy of developing the industrial sector within the framework of the implications of the application of Law No. 3 of 2014 namely making an area into an industrial area based on upstream-downstream agricultural technology. Economic development in this globalization era is characterized by a shift from comparative advantage-based growth supported by the availability of labor, natural resources, and low-cost financial resources to growth based on competitive advantage supported by the exploitation of knowledge, technology, and innovation.

TTP is carried out in the form of cooperative management with activities oriented to capturing rice seed sources, providing land processing equipment (Tractors), cattle fattening (forage: Leguminosa), and utilization of TTP yards with horticultural crops. The technology shift is carried out through the use of new improved rice varieties (VUB), this can be seen in Table 2 below: Table 1. Technological innovations in Jantho City TTP.

No.	Commodity	Tecnological Innovation
1.	Lowland Rice	Test performance of 14 New Superior Varieties (VUB): Ciherang (control), Inpari 11, 16, 19, 23, 30, 32, 40, 42 Cigeulis, Sidenuk, Inpari Blast and Inpari HDB. The technology package used is integrated plant management (PTT). Savor test (sensory test).
2.	Cattle	Introduction to the communal enclosure model Introduction of superior grasses and legumes
3.	Horticulture	Vegetable crop introduction according to Good Agriculture Practices (GAP). Village Seedling Development (KBD)
4.	Fishery	Introduction of mina rice based fish farming

Setiawan (2019) states that the value of social activities is the values of what is considered good and bad by society. To determine the good and the bad or appropriate and inappropriate. Something has to go through the weighing process. This is strongly influenced by the culture and wisdom that exist in society, according to the opinion of Handoyono (2015) that social values are very closely related to culture and society.

Putri A. (2017) revealed that economic activity is an activity carried out by humans to meet their daily needs. Generally, economic activities consist of consumption, production and distribution. The main business activity at Jantho TTP is the supply of seed sources. This activity is chosen because (i) the commodity has a large market in Aceh Besar Regency and Aceh Province and (ii) this business has been practiced by several residents of Aceh Besar and some farmers can be appointed as business operators for other farmers. Aceh Besar which is one of the rice barns in Aceh, with a planting area of 36,554 ha/year, will require 913.85 tons/year of seeds, assuming the seeds used are 25 kg/ha. On the other hand, local suppliers are only able to supply less than 30%, meaning 70% must be imported from outside Aceh Besar or other provinces. BPS of Aceh Province, (2016); Jaya et al. (2015).

Each organization/agency which is running the management system certainly faces some obstacles, as well as in the agricultural technology park. During the 2015-2018 period, many faced various kinds of obstacles. Obstacle according to the Indonesian Dictionary (KBBI), is difficulty, restriction or factors and circumstances that limit, hinder or prevent the achievement of an organization's goals.

Research purposes

To found out and analyzed the value of social and economic activities from the shift of technology in the Agricultural Technology Park (TTP) of Jantho City, Aceh Besar Regency. To identified and provided recommendations on the obstacles in the process of technology shift to achieve the objectives of the TTP.

Methodology

The study was conducted at the Agricultural Technology Park (TTP) located in Jantho City, Aceh Besar District, Aceh Province.

Source and Data Collection

Data collection technique

The data used in this study were primary in the form of information relating to the value of social and economic activities and constraints in the process of the technology shift in the Agricultural Technology Park. Primary data collection techniques performed by recording, interviews assisted with a list of questions that had been prepared beforehand. While secondary data included data existing institutions in the TTP, labor, supporting documents in the TTP and other supporting data. Data were obtained from the Office of the Aceh Agricultural Technology Assessment Office, the Aceh Besar District Agriculture Office, BPP Kota Jantho District, BPS Aceh Besar District, national and international journals and other literature related to this study.

Population and Research Samples

The scope of this study is only limited to the Analysis of the Value of Social and Economic Activities of the Agricultural Technology Park (TTP) of Aceh Besar District. The method used in this study is interviews and surveys with observation techniques. The population in this study were 60 farmers and policy makers in TTP 4 people.

Data Analysis Methodology

Lexy (2007) suggests that data analysis is the process of organizing and sorting data into category patterns and a basic description so that themes can be found and work hypotheses can be formulated as suggested by the data. The data processing method used in this study was tabulation with Microsoft Office Excel 2016 software. The data obtained were arranged, simplified, and presented in tabular form, then analyzed according to the purpose of this study.

