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Training on Processing Shellfish Waste into Handicraft Products and Paving Blocks for Youth in The Tambak Oso Sidoarjo

[1]Dyan Agustin *, [2] Okik Hendriyanto, [1] Erwin Djuni

[1] Department of Architecture, Faculty of Architecture and Design, Universitas Pembangunan Nasional "Veteran" Surabaya, East Java
[2] Department of Environmental Engineering, Faculty of Engineering, Universitas Pembangunan Nasional "Veteran" Surabaya, East Java

Abstract

Tambak Oso Village is a village that produces milkfish, shrimp and shellfish processed products. During this time in the processing process produces waste / garbage, especially in processed shellfish. The remainder of the shells are only thrown away and have not been utilized, causing environmental problems. With the technology of processing scallops into handicraft products and paving blocks, the problem of scallop shell waste can be overcome. The training is focused on young men and women who are members of the youth group and CV Krishna as a shell-producing SME producing shellfish from processed food production. The method used is divided into 3 stages, the first is counseling about the potential and market opportunities of handicraft products and paving blocks from shell shell waste and shows a good design for handicraft products made from shells to explore creativity. The second is product manufacturing training which is divided into 2 groups, young women are trained in making handicraft products, while young men are trained in making paving block products. In the third stage marketing training is held both online and online so that their products can be introduced and marketed to the wider community. From the results of training in young women obtained several craft designs from shells including decorative mirrors, wall hangings and accessories. Whereas in the training of paving blocks with shell material, a number of paving designs with a high degree of flexibility are found in the form of trapezium so as to produce a more diverse design of paving compositions. With this community service, it can overcome the problem of waste / shellfish shells in Tambak Oso Village, Sidoarjo, and can empower and improve the skills of youth cadets in the village so that it can increase the income of teenagers and reduce unemployment and make the village of Oso Tambak better known and later can be a tourist village.

Keywords: Waste, shells, crafts, paving blocks

Introduction

Tambak Oso Village has an area of approximately 2. 278,309 Ha (Monograph data of Tambak Oso Village, Waru District, Sidoarjo Regency in 2012). Most of the area is used for fisheries. Tambak oso village is lowland and close to the sea. The main livelihoods are as farm laborers and fish farmers. The economic condition of the oso pond village can be seen from the level of productivity of its natural resources. Based on the monograph data of the Oso Pond Village, it is known that the highest level of productivity is pond farmers by 65% and the lowest productivity level is fishermen by 5%. In the fisheries

Correspondence Author
Email Address: dyanagustin.ar@upnjatim.ac.id

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sector, Tambak Oso Village relies on shrimp, milkfish and shellfish as superior commodities. The abundant amount of commodity from the pond must be balanced with efforts to process the results of the pond. Therefore, there are also many centers of small-scale industrial processing centers in the area of Tambak Oso Sidoarjo. Observations that have been made in previous studies on various processed business results of ponds in the village of Tambak Oso Sidoarjo show that Tambak Oso Village is famous for its processed products (Agustin, 2017). in the processing of milkfish, shrimp and shellfish, it causes waste / rubbish, especially in the processing of shellfish. Waste shells produced reach 9,000 tons or 1500 kg per day with a variety of mangrove shells, blood shells and axles. Shells that are not used are thrown away and cause a pile of garbage that can disturb the beauty and health of the community in the Village of Oso.

Figure-1. Shellfish waste in Tambak Oso

Therefore, an effort is needed to process the shellfish waste so that it can be of high use value. Based on the expertise of the proposer, the shells can be processed into accessories by means of drills and metal combinations (Agustin, 2016). The tools needed in making shells study these simple accessories, namely small drill bits, multipurpose pliers and scissors. Before being processed into craft products must be processed first by chemical means soaked in a solution of Chloride acid or vinegar (Pristiwati, 2009).

Whereas the processing of clam shells into paving blocks is the result of research from the proposing team in 2014. Paving blocks have been widely developed in the community, but paving blocks from shell material have not been made much. This is an opportunity that can be utilized by regions that produce a lot of shell shell waste such as in the village of Tambak oso. The advantages of using shells for crafts and paving blocks are:

1. Economic value, because with minimal materials will be produced goods that have good quality.
2. Easy to find, many shellfish materials are found mainly in coastal areas and ponds such as in the Oso Pond area.
3. Increase the sale value, from useless materials that are processed into goods of sale value.
4. Attract buyers, outside communities who are interested in buying various kinds of souvenirs and crafts to be used as souvenirs.

