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Exploration Implementation of Public-Private Partnership: Produce BSF Larva as Animal Feed

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Abstract

The purpose of this study was to find out how the perception of DKPP Surabaya and BSF larvae cultivators regarding the potential for cooperation between the government and private businesses or commonly known as Public-Private Partnership (PPP). In this study, BSF larvae cultivators are private businesses or called private companies and the Surabaya Food and Agriculture Security Service (DKPP) as part of the government or public companies. The BSF larval cultivation method was chosen because of two important advantages, namely being able to convert organic waste into a sustainable source of protein so that this method supports the concept of a circular economy and is able to become an alternative high protein animal feed. This research uses a qualitative research approach with basic qualitative research. Data were collected by using open-ended question interviews and observation. The results of the study prove that both parties, namely the private sector/company and the government, both give a positive perception of the potential for the formation of this PPP.

Keywords
public-private partnership (PPP); BSF larva; perceptions of the government; perceptions of private/company parties

I. Introduction

The increasing rapid urban population growth in Indonesia has implications for the urgency of providing housing with the right infrastructure and increasing the volume of waste generated. Municipal solid waste (MSW) is a serious problem whose number continues to increase every year, along with the increase in population (Kahar et al, 2020; Chen et al, 2020; Singh et al, 2014).In 2021 the volume of waste in Surabaya will reach 1500 tons/day (Beritajatim, 2021). More than 50% of the volume is in the form of organic waste originating from households, it causes community households to be the largest contributor of organic waste compared to others. So far, the handling of organic waste only uses the composting technique, namely processing organic waste into compost that is beneficial for plants. But the process takes about 40-50 days and the final product is only compost, there are no other types of final products that have more value added than that. A new innovation in organic waste processing which is currently starting to grow and develop in various regions in Indonesia is processing organic waste using the help of living things, namely BSF (Black Soldier Fly). Processing organic waste using BSF larvae is relatively easy and simple so that many people with middle economic level cultivate BSF.

A common thread was found between Circular Economy (CE) practices and the need for new alternative sources of animal feed. CE can be defined as an integrated process system of reducing, reusing, recovering and recycling materials and/or energy (Abad-Segura et al, 2020). CE applies the concept that organic waste is not a final product but organic waste is a source of production that can produce a new product with more economic value. As written above, BSF larvae can help humans in processing organic

waste by eating it. Therefore, organic waste becomes an unlimited number of new sources of production/energy.

BSF larvae are used as alternative feed for fish. This research emphasizes on fishery production because fishery business is one of the sectors that is growing significantly. Currently the source of protein is still obtained from fish meal and fish oil, where both raw materials are derivatives of marine products so that there is competition with human needs for marine products as well. The problem that occurs is that fish meal which is the main raw material in making pellets is an imported commodity with fluctuating prices and in recent years the price has continued to increase. The rising price of raw materials of course automatically increases the price of the pellet itself, which causes the higher costs of aquaculture production to be incurred by fish cultivators.

Covid 19 pandemic caused all efforts not to be as maximal as expected (Sihombing and Nasib, 2020). The outbreak of this virus has an impact of a nation and Globally (Ningrum *et al*, 2020). The presence of Covid-19 as a pandemic certainly has an economic, social and psychological impact on society (Saleh and Mujahiddin, 2020).

The COVID-19 pandemic in 2019 resulted in many layoffs in almost all fields of work. As a result of the dismissal of work is a decrease in per capita income which causes many people to shift jobs, namely starting a business business to cover their living costs and increase their income. One of the business efforts carried out is by cultivating BSF larvae as an alternative source of feed for livestock. The problem arises in the location of BSF larvae cultivators scattered with small-scale business sizes, none of which have been able to meet the market demand for animal feed. Animal breeders ask for these products to reduce production costs of livestock cultivation and also as a protein booster for the growth of livestock.

In this study, BSF larvae cultivators are the people's private businesses or are called private companies, while the Surabaya Food and Agriculture Security Service (DKPP) is the government or public companies. The existence of business cooperation with the government is expected to be able to connect BSF larvae cultivators with parties who need supplies of BSF larvae, among others, for making pellets and for direct feeding to their livestock because the government's connections and reach are wider than private individual businesses, of course with a production scale bigger ones too.

