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Development of Science and Technology Areas in Koi Fish Cultivation

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ABSTRACTS

The purpose of making this research in the area of science and technology aims to increase production yields and the quality of cultivation in order to improve the regional economy. To support the development of an area, the methods used are qualitative and quantitative methods to be used as material for analysis along with observations to directly review the area to be developed in Ciuyah Village, Kab. Sumedang. The results of the development of science and technology-based cultivation areas will involve the role of academics and government actors in accordance with the mandate of Permenristekdikti No. 25 of 2019 concerning Governance for the Implementation of Science and Technology Areas (KST). By involving the role of academics and government, it is hoped that it can accelerate the regional economy. In this case, the role of academics and government is needed to provide an innovation and supporting technology through assistance in it. Of course, with the role of academics and the government, it can affect the Development of Science and Technology-Based Cultivation Areas and improve the regional and regional economy.

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1. INTRODUCTION

Based on the Presidential Regulation of the Republic of Indonesia Number 106 of 2017, dated November 22, 2017 concerning the Science and Technology Area, Article 1 explains that the Science and Technology Park (Science and Technology Park) hereinafter abbreviated as KST is a professionally managed vehicle to develop and encourage growth sustainable economy, through (BP2D West Java Province, 2019). Development, application of science and technology Growth of Technology-Based Start-ups (Central Bureau of Statistics of Sumedang Regency, 2020).

A study on the development of the Science and Technology Kawsan was conducted by Sari, N et al. That the research explains that the development of the science and technology area will have a good impact on the economy through the role of academics and the government (Fatimah, 2016). This is in line with the application of technology in the cultivation area by Izmaniar et al stated that the application of technology in fish farming will provide a favorable outcome in penelitinan Parry, M Region Science and Technology is also described could boost economic growth for small and medium businesses

Region Ciuyah is an area in Cisarua District, Sumedang Regency, West Java Province which has the potential to be developed, especially in the field of Koi Fish Cultivation, Koi Ornamental Fish or Nishikigoi as one of the ornamental fish that is in great demand because of its beautiful body shape and color, and is believed to bring benefits. by koi lovers in Indonesia.

The purpose of this study is that the author has an idea to help increase the production of Koi Fish in an integrated manner such as providing direction and development strategies as well as providing innovation and technology for Koi Fish Cultivation by involving academic and government actors in the development stage in order to improve the regional economy. The development stages include: 1) Revitalization of the area and business model. 2) Irrigation channel banchmaking technology. 3) Map of Development Area. 4) Revitalization of Koi Fish Cultivation System. 5) Application of Cultivation Technology.

2. METHOD

Researchused in our research are SWOT analysis and descriptive analysis using qualitative methods to be used as material for analysis along with observations to directly review the area to be developed in order to convey the research design on the Science and Technology Area. In designing our system, there is market analysis such as business model analysis, location and zoning analysis, as well as technology accommodation that supports and performs bancmarking, in Ciuyah Village, Kab. Sumedang.

The drafting team has collected data from the literature and surveyed the Ciuyah area to collect data for the preparation of the Feasibility Study Document. In the investigation and based on the discussion in the Feasibility Study Document based on the social and economic point of view, several facts were found which were taken into consideration to determine whether or