Whereas the suitable human resources for doing this activity are young men and women who are members of the youth group and CV Krishna as a producer of processed shellfish food. They will be trained in the processing of these shells so that they will have new skills and business opportunities.

Research Method

Conduct counseling

Conducting outreach to GORES and CV Krishna youth members in Desa Tambak Oso Sidoarjo about the importance of having additional skills, especially in the processing of shell shell waste processing, are elements of decoration and accessories. Besides that, the opportunity and market share of the product are still wide open. After that, some examples of craft product designs that are liked by the market are also shown so that they are expected to have a unique and interesting shape so that in the future good creations will appear.

Conduct training in the manufacture of handicraft products made from shells waste material

At this stage three stages of shellfish processing are shown:

a. Shells which will be used as raw material for crafts must be processed first. This processing is intended to remove dirt, odors and outer skin layers so that the inner skin looks and is cleaner. Processing of shells in this case is done by chemical means soaking shells with a solution of hydrochloric acid or vinegar (Pristiwati, 2009). By immersing the shells in acidic solution will dissolve the dirt attached.
b. In the process of making decorative elements, ready-to-use raw materials are widely sold at cheap prices, such as tissue boxes, mirror glass, pigments, etc. This ready-to-use raw material is then decorated and attached with various shells available. With the creativity of the composition of the shell the shell will produce new products of high artistic value and increase the selling price of the decoration elements created. While in making accessories needed supporting materials include wire accessories, beads so that the resulting product accessories can support the presence of the shells used, for example for necklaces, bracelets, earrings, brooches.
c. Paving Block (Concrete Brick) is a composition of building materials made from a mixture of Portland cement or hydraulic adhesive or the like, water and aggregate with or without other additives which do not reduce the quality of the concrete brick (SNI 03-0691-1996).

Result and Discussion

This activity is an activity to empower youth members in Tambak Oso village which aims to awaken the potential and active role of young men and women. This is also related to the potential of Tambak Oso village, which stands out in the fishery and processed shellfish sector. Waste from processed oysters create waste problems and makes the Tambak Oso environment less beautiful and healthy. There are several steps that are taken in realizing the activities, including:

Counseling and training of shell craft

The first phase of counseling and training is conducted for young women in making crafts from shellfish waste. The counseling and training was held on July 17, 2018 at the Village Hall of Tambak Oso Sidoarjo. Participants who attended consisted of young women and UKM. When counseling, material is given about the importance of knowledge skills in order to produce products that can be sold

Figure 2. Participants in handicraft training from shellfish waste

The stages in the skills training in making crafts from shellfish waste material are as follows:

a. Collecting raw materials in the form of shells and sea snails obtained by fishermen or pond entrepreneurs. The shells and snails chosen are those that have good shape and unique color.
b. Clam shells are cleaned from the remnants of clam meat and then washed clean. Clam shells are soaked in a clothing bleach solution overnight. Dirt on the shells will peel by itself. After overnight the shells are rinsed twice with soapy water to remove the whitening odor. After it is clean enough to dry in the sun to dry and the shells are ready to use
c. Making holes in clam shells with or without the help of a drill
d. Making crafts such as mirror glass, tissue boxes, accessories, etc. There are 3 types of products that can be produced from conch shells and shells, among others, using shell glue with a combination of wood or furniture products, combination of shell with wire and shell craft with resin techniques. In working with the glue gun technique the participants were taught to make several kinds of handicrafts made from shell shell waste such as mirror glass, tissue boxes, bags, flower vases and others. This technique is fairly easy because most of the training participants are accustomed to using glue gun so that only a touch of creativity is needed. This sticking technique only compiles the basic ingredients into a unique, beautiful and interesting creation and craft that attracts buyers.The main ingredients needed in the manufacture of resin-based crafts are resins and catalysts. The resin used is a type of clear resin in order to bring up shell motifs on crafts made such as key chains, pendants necklaces and others. The catalyst is used to speed up the drying and hardening of the resin mixture.

Counseling and training in making shellfish paving blocks

The next stage was counseling and training on making paving blocks of conch shells and snails for young men in the Gores youth group in Tambak Oso Village, Sidoarjo. The activity was carried out at the landfill site belonging to Tambak Oso village. This location is very appropriate to be used as a place of practice and can then be used as a paving production site because the place is quite large and there is a shade roof. The stages of training in making paving blocks of shells include:

1. Stages of Preparation

The preparation phase is carried out with several activities, among others:

- *Design a paving block mold*

Paving blocks or concrete bricks serve as ground cover so that the ground surface is flat and stable. Paving block models come in various shapes. In addition to variations in the form of paving blocks can also be obtained through a variety of colors, patterns, textures, and sizes. There are 5 paving block models on the market in Indonesia based on the model and size, among others:

a. Paving block triangle

This type of paving is often called a Thirex paving block. Its size is 19.7 cm x 9.6 cm with a thickness of 6-10 cm. For an area of one square meter, around 39 Thirex are needed. This model is quite complicated and can only make one pattern.