The existence of this PPP potential is also an advantage for the government sector, namely producing innovative solutions, promoting efficiency, and sustainable economic growth (Bogovac et al, 2021). The business interaction between the government sector and the private sector is seen as a structure that can initiate new ideas and ensure commercialization. Moreover, this PPP is intended to be used as a factor that supports innovative development in the regional economy (Kutsenko, et al, 2019). PPP is seen as an important collaboration when many areas of the national economy require government support (Rudenko et al, 2016). The potential for this PPP will improve a more adequate and better infrastructure in the production of BSF larvae, This leads to a reduction in aquaculture production costs so that the profit margins obtained by fish farmers are greater than before, which can improve the economic conditions of farmers which have an effect on increasing household consumption. This PPP potential will be obtained by exploring the perceptions formed from the government sector and the private sector, namely BSF larvae cultivating companies. The reality in the field is that there are also many breeders who do not know information about BSF larvae and their benefits because BSF larvae are considered a new product on the market. Here, DKPP Surabaya, through its extension workers, can disseminate this information and it is hoped that they will be able to connect

the company with DKPP fostered breeders and other parties who need BSF larvae supply, such as the feed industry and large-scale breeders.

II. Research Method

This study uses a qualitative research approach with basic qualitative research types or designs. The research location for PPP implementation in producing BSF larvae as animal feed was carried out in the city of Surabaya, East Java, Indonesia. The interview meeting place will be held in several locations, including the Surabaya DKPP office which is located at Jl. Pagesangan II No.56, Pagesangan, Kec. Jambangan, City of SBY, East Java 60233 and at a café with informants from the private sector because of the convenience and distance of the location.

Determination of informants is done by purposive sampling. The researcher obtained approval from 3 informants to be interviewed, namely: 1) 1 informant came from a bureaucrat, namely a DKPP Surabaya official as a Kasi (Section Head) for Livestock Business Development who has the authority to make decisions in terms of cooperation with other parties, 2) 1 informant comes from from the technocrats, namely pudek (assistant dean) 2 FKH Unair, 3) 1 informant is a practitioner of BSF larval cultivation with a production capacity of 1 ton/day. His history in the BSF larval production business began in 2020.

The data collection technique that will be used in this study is a semi-structured planned interview (open-ended question) to obtain data from informants, an audio recorder is also used during the interview process to record conversations without exception with the informant's permission, of course.

III. Results and Discussion

3.1 A General Description of the Company

The general description of the company as a whole is divided into 4 namely marketing, operations, HR and finance. However, when conducting interviews with informants, the finance department was not widely opened due to requests from confidential sources.

a. Marketing

The informant stated that there was no social media as a tool to introduce the business and products of BSF larvae to the public at large. Therefore, product publication is carried out through public hearings, most of which are breeders. Promotion has also been carried out by word of mouth within the farmer community and from the government to other parties. In addition, the government turns out to be a party that helps companies to promote their business and products to the public.

b. Operational

Based on the experience that has been carried out by companies in Tangerang City, the Tangerang City government submits their urban waste to be processed by resource companies and the company gets it for free. The transportation used is also owned by the government so that the company does not incur costs in the matter of transporting waste. After the waste is received, the company has an automatic sorting machine to separate inorganic and organic waste. Inorganic waste is separated, washed, dried and resold to inorganic waste processing companies. Meanwhile, organic waste is chopped into porridge

and then fermented. The function of fermentation is to reduce the foul smell of organic waste and so that organic waste can last longer. The purchasing system applied is a contract system, meaning that the buyer must sign a purchase contract at the company because the scale of production carried out is equivalent to an industrial scale of 1 ton/day. The implementation of this contract system aims to maintain customer loyalty to the company.

c. Human Resources (HR)

Human Resources is an important part of management in a business because the driving force of this business is mostly done by humans. Most of the field workers who work in companies only have education up to high school graduation, come from middle to lower economic conditions, are young and unmarried. According to the informant, educational factors and economic conditions also affect work ethic, then the situation of those who are mostly unmarried makes the sense of belonging of the employees also not exist, meaning that because they do not have people who have not been supported, so their work is still minimal and thinks that the job desk it can be replaced by someone else.

3.2 Business Experience and Entrepreneurial Character

This aspect is in the form of an explanation of how work and business experiences have been carried out by previous resource persons because experience is an important thing when implementing a business idea that is quite large in scale, such as collaborating with the government to build an organic waste processing facility using BSF larvae. His dreams and visionary abilities are also supported by the ability to see real problems that exist in the community and can also provide solutions that are equally real so that the proposed business idea does not only follow the booming business trend and will soon be closed, but the solution idea from This problem can continue to be sustainable because it targets problems that are actually experienced by consumers.