The formulation of the problem in this study was analyzed using qualitative descriptive research methods, the method is useful to provide facts and data about the role and work programs that exist in the TTP for farmers. The reason the researcher chose a qualitative descriptive research design was that the researcher wanted to observe phenomena that occur in the field, describing the conditions that would be observed in the field more specifically, transparently, and in-depth. According to Arikunto (2010: 3), a descriptive method is a method for investigating conditions, situations or other things that have been mentioned. The purpose of this descriptive analysis was also used to explain, describe, define, and analyze the phenomena obtained from understanding more objective towards realistic conditions. Agung

Prasetyo (2016) argues that the activities of qualitative descriptive research methods include data collection, data analysis, interpretation of data, and formulated into conclusions that refer to data analysis presented in the form of frequency distribution tables.

Results and Discussion

1. Value of Social Activities

The value of social activities in the presence of TTP can be seen from the education and training provided to farmers to create an agricultural technology innovation, for example, the explanation in table 13 below in number 3 that is an increase in the production of lowland rice previously only 4 tons/ha now increased to 5-6 tons/ha. Apart from the training and guidance given to farmers the factors of increasing paddy rice production are due to the use of new superior varieties of rice seeds, planting with Legowo row planting systems which were adopted by the farmers and providing the right dosage of fertilizer according to the needs or balanced fertilization and also the factor of water availability for rice fields because the TTP has built infrastructure and rehabilitated irrigation channels so that the availability of water remains adequate.

Table 2 Value of Social Activities With the presence of TTP

NO.	Description		Value	Percentage (%)
1	Created and strengthened independent human resources and capable of competitiveness	490 people x Rp.150.000	73,500,000	2
2	As a place to foster capacity building of farmers and extension agents in terms of rice seed production through training and seed supply, operational agricultural machinery (Providing Alsintan services)	24 times coaching x 150 people x cost 150.000/Person	216,000,000	6
3	A change in mindset / mindset of farmers in the cultivation of lowland rice to increase production from 4 tons / ha increased to 5-6 tons / ha	108 Ha x 6.000.000	720,000,000	19
4	The creation of new innovations in the field of lowland rice cultivation, namely the use of the Legowo row planting system, has proven to be able to increase rice production.	a. compost 500 kg/crop for 7 times/year for 4 years =24 crop times, price 1600/kg	35,000,000	71
		b. Use of new Inpari 30, 120 ha x 20,000 / kg New Superior Varieties (VUB)	2,400,000,000	
		c. Rice cultivation system with Jarwo Super System		
5	TTP is also a place for comparative studies for farmers, agricultural extension workers and students.	Assuming a place of comparative study scores 1,000,000 / meeting, 50 times	50,000,000	1
TOTAL NUMBER			3,422,500,000	100

Source: Primary Data (Processed), 2019

2. Value of Economic Activity

The value of economic activity in the presence of the TTP can be seen from the availability of rice seeds in the TTP making it easier for farmers and the availability of agricultural machinery that is cheaper in rent compared to alsintan that provided outside the TTP. Based on the results of the study the value of economic activity in the TTP can be seen in Table 3 below:

Table 3. Value of Economic Activities in the presence of TTP

NO.	DESCRIPTION	Value	Percentage (%)
1	Being a place to foster young entrepreneurs to be more creative in producing agricultural products of economic value. (Training activities on making mushroom mushrooms, training on making organic fertilizer and training on better and more modern rice cultivation)	Number of Training 14 times	2
2	Rice produced for VUB Inpari Inpari Varieties 16, 30 and 32 using the Jajar Legowo Rice Planting system technology.	160 tons (year 2015-2018)	20
3	Rice produced for Inpari Inpari 16, 30 and 32 varieties of rice using Jajar Legowo Rice Planting system technology.	240 tons (year 2015- 2018)	9
4	Tractor Rentals 4 Wheel Tractor Yanmar Brand EF 393T Model	92 Ha (Year 2015- 2018)	2
5	Tractor Rentals 4 Wheel Tractor Yanmar Brand EF 393T Model	74 Ha (2016-2018)	1
6	Rice Transplanter Brand Yanmar AP-4	Rp. 2,000,000 / ha x 120 ha / MT (2015-2018)	5
7	With the existence of TTP, it makes it easy for agricultural activities that lead to efficiency:		
	a. Production Efficiency from 1 MT to 2 MT (IP 200)	30 ha x 9.000 kg x Rp. 20.000/kg	5,400,000,000
		90 ha x 6.000 kg x Rp. 5.000/kg	2,700,000,000
	b. Post Harvest Efficiency from 1-2 Months to 1-2 Weeks	30 days x Rp. 70.000 x 180 people	378,000,000
	Use of a Tractor Engine	Rp. 130 / meter area of 30 ha x 2 MT in 2015, 2016 and 2018	390,000,000
		Rp. 130 / meter area of 80 ha x 2 MT in 2017	416,000,000
	c. Number of Workforce Processing Results	8 people x Rp. 70.000 x 108 Ha	60,480,000
	d. The number of harvesting workers is 30 people to 2 people (Combine Harvester Operators)	30 people x Rp. 70.000 x 108 Ha, for 2 MT	453,600,000
		Rp. 1.500.000/Ha x 108 Ha for 2 MT	324,000,000
	JUMLAH	16, 357,880,000	100