not Ciuyah Village was used as KST based on Koi Fish Cultivation in West Java, namely as follows: Ciuyah is a village in Cisarua District which has promising potential for fishery cultivation and rice fields, but its development is still running slowly so that technology and development for cultivation are not sufficient (BP2D West Java Province, 2019). It consists of five hamlets, namely Ciuyah Hamlet, Awiluar Hamlet, Cihanja Hamlet, Pabuaran Hamlet, and Tanjung Hamlet. Ciuyah village has the status as an advanced self-help village which has a slope-shaped topography (Central Bureau of Statistics of Sumedang Regency, 2020). There is an area of 223 hectares, the area is divided into several land uses such as agricultural, forest, and non-agricultural land in which there is koi fish cultivation in almost every yard of the house there is a koi fish pond (Fatimah, 2016). The facilities and infrastructure in Ciuyah Village are good enough to support the development of cultivation areas such as the existence of good irrigation channels and road infrastructure to support the sale of cultivation products (Finahari, 2020). The population in Ciuyah Village in 2018 was 3,027 divided into 1,496 male residents and 1,531 female residents from 1,013 Family Cards (KK) with a population density of 1,357 km2 / person (Hadie *et.al.*, 2016). There is a koi fish farming group that was established in 2017. The livelihoods of the people are mostly farmers, cultivation and entrepreneurs (Izmaniar *et.al.*, 2018).

SWOT analysis has become one of the useful weapons to face global competition both at national and international levels, the swot analysis process must include an internal survey regarding the strengths and weaknesses of the organization/activities within the organization/something to be studied, as well as externally. on opportunities and threats (Fatima, FNAD 2016). The following are the results of the SWOT analysis can be seen in the following Fig. 1.

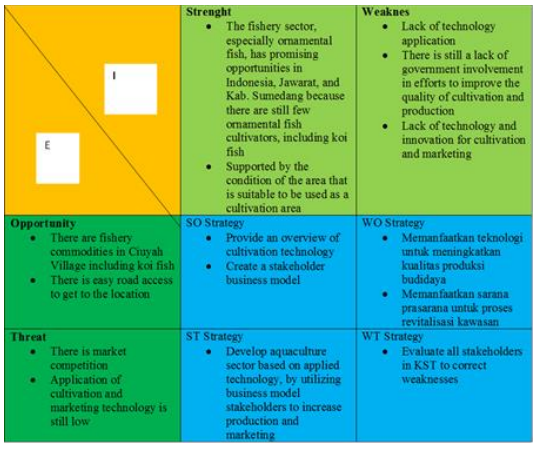

Fig. 1. KST Ciuyah SWOT Analysis

3. RESULTS AND DISCUSSION

3.1. Area Revitalization and Business Model

Revitalization is an effort to increase the value of the area through redevelopment in an area that can improve the function of the previous area (Minister of Public Works Regulation No. 18 of 2010 concerning Guidelines for Regional Revitalization Article 1 paragraph 1) . The purpose of Revitalization of Regions is to increase the vitality of the region through regional interventions that are able to create growth and stability of the local economy. In a study conducted by Sort, JC, & Nielsen, C. (2018) that business models can also be used for investment and model planning of an area. The Ciuyah Science Technology Area business model can be seen in Fig. 2.