Figure 3. Trihex paving block model

b. Paving block model of the worm

This paving model is zigzag shaped with a size of 11.5 x 22.5 cm with a thickness of 6-10 cm. This model is usually installed in a residential or garden complex. In the installation of one square meter, 39 units are needed. The installation pattern is easy but cannot be combined with other models

Figure 4. Worm paving block model

c. Paving block bricks

This model is the most commonly used model because the model is similar to a brick. Usually widely used for parking lots. The size of the brick paving block is 10.5 x 21m2 with a thickness of between 6-10 cm. In the installation of an area per square meter required 44 paving blocks. In the market this model is available in various colors such as black, red and gray

Figure 5. Bricks paving block model

d. Hexagon paving block

This paving block model is also called a hexagon paving block. The size of this paving block is 20x20cm with a thickness of 6.8 and 10 cm. For installation per square meter requires 27 pieces and is usually installed for parking lots or parks

Figure 6. Hexagon paving block model

e. Paving block grass or grass block

This model has two types namely L5 and L8. For L5 has a size of 40x40 cm and a thickness of 8 cm. It takes 6 pieces of paving to fill the fields per one square meter. Whereas L8 has a size of 30x45 cm with a thickness of 6 or 8 cm. It takes as many as 7 pieces to fill the fields per one square meter.

Paving block model design concept

The paving blocks made at the training in Tambak Oso Village are paving blocks with a mixture of materials from shell shell waste. This is the advantage of paving block products produced, because it utilizes waste materials. To be able to display these advantages, the paving block approach is taken from the basic shape of the shell. The typology of the basic shape of the shell is widened above and when pulled into the basic shape it will bring up the trapezoidal shape. Trapezoid is a flat shape formed by four ribs, two of which are parallel to each other but not the same length

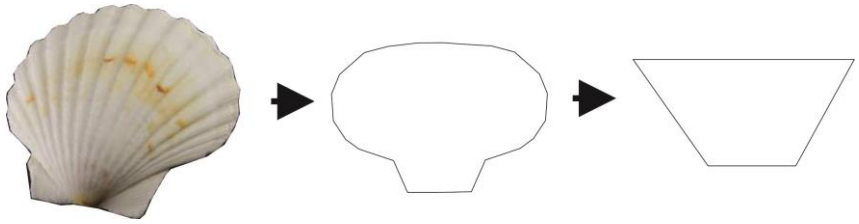


Figure 7. Transformation of the basic form of paving blocks

The shape of the trapezoid in the design of the paving block is a new form of innovation that has many advantages including a stable shape and when composed will produce many variations. While the size used refers to the size of the hexagon-shaped paving block. So that if the trapezoidal paving block can be combined with other forms in the market such as hexagon or brick.

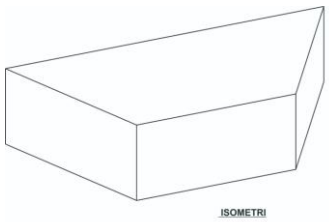
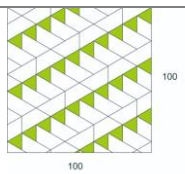
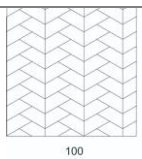
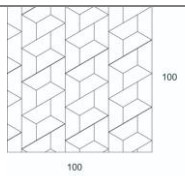
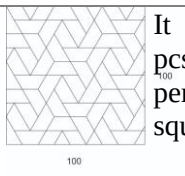
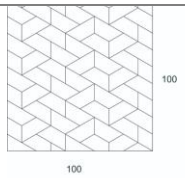
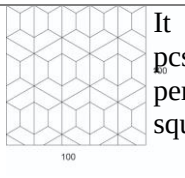
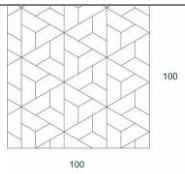
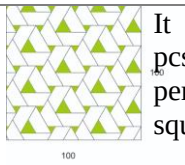
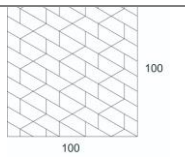
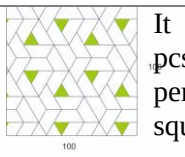
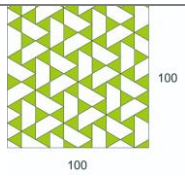


Figure 7. Trapezium paving block

With a trapezoidal base shape, 11 compositions are found and more than other forms. Here are some compositions using the trapezium paving block form:

Table 1. Variation in the composition of the trapezoidal paving block arrangement.