The Covid-19 pandemic is really testing a person's ability to survive. The informant is someone who has worked as an employee at BEI for 5 years and has a corporate catering business for 12 years where the catering is devoted to serving the food needs of other office employees. The existence of Covid-19 has reduced the number of catering food production that is usually carried out. This drastic decrease in the number of productions made the informants and their friends who are mostly engaged in event organizers and agencies formulate solutions for what they can do and what business gaps they can do. the informant and his friends are not rash in making business decisions. Starting from research about the business being carried out,

Overall, the attitude or character of an entrepreneur shown is also found in the research of Antonio et al. (2011) which states that an entrepreneur must be independent both in thought and action, able to see existing opportunities, creative and innovative, calculated risk taking ability, have a high and persistent work ethic. Wijaya (2017) also mentions based on his research at Ciputra University Surabaya that there are seven entrepreneurial characters, namely passion, persistent, independent, opportunity creation, creativity and innovation, calculated risk taking and high ethical standards. The statement is in accordance with the character possessed by the informant from the private party.

3.3 Perceptions of Potential Public-Private Partnership (PPP) by Entrepreneurs of BSF Larvae Cultivation

Networking become one of the important aspects in the business of processing organic waste using BSF larvae, especially with the link to the government because the government is the authority that has the source of organic waste. Networking is not only limited to the government but also with farmers and small communities as well as with academics. The success of having a network with the government means that the company is able to gain trust so that it gets support from the government. A research study on SMEs in Vietnam by Nguyen et al (2018) shows that support from the government has an impact on increasing the company's financial performance. Networking with the government also supports the company in terms of business publications and products offered to the public so that the community can be affected more broadly. However, the support received by the company is not unconditional, the government requires the company to share technology, absorb labor and form core plasma cooperation between large companies and small farmers in the cultivation of BSF larvae.

The reason why plasma nucleus cooperation is an important requirement is so that large companies do not dominate so much that it kills farmers and small communities who cultivate BSF larvae, then to ensure that farmers and small communities that produce BSF larvae have a guarantee that there is a market that absorbs their products, then with the establishment of cooperation In this plasma core, the company can educate and provide new technology to farmers and small communities. A business should be able to build a strong network and strategic cooperation to achieve competitive performance (Abu-Rumman et al, 2021).

A source from the company admitted that the reason he chose to directly collaborate with the government was that the government's reach was wider than if he just started this waste processing business alone. Without cooperation and support from the government, the company is difficult to develop because it will be hampered in access to raw materials. The source of urban waste is owned by the government agency the Environmental Service (DLH) and because the scale of the company is industrial scale, the company immediately targets to cooperate with the owners of municipal waste. The company does not only cooperate with the Surabaya City Government but also with the government agencies under it, one of which is the Surabaya City Environment Agency. In addition to the interests of obtaining raw materials directly from the owner, another interest is the company's contribution to provide more innovative solutions in tackling the problem of organic waste. The company aspires to be able to apply the circular economy concept in its business practices. Currently sustainability is the main objective in business rather than just being an attribute (Henriques et al, 2022).

In addition to collaborating with DLH in terms of processing organic waste, the company will also cooperate with DKPP (Food and Agriculture Security Agency) as a forum so that BSF larvae can be used again, namely expanding to agriculture and animal husbandry. DKPP is a government agency that is responsible for the welfare of the community obtained from agricultural and livestock activities so that it is the right step for companies to collaborate with DKPP. The advantage of having cooperation with the government is that the company is increasingly gaining the trust of the community itself as a producer of animal feed with higher protein quality and cheaper than factory feed. The company also won the trust of the government itself because it can support the government's goals by creating a sustainable business and oriented to the concept of a circular economy. Collaborating with the government can also open up investment opportunities for companies because the innovations produced take into account the

sustainability aspect as a business characteristic. This means that in pioneering this business the company focuses on 3 components or what is commonly called the "triple bottom line", namely 3 things that are used to make change and create value, which combines economic growth, environmental quality and social welfare (Henriques et al, 2022).