Source: Primary Data (Processed), 2019

From Table 3 above it can be seen that the economic value with the presence of TTP in the business cluster of supplying source seeds can produce up to 160 tons during the period 2015-2018 with a value of Rp. 3,200,000,000,. While the rice produced for grain reaches 240 tons with a value of Rp. 1,440,000,000. For the second business cluster, namely agricultural machine tool services, 2 units of four-wheeled tractors that have been operating from 2015-2018 utilities use of tractors are only around 7-8 hours/day, land coverage is 3 ha, with a land area reaching 30 ha, the time required is 8-9 days for tillage. Indeed, it is still far from the maximum usage limit which can reach 15 hours/day. With a period of simultaneous planting season in the area, the time to cultivate the land is only about 3 weeks - 4 weeks.

To increase income/revenue, tractor utilities must be increased to a maximum limit of 15 hours, with the consequence of adding operators and overtime. With a rental system fee of only Rp. 130 / meter or Rp. 1,300,000 / ha, until 2018 cashflow / cash flow at TTP has reached Rp. 546,000,000. It is hoped that in the future it can be managed on a larger economy and able to be independent and sustainable.

Table 4. Constraints and Solutions that exist in the TTP

NO.	OBSTACLES	SOLUTIONS
1	If the availability of rice seeds and Alsintan services at the TTP is insufficient, the solution is where the farmers get rice seeds and Alsintan services	1 Rice Seed: Saprodik kiosk in the seulumun market, and breeders providing other source of seed in Indrapuri. 1 Alsintan Services: Some poktan already have hand tractors, which distinguishes from Alsintan in TTP, which provide lower cost / Ha.
2	Prefer to work individually rather than in groups	2 The Integrated Farmers Empowerment Movement is already underway through increased education, training and counseling activities to address agricultural problems, and the formation of agricultural corporations or farmer groups (Gapoktan). In 1 MT there were 3 times the guidance or implementation of the Technical Guidance from relevant agencies (BPP and the Ministry of Agriculture)
3	The low sense of tolerance towards fellow people.	3 Increasing tolerance and empathy for every problem in the community through counseling activities
4	A crisis of trust among the people.	4 It is necessary to increase the trust to the head of the farmer group and to the management / policy makers for the short-term and long-term needs of the community through the preparation of the RDKK (Group Needs Definitive Plan) which is planned and agreed to be implemented together.
5	The diversity of interests in the community makes it difficult to socialize the process of agricultural technology transfer.	5 Unite the Vision and Mission of the farmers in the process of transfer of agricultural technology. By joining the existing joint farmer group corporation.
6	The difficulty is due to the large number of farmers while agricultural extension workers are limited in number and high workloads that affect the process of mentoring that is not optimal.	6 Changing the mindset that being a farmer does not make the value of prestige decrease even being a farmer is a promising job if it is really engaged seriously, improving patterns or more modern marketing methods by utilizing digital media to market products.
7	The attitude of the people who are less open in facing changes and the lack of public knowledge of new technologies in agriculture.	7 Increase Motivation Farmers in learning and willing to accept agricultural technology innovations gradually and continuously through extension activities and training in the field of agricultural innovation
8	Problems in fostering other communities are in terms of: damage to infrastructure / irrigation networks; increasingly low and high wages of agricultural labor; high yield losses; and the need for fertilizers and seeds has not been met according to site-specific recommendations.	8 Rehabilitation of the Irrigation Network is needed to be able to meet the needs of existing rice fields, it greatly affects the increase in rice field production

- | | | | |
|---|--|---|---|
| 9 | Not all farmers are willing to accept the existence of modern agricultural machinery technology, because if all the rice cultivation work is done by machine, it can reduce or eliminate the livelihoods that they have been working on. | 9 | There needs to be a change in farmers' mindset and required the formation of agricultural corporations or farmer groups (Gapoktan). Managing the work done by machines and work that can still be done by humans. |
|---|--|---|---|