No	Types of Composition Variations	Picture	Information	No	Types of Composition Variations	Picture	Information
1	Composition of stairs		It takes 40 pcs of paving per square meter The green one is the	7	The composition of fish scales		It takes 50 pcs of paving per one square meter

			catchment area				
2	Rhombus composition		It takes 52 pcs of paving per one square meter	8	Hexagon composition contents		It takes 50 pcs of paving per one square meter
3	Cross rhombus composition		It takes 52 pcs of paving per one square meter	9	Outer hexagon composition		It takes 55 pcs of paving per one square meter
4	Triangle composition		It takes 52 pcs of paving per one square meter	10	Composition of a folding triangle		It takes 30 pcs of paving per one square meter. The green part is the recharge area
5	Z composition		It takes 48 pcs of paving per one square meter	11	Composite triangle folding combination		It takes 34 pcs of paving per one square meter. The green part is the recharge area
6	Composition of stacking triangles		It takes 32 pcs of paving per square meter. The green one is recharge.				

2. Implementation Stage

Figure 8. Participants in the shellfish paving block training for young men in Tambak Oso Village, Sidoarjo

This training activity was held on August 6, 2019 and was attended by 14 young men who had not worked and were members of the Youth Scores. Most of them have not worked permanently and are still odd jobs. At night the village provides a stand for youth to sell food, but during the day they do not have productive activities. By providing this training, they have skills in making paving blocks that utilize waste shells and conch shells that are widely available around their villages.

Figure 9. The atmosphere of the training of making shellfish paving blocks in the Village of Tambak Oso Sidoarjo

The steps taken in the training of making paving blocks are:

1. Smooth the waste of conch shells and conch using crusher shells. Many shells and conch shells are found around the village of Tambak Oso originating from sea fishermen and ponds.
2. Mixing sand, cement and shell powder with a ratio of 1 PC: 3 PS: 2.5 BP, with fas 0.5 and a mixture of shell shells 0.375 kg
3. The mixture is given water and then stirred.
4. The dough is ready to be printed into the mold that has been prepared. There are two types of molds, including manual and handpress.

Table 2. Circumstances before and after training

No.	Situation	Before Training	After Training
1.	The large amount of shell shell waste in Tambak Oso Village is produced from processed shellfish food such as at CV Krishna	The view is not pleasant and cause disease	Various processed shellfish products are handicraft products and paving blocks
2.	There are still many youth in Karang Taruna who have not worked	Adolescents of productive age have no income	Some teens can sell their work and can generate income
3.	CV Krishna Has never attended any skills training specifically in the processing of shells	CV Krishna does not yet have the expertise to process shells	CV Krishna can make crafts from waste shells
4.	Never had a product marketing training	Cannot market the product produced	Youth youth can do online and online marketing
5.	Cognitive aspects	Lack of willingness to learn new things in the business world Lack of understanding about the important role of Youth Organization as a forum for the development of young people in improving social welfare Lack of knowledge about management and marketing	Willingness and curiosity to learn new things about crafts and paving blocks More concerned with the role of youth in the development of the village of Tambak Oso Can make calculations of production and sales costs
6	Affective Aspects	Lack of concern for social problems that occur around. Lack of courage to do something new and innovative Lack of responsibility	Teenagers are more concerned with waste problems, especially shellfish waste More innovative in terms of crafts More responsible
7	Psychomotor aspects	Lack of entrepreneurial skills due to education level Lack of ability to move himself and others for a purpose.	Youth youth can be entrepreneurial by selling their handicrafts and paving blocks Together with other members, they opened a souvenir shop where the village had provided it.

Conclusion

The benefits achieved after the training was held for young men and women of Karang Taruna youth and UKM UKM in Tambak Oso Village are:

1. The growth and development of skills possessed by young women and small and medium enterprises by producing handicraft products that have economic value.
2. Increased skills of young men and UKM Krisna in making paving blocks by utilizing shellfish waste.
3. Growth of skills in managerial entrepreneurship.
2. The formation of young women and male micro businesses and be able to provide additional income to families through youth organizations.
3. Can help achieve the goal of the village of Tambak Oso to become a tourist god by making handicraft products and paving blocks from waste shells shells..

Suggestion

There is a need for ongoing programs and a network of collaboration between Tambak Oso Village and other institutions

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