

Training on Processing Plastic Waste into Creative Products for PKK Mothers in Tambak Oso Village Sidoarjo

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Training on Processing Plastic Waste into Creative Products for PKK Mothers in Tambak Oso Village Sidoarjo

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ABSTRACT

Tambak Oso Village is a densely populated village on the coast. Every day a lot of waste is generated, both household waste and waste from the embankment. The accumulation of garbage is a serious problem for Tambak Oso village, some residents even dump trash in the river. The collected waste is currently not being processed, the only way is just to burn them, which of course creates an odor and disturbs health, especially plastic waste. Therefore, training efforts are needed to process plastic waste into creative products, including accessories (bags, flower vases, flowers) and interior products (lampshades and furniture from used bottles / eco-bricks). By processing plastic waste into creative products, the problem of plastic waste can be overcome. Human resources that are suitable for this activity are PKK mothers (program at the village level to educate women on various aspects of family welfare). They will be trained in the plastic waste processing process so that they will generate new skills and business opportunities. The results obtained after the training were the knowledge of PKK mothers, especially on making chairs from used bottles (eco-bricks). With eco-bricks, they can reduce a lot of plastic waste. Besides, a garbage bank has also been formed to make it easier for mothers to help with plastic waste so that it can increase the income of PKK mothers in Tambak Oso Village.

Keywords: Plastic waste, creative, PKK mothers, Tambak Oso

Introduction

Tambak Oso Village is one of the villages in Sidoarjo Regency and is directly adjacent to the Surabaya Municipality which has an area of approximately 2,278 hectares (Monograph data of Tambak Oso Village, Waru District, Sidoarjo Regency in 2012). Most of the territory is used for fishing. Tambak oso village is lowland and closes to the sea. The main livelihoods are farm laborers and fish farmers. Based on the monograph data of the oso pond village, it is known that the highest level of productivity is pond farming by 38%. As a village that is located close to the sea and ponds, Tambak Oso Village has a problem with waste, both household waste and pond processed waste such as shells (Agustin,2019).

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Because of that, big efforts are needed to process