Source: Primary Data (Processed), 2019

3. Constraints and Solutions

Constraints are factors or circumstances that limit or hinder and prevent the achievement of goals and objectives. Table 4 above is an explanation of the third research objective which was to identify and provide recommendations or solutions to the obstacles in shifting technology to achieve the goal of the TTP. From 2015 to 2018 there must be many obstacles, difficulties, and problems. However, because of strong willingness, motivation, and support between academic groups, the private sector, the government, and community helped plan, implement and evaluate every process and stage that takes place in the field. Hopefully, TTP is going forward and expanding to other regions to accelerate the expansion of the adoption of the application of agricultural innovation. Furthermore, from the results of research and interviews with respondents, there were 11 obstacles obtained and were successfully identified number 11 or increasing the role of communication in delivering agricultural technological innovations to farmers is important because the entire set of implementation must be accompanied by good communication, communication in delivering information formation to farmers, agricultural extension workers, and students can go through two processes of communication, namely direct communication (face to face) or can also media communication, in this case, the media in question is digital media such as social media and other print media in the form of posters, leaflets, and banners.

Conclusions

Based on the description of the results and discussion, it can be concluded:

1. The Value of Social Activities TTP Aceh Besar district can be seen from the education and training provided to farmers, agricultural instructors to create an agricultural technology innovation. TTP also becomes a place of comparative studies or internships for students. The formation of an institution in TTP which was originally only Gapoktan has now become a cooperative called Babah Pinto.
2. The Value of Economic Activities of Aceh Besar TTP can be seen from the breeding of source seeds. The seeds are propagated by a certification system that produces basic seed (FS) and the availability of agricultural equipment and machine service businesses (4-wheeled tractors and rice transplanted machines). With these activities, the farmers of Aceh Besar District will be more motivated to develop their agriculture.
3. Constraints/obstacles and solutions in the delivery of agricultural innovations with farmers. From the results of research and interviews with respondents, researchers found 11 obstacles namely: to increase the role of communication in delivering agricultural technology innovations to farmers is important because the entire set of implementation must be accompanied with good communication. Communication in conveying information to farmers, agricultural extension workers, and students can go through two communication processes, namely direct communication (face to face) or media communication. In this case, the media in question is digital media such as social media and other printed media in the form of posters, leaflets, and banners.

Suggestions

It is expected that the Regional Government / Department of Agriculture of Aceh Besar District, farmers and other relevant agencies will be able to continue to maintain the Agricultural Technology Park and increase the motivation of management and policymakers as well as farmers to be more skilled in managing and developing TTP in a better way. Therefore, they feel more motivated and responsible to manage and develop TTP independently so that farmers and the general public's perception of the Agricultural Technology Park as an institution must be maintained and improved.

References

- Agung Prasetyo. (2016). *Pengertian Penelitian Deskriptif Kualitatif*. <https://www.linguistikid.com/2016/09/pengertian-penelitian-deskriptif-kualitatif.html> Diakses Tanggal 24/12/2019.
- Badan Penelitian dan Pengembangan Pertanian, Kementerian Pertanian. *Pedoman Umum Pengembangan Taman Sains dan Teknologi Pertanian (TSTP)*. Tahun 2015, versi 1. 2015.
- Badan Pusat Statistik Kabupaten Aceh Besar. *Kecamatan Kota Jantho dalam angka*. 2018.
- Fauzi, A. (2004). *Ekonomi Sumber Daya Alam dan Lingkungan, Teori dan Aplikasi*. PT. Gramedia Pustaka Utama. Jakarta.
- Fitri, N.L.(2019). *Komunikasi bidang pertanian taman teknologi pertanian (TTP) dalam menyampaikan inovasi pertanian masyarakat petani desa Banyubang kecamatan Solokuro kabupaten Lamongan* (Doctoral dissertation, UIN Sunan Ampel Surabaya).
- Jaya. R. (2016). *Rencana Induk Pembangunan Taman Teknologi Pertanian Kota Jantho Revisi 1*. Balitbangtan. Balai Pengkajian Teknologi Pertanian Aceh.
- Kementerian Perencanaan Pembangunan Nasional/ Badan Perencanaan Pembangunan Nasional. 2015. *Pedoman Perencanaan Science Park dan Techno park tahun 2015-2019*. Kedeputan bidang ekonomi.
- Lexy, J. M. (2007). *Metodologi Penelitian Kualitatif* Edisi Revisi. Bandung: PT Remaja Rosdakarya.
- Putri A. (2017). *Pengertian Kegiatan Ekonomi*. <https://www.studiobelajar.com/kegiatan-ekonomi/> Diakses Tanggal 24/12/2019.
- Setiawan, P. (2019). *Pengertian ilmu dan nilai sosial*. <https://www.gurupendidikan.co.id/6-pengertian-ilmu-dan-nilai-sosial-menurut-para-ahli-sosial-dasar/> diakses pada Tanggal 26 Maret 2019).

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).