

Solar Powered Fish Feeding Machine, Technology For Sme In Sidoarjo, East Java, Indonesia

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Abstract

Sidoarjo regency regional regulation number 6 of 2009 concerning Sidoarjo Regency Spatial Planning 2009 - 2029, Sedati sub-district is included in: (1) Rural areas; (2) residential residential areas; (3) Small Urban; (4) SSWP I, with the main function of Settlement, Industry and Trade on a local, regional and international scale; (5) SSWP V, with the main function of fisheries cultivation and tourism areas; (6) Industrial zones; (7) natural coastal tourism area; (8) residential housing areas; (9) Use of Area Mix, with a composition of 40% housing (50% built and 50% open space), 20% industry (50% built and 50% open space); Services and Trade 35% (60% built and 40% open space), and 5% warehousing (50% built and 50% open space). Industries that are approved to be developed in this region are only industries that support the agricultural industry; (9) Coastal Strategic Areas; (10) People's port development program. Based on Sidoarjo Regency Regional Regulation Number 6 of 2009, then at a macro level, Sedati sub-district was developed into a residential, industrial, service and trade and warehousing area. In Sedati sub-district, the contribution of land use is ponds / ponds with an area of 3646.09 ha (2013) due to the number of residents who use work as fishermen, increased land use for settlements and ponds / ponds, so participation in the transfer of land use can be used for ponds, which is expected to help flood. robbed, with the village with the least amount of inundation was Banjar Kemuning with an area of 145.89 ha, while the land use area was ponds and settlements. Banjar Kemuning Village, as part of Sedati Subdistrict, Sidoarjo Regency is one of the villages in the coastal area, with a northern boundary. The village of Segoro Tambak, the eastern boundary of the Madura Strait, the southern border of Juanda (AL) which is currently used for the Juanda airport. Utilization of marine products has become a daily activity of the community in the village of Banjar Kemuning. Catching activities that continue to be carried out unwittingly have an impact on fishery resources that have a decrease in catches. In the past 50 years there have been changes in catches and changes in the size of shellfish. Fishery Capture Results Decreased in 2014-2015 compared to the previous year. Famine season makes fishermen switch to fish and shrimp. In the past fishermen could get 1 (one) ton of shells every day, but now 100 kg is the most and the size is smaller than what has been taken. Shellfish resources will occur due to uncontrolled capture. Banjar Kemuning Village has a coastal tourism potential, with boat access to the Eduekowisata Sea. Potential access to tourism and its coastal rivers as well as a variety of processed yellow mussels are the leading economic tourism destinations in the village of Banjar Kemuning. The decline in marine products has an impact on the decline in fisheries yield, so a new business strategy is needed for the Banjar Kemuning village community. The change of land use change from the pond or pool area to the settlement area will directly affect the economic level of the Banjar Kemuning community,

which at this time still mostly involves the community that transports marine products and the results of the pond. New business patterns that have better prospects than sea products or the results of ponds, will be an attraction for the Banjar Kemuning village community. This research grant of Kementerian RISTEK DIKTI, Indonesia, 2019

Keywords:

Fishery, Technology, Solar Cell, Fish Feeding, Kementerian RISTEK DIKTI

1 INTRODUCTION

The existence of TPI / Fish Market in Sidoarjo is currently experiencing a shift in land use for trade / shopping and settlement functions. The decline in seafood results in a decrease in fishermen's income. Changes in land use change from the pond / pool area to a residential area, will also directly affect the economic level of the Banjar Kemuning village community, which at this time is still largely dependent on marine products and pond / pond products. According to data from the Fish and Shrimp Feed Division of the GPMT Association (Cattle Business Entrepreneurs Association), fish feed needs reach 100,000 tons every month. Seeing the large demand for fish feed, it's not wrong if the prospects of fish feed business will be increasingly promising. Most of the fish feed fulfillment is still supplied by the manufacturer's feed or is made by a large factory whose prices continue to skyrocket. Call it catfish feed with more than 30% protein whose price reaches Rp.7 thousand / kg. Likewise with goldfish feed with 25% protein the price is Rp.5 thousand / kg and pomfret Rp.4,500 / kg. Even though the need for feed in an intensive fish farming business such as catfish with large concrete / fiber ponds or goldfish in floating net cages reaches hundreds of kilograms every day. Seeing the high demand for fish feed and the high price of factory fish feed, the business of making home-scale bulk feed is considered quite promising for fish farmers in various fish cultivation centers. The home industry-scale bulk feed business is quite prospective, as long as it is able to guarantee the availability of quality local raw materials on an ongoing basis, so that it does not depend on manufacturer feed which still uses imported feed ingredients. By using local raw materials, of course the price of feed can be cheaper. Indonesia has an abundant source of feed raw materials, such as corn which had reached self-sufficiency as an energy source in fish feed, rice bran that can be obtained from the rest of the rice mill as a source of fiber, and a source of protein that can be obtained from a fish mill that is widely obtained both in land and sea as well as cassava flour / tapioca which are easily obtained as a binder in the feed manufacturing process. In addition, shrimp flour, snail flour, blood flour, soy flour, bone flour, coconut cake, tofu pulp, can also be used as feed raw material. Lamtoro leaf material, to restaurant and household waste can also be used as a mixture of feed. The range of feed raw materials starts from Rp. 1,500 for rice bran up to Rp. 3,200 for homemade fish flour from trash fish (various types of fish that are not worth selling). In addition to the abundant feed raw materials, the equipment used to produce home-scale industrial fish feed is also quite simple, such as a flour machine that functions to make flour from raw materials that are not yet flour, the mixer as a mixing and mixing container so that all the ingredients blend with perfect, pellet molding machine, drying machine and sack sewing machine. No doubt with local raw materials and simple equipment, understand if the capital needed to start a business making home-based bulk feed is less than Rp. 50 million. With affordable local raw materials and simple machines, of course the work of making feed is also simple. Only using a pellet machine is capable of producing about one ton of fish feed every day. Whereas mixing is done manually with the help of a shovel and a plastic base. Even for beginners, making feed can be done using a noodle grinding machine which is then cut manually, but the raw material must be mixed with more binding material in the form of tapioca flour or oil. From these series of explanations, it is not surprising that the price of home industry feed can be sold at Rp. 3,500-4,000 / kg. There are several forms of feed that can be produced both feed mills and home-scale industries. Feed in the form of flour which is usually used for fish seed feed, pellets (flour formed by small cylinders), crumble (a form of coarse pellets that are crushed roughly) for feed during enlargement. The size of the pellet also varies from 3, 4, 5 mm. While there is a type of feed in the form of moist (pasta) which is easily formed when given to fish and dry (dry). But of the several types of feed, pellets are considered the most appropriate for the most efficient fish feed because of the ease in storage (stock) and giving it to fish. The most needs of fish feed are in the form of pellets because the flour is only used by seeds which are very small compared to large fish. Meanwhile, based on its density, some pellet feed floats and sinks. Floating pellets are usually given to responsive fish and to intensive fish farming such as catfish and carp. Whereas sinking feed is suitable to be given to strong fish and not to intensive cultivation

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2 METHODOLOGY

Methods and stages in the application of technology to the community, ranging from identification of community needs, design, manufacture, operational testing, operational assistance, TTG application programs to the community, in the form of portable Fish Feeding Machine technology supported by the framework of iron structures and portable solarcell renewable energy, SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, as follows: The LPPM Implementation Team of Narotama University, Surabaya, and supported by the Student Team, carried out: design tools; tool making; make guidelines for the use of tools; socialization and workshop on the use of tools; evaluation of the use of tools by fishing partners; improved use of tools based on field conditions; SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, actively participates in socializing the use of tools, actively participates in tool use training, uses tools in accordance with evaluation and training, provides input to the implementation team related to the improvement of tools used, maintains and secures technology tools so they are not lost and can be used according to technical instructions; Banjar Kemuning village government, Sedati sub-district, Sidoarjo district, Sedati sub-district government, Sidoarjo district, Sidoarjo district government, particularly related agencies, are involved in workshops and outreach as one of the sources of TTG application program activities to the public, in the form of portable Fish Feeding Machine technology supported by iron structure and portable solarcell renewable energy, Banjar Kemuning village, Sedati sub-district, Sidoarjo regency; Mass Media, namely TV SURABAYA <http://surabayatv.tv/>, is directly involved in the coverage of TTG application program activities to the public, in the form of portable Fish Feeding Machine technology supported by the framework of iron structures and portable solar cell renewable energy, Banjar Kemuning village, Sedati district, Sidoarjo district. The description of the TTG application program to the community, in the form of portable Fish Feeding Machine technology supported by the framework of portable solarcell steel structures and renewable energy, Banjar Kemuning village Sedati sub-district Sidoarjo regency, as follows:

PORTABLE SOLARCELL TECHNOLOGY SPECIFICATIONS

- 1 portable SOLARCELL P X L X T 90 X 80 X 100 cm
- 2 Energy sources of solar panels
- 3 The capacity of the solar panel is 400 watts
- 4 The capacity of the inverter is 1,000 watts of pure sine
- 5 Frame material Elbow iron and hollow
- 6 Steel materials
- 7 Capacity 120 AH battery

PORTABLE FISH FEEDING MACHINE TECHNOLOGY SPECIFICATIONS

- 1 portable FISH FEEDING MACHINE P X L X T 90 X 60 X 170 cm
- 2 Material Iron Frame & Mild Steel Plate
- 3 Capacity of 50-75 kg / hour