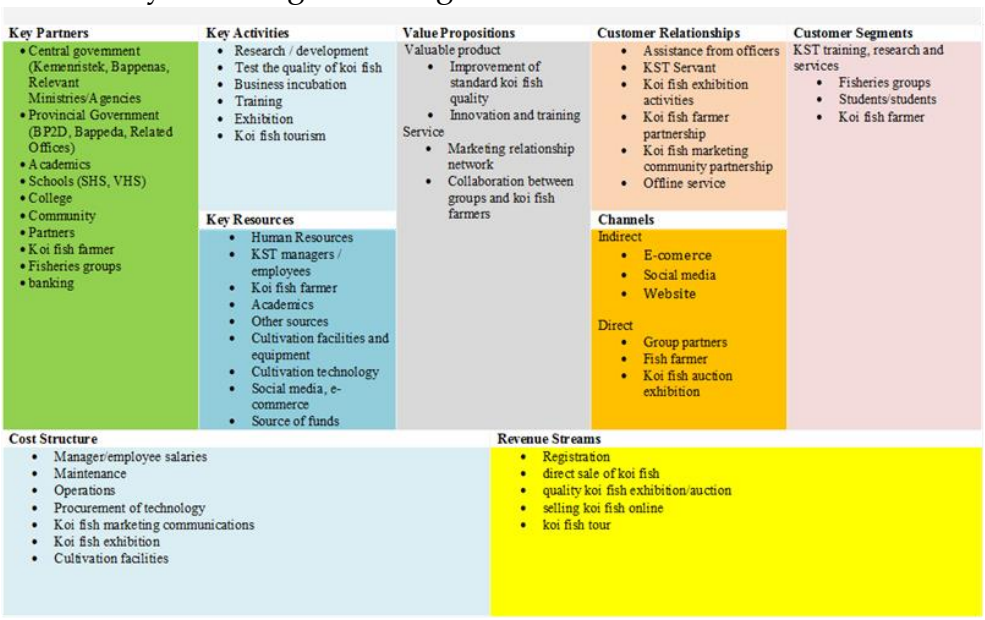

Fig. 2. Ciuyah Cultivation Area Bussiness Model

3.2. Revitalization of Irrigation Channels

Revitalization of irrigation canals is developed according to the capacity of the pond which will later be made algorithmically in an area and drilled wells are made to anticipate when lack of water volume in the dry season where there will be automatic technology in the water pump when the water volume in the pool has decreased, the pump machine will automatically fill the reduced pool water volume. To know the working system of filling ponds and irrigation canals, see Fig. 3 .

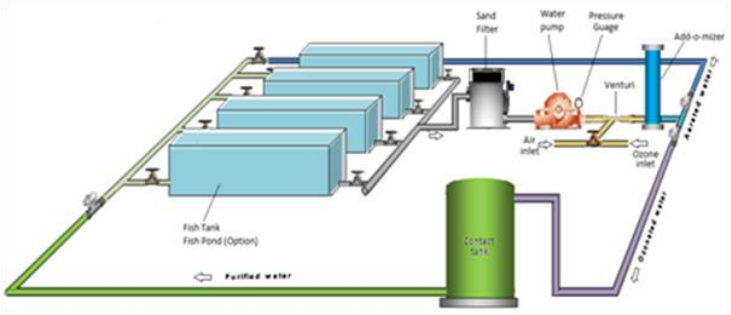

Fig. 3. Pond Water Filter and Irrigation Technology

3.3. Location of Revitalization Development

In carrying out a development, there must be an analysis of the location that is deemed suitable for a development, development may be carried out on sloping areas and has a slight height, it should not be made on land with sloping contours and steep, to see a suitable location for development in the development area, a slope and land use map is made to be used as a reference for the development of cultivation area development to be carried out. To find out the location of the Ciuyah Science and Technology Area, you can see the contour and land use maps in Fig. 3 and 4.