3.4 Perception of Potential Public-Private Partnership (PPP) by the Government

The waste problem is a classic problem that has been happening for a long time and until now the solution has not been implemented optimally for various reasons. The government as the holder of power and policy makers felt the need to start collaboration with private parties to overcome the waste problem in Surabaya. The private sector will cooperate with the government in several fields such as the Environmental Service (DLH). In addition to cooperation with DLH as part of the government which has been authorized to manage municipal solid waste affairs, the party that will become a partner is the Department of Food and Agriculture Security (DKPP) to expand the benefits of this innovation in managing organic waste. From the interview, it is known that the government, namely DKPP, wants this collaboration not only to solve the waste problem in Surabaya but its innovations can also be widely utilized and implemented in the fields of agriculture and freshwater fisheries which are widely used as additional businesses by the middle to lower economic level people in developing countries. . This collaboration can be an important program to be successful because it has the potential to be a pilot for the implementation of sustainable waste management, meaning that it is good and empowers the community (people), generates profits (profit) and does not damage the environment (planet). Collaborating with companies or the private sector often provides opportunities for the government sector to increase investment and gain access to the latest technological innovations,

The use of fish as raw material for animal feed in a broader or global view is also a problem, namely the existence of fish exploitation activities that cause marine ecosystem degradation (Wang et al, 2020). Of course, in this case the government as the policy holder is required to look for various more sustainable ways in order to continue to provide animal feed of the best quality and at the same time the resources used should not cause damage to the environment on land or at sea. The collaboration created between the company and the government will be the first time for the Surabaya City government in terms of managing organic waste using BSF larvae. Community empowerment is what the government wants in this case so that small fish cultivators have the ability to be empowered in increasing their household income, at least they can reduce the cost of aquaculture production by providing their own feed source with BSF larvae cultivation technology whose knowledge is provided by a large company owned by the resource person from the private sector. Not only imparting knowledge but also assistance in the process. For people who do not do aquaculture, the BSF larvae will be sold to the company where it provides certainty in terms of marketing because the BSF larvae produced will be absorbed by the company. Marketing of BSF larvae is also an obstacle that was conveyed by the government, because of the small scale of production, it cannot meet consumer demand which requires large quantities and product continuity. Therefore, although it is possible to carry out the BSF larval cultivation process, it has not been maximized so that factory feed is still widely used by fish cultivators.

Thus the government will gain more trust from the community itself because it has made efforts to support the production of sustainable animal feed and is oriented to the concept of a circular economy from a legal perspective. This is in line with the results of

research from Fasa (2021) which states that the national government through legislation that is multi-sectoral is ready to encourage the practice of a circular economy and in the formulation of a circular economy National Action Plan (RAN) policy should involve all affected stakeholders. In the interview, the interviewee emphasized that the government has the authority to ensure that programs needed to prosper the community must run.

IV. Conclusion

All informants perceive the potential for implementing PPP as a positive form of cooperation and very feasible to implement. The perception of the private sector/company is positive for several reasons, namely: 1) The entrepreneur receives support from the government to build an organic waste processing facility using this BSF larvae. Previous experience that there is support from the government for companies, among others, such as transportation support so that companies do not incur costs, free land with a record of absorption of labor and the formation of plasma core cooperation. 2) The resource person from the private sector has the character of an entrepreneur, namely passion, persistent, independent, opportunity creation, creativity and innovation,

Perceptions from the government are also positive with the potential for PPP for several reasons, namely: 1) In this case related to the problem of organic waste, it is proven that there are third parties who are willing and able to participate in providing solutions to overcome organic waste while contributing to reducing problems in the fisheries sector. and livestock, especially the animal feed section. BSF larvae act as biological agents that feed on organic waste where the crop yields in the form of BSF larvae themselves are used as alternative feed for livestock because they are high in protein and cheaper than factory feed.

Suggestions

Suggestions that can be given to private parties/companies are reflecting on previous experience of HR quality, currently companies can plan the absorption of human resources with better quality and work readiness, among others by holding classes related to waste processing materials. organic with BSF larvae as a brief in the world of work that will be undertaken by prospective employees. Companies can collaborate with government agencies (eg from DLH, DKPP, Wonorejo nursery and others) or communities (eg zero waste communities and others) or informal educational institutions for job preparation such as CV and interview preparation (eg from Naraya Consultant, Ikigai Consultant and other).

Suggestions for the government to be more proactive in pursuing this collaboration because it will be the first time so that it can become a model for other cities in solving organic waste problems innovatively, overcoming feed problems in the fishery sector in a sustainable circular economy concept. It is hoped that the government will try various ways as much as possible, of course with legal practices so that this collaboration can be carried out successfully.

Suggestions for academics in future research can use quantitative methods or mix-methods so that the discussion is more comprehensive and in-depth. This research was only carried out by Indonesia where it is a developing country, maybe in future research it can analyze PPP between companies and governments in developed countries for comparison and what can be learned.

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