3 ANALYSIS AND DISCUSSION

Technology solutions for Fish Feed making equipment using Solar Powered Fish Feeding Machine for fishermen at an economical cost but able to increase fish feed production, so it automatically facilitates fishermen in the availability of fish feed in the surrounding environment. Solar Powered Fish Feeding Machine technology meets the requirements of ease, comfort and speed in the production of fish feed in fisheries ponds. Solar Powered Fish Feeding Machine can be used in a limited area, easily moved or transported to other locations only by truck / pickup. The output that will be generated from the solution, measured and quantitative, is the availability of TTG to the public, in the form of portable Fish Feeding Machine technology supported by the framework of the portable solarcell iron structure and renewable energy, SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, includes: 2 units of portable Fish Feeding Machine technology and 2 units of portable Solarcells technology, which can be directly utilized by the partners of SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, in order to increase non-marine income, supported by renewable energy that is cheap, efficient and appropriate. Achievement plans as well as performance indicators for the TTG application program to the community, in the form of portable Fish Feeding Machine technology supported by the framework of portable solarcell iron and renewable energy structures, SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, include: to the community, in the form of portable Solar Powered Fish Feeding Machine technology, in the form of workshops, socialization and the provision of technology tools for 2 portable Fish Feeding Machine technology and 2 units of portable Solarcells technology, which can be directly utilized by the partners of SME fishermen, subur sejahtera and makmur sejahtera; desa banjar

kemuning kecamatan sedati kabupaten sidoarjo, in order to increase non-marine income, supported by renewable energy that is cheap, efficient and appropriate; IPR registration program for implementing TTG to the public, in the form of portable Fish Feeding Machined technology and portable Solarcells technology; Video Profile of the TTG application program to the public, in the form of portable Fish Feeding Machined technology and Solarcells portable technology; *serva publicas* IEOM International Proceeding and Surabaya TV mass media

The parties involved in the TTG application program activities to the community, in the form of portable Fish Feeding Machine technology supported by the framework of iron cell structures and portable solarcell renewable energy, KUB Sari Laut fishermen and KUB Maju Sejahtera village Banjar Kemuning village Sedati district Sidoarjo regency, include: LPPM implementing team Narotama University, Surabaya; SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo; Banjar Kemuning village government and Sedati sub-district government and Sidoarjo regency government, particularly related agencies; Mass Media, namely TV SURABAYA <http://surabayatv.tv/>

Technology solutions for Fish Feed making equipment using Solar Powered Fish Feeding Machine for fishermen at an economical cost but able to increase fish feed production, so it automatically facilitates fishermen in the availability of fish feed in the surrounding environment. Solar Powered Fish Feeding Machine technology meets the requirements of ease, comfort and speed in the production of fish feed in fisheries ponds. Solar Powered Fish Feeding Machine can be used in a limited area, easily moved or transported to other locations only by truck / pickup. The output that will be generated from the solution, measured and quantitative, is the availability of TTG to the public, in the form of portable Fish Feeding Machine technology supported by the framework of the portable solarcell iron structure and renewable energy, SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, includes: 2 units of portable Fish Feeding Machine technology and 2 units of portable Solarcells technology, which can be directly utilized by the partners of SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, in order to increase non-marine income, supported by renewable energy that is cheap, efficient and appropriate. Achievement plans as well as performance indicators for the TTG application program to the community, in the form of portable Fish Feeding Machine technology supported by the framework of portable solarcell iron and renewable energy structures, SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, include: to the community, in the form of portable Solar Powered Fish Feeding Machine technology, in the form of workshops, socialization and the provision of technology tools for 2 portable Fish Feeding Machine technology and 2 units of portable Solarcells technology, which can be directly utilized by the partners of SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo, in order to increase non-marine income, supported by renewable energy that is cheap, efficient and appropriate; IPR registration program for implementing TTG to the public, in the form of portable Fish Feeding Machined technology and portable Solarcells technology; Video Profile of the TTG application program to the public, in the form of portable Fish Feeding Machined technology and Solarcells portable technology; *serva publicas* IEOM International Proceeding and Surabaya TV mass media

4 CONCLUSION

Functions and benefits of technology products, TTG application program activities to the public, in the form of portable Fish Feeding Machine technology supported by the framework of portable solarcell iron and renewable energy structures, SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo. Portable Fish Feeding Machine technology supported by a portable solar cell iron structure and renewable energy structure for fishermen functions not only in economic costs but is able to increase fishermen's products, meeting the requirements of strength, comfort and speed in production and product mobility. can be used in limited areas, easily moved or transported to other locations only by truck / pickup. Portable Fish Feeding Machine technology is supported by an iron structure frame and portable solarcell renewable energy for fishermen. It is beneficial that there is no need for PLN's electricity costs to produce fish feed, so that it can reduce the selling price. Economic and social impacts, TTG application program activities to the community, in the form of portable Fish Feeding Machine technology supported by the framework of portable solarcell iron and renewable energy structures, SME fishermen, subur sejahtera and makmur sejahtera; desa banjar kemuning kecamatan sedati kabupaten sidoarjo. Means of processing and or preserving fisheries production, especially in the freezing process, can increase economic added value that can be enjoyed by fisheries businesses in the region, in the form of fishery commodity price stabilizers and contributors in reducing unemployment through labor absorption. The existence and operation of portable Fish

Feeding Machine technology supported by the framework of the iron structure and renewable energy portable solarcell is believed to be able to create various job opportunities such as traders, laborers and employees.

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