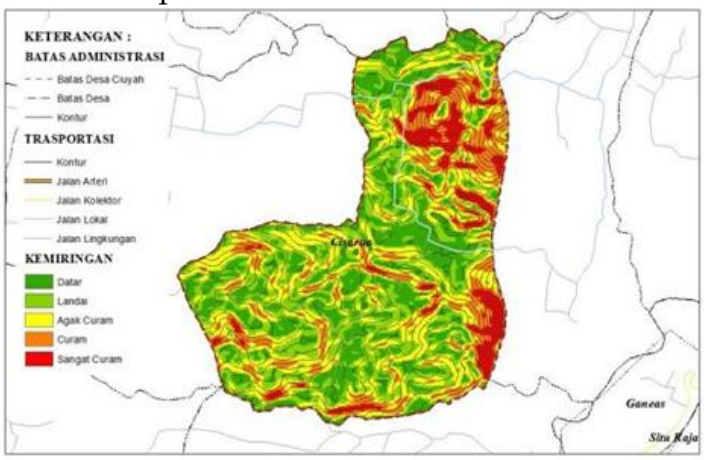

Fig. 3. Ciuyah Village Contour Map

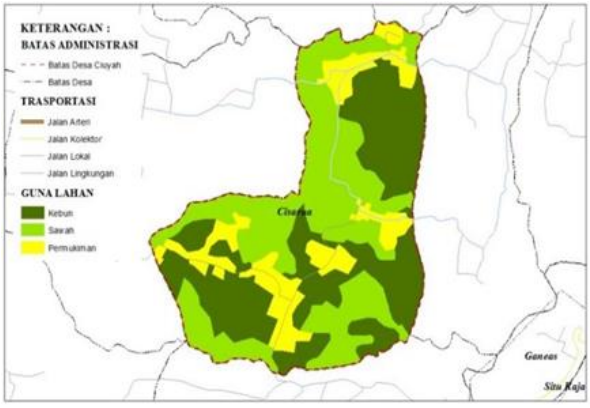

Fig. 4. Ciuyah Village Land Use Map

3.4. Revitalization of Koi Fish Cultivation System

The method of koi fish cultivation in Ciuyah Village is still conventional and has not applied good cultivation methods. Revitalization of fish farming methods must be carried out to increase capacity and quality. Revitalization is carried out starting from the provision of quality seeds, good fish cultivation processes, improvement of harvest technology, and improvement of cultivation technology. The revitalization of the Koi Fish culture system is expected to increase the amount of production, production continuity, and production quality so as to increase the income of aquaculture farmers in the Science and Technology-Based Koi Fish Cultivation Development Area in Ciuyah Village. The following is a point of development location can be seen in Fig. 5.

Fig. 5. Map of Cultivation Development Location

3.5. Koi Fish Cultivation Technology

The technologies that can be used to improve and maintain the quality of koi fish so that koi remain healthy and well cared for are as follows: Bottom Drain, is a pipe that is stored at the bottom of the pond with function as a cleaner for food debris and dirt at the bottom of the pool (BP2D West Java Province, 2019). Skimmer, is a tool/technology used to clean the dirt floating on the surface of the pool (Central Bureau of Statistics of Sumedang Regency, 2020). Pump, functions as a water suction device which will then be filtered by the skimmer, bottom drain and filter so that the quality of water and koi fish will be maintained (Fatimah, 2016). Filter, as a means of filtering dirt in the pond (Finahari, 2020). Ultraviolet light, this light serves to purify water and inhibit growth in water such as algae and other aquatic plants (Hadie *et.al.*,2016). The following is an illustration of the application of supporting technology for koi fish cultivation when viewed in the following Fig. 6.

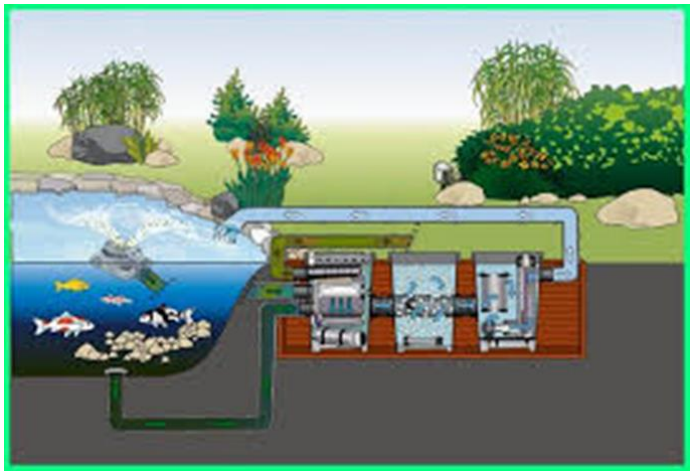

Fig. 6. Koi Fish Farming Technology

4. CONCLUSION

Development of Science and Technology-Based Koi Fish Cultivation Area in Ciuyah Village is a strategic step in encouraging the birth of an economic growth area in the Sumedang region through downstreaming. KST Ciuyah is the development of koi fish commodity which is currently a leading commodity and a source of income for people in the Ciuyah area. The development of KST Ciuyah is directed at efforts to increase the added value of these products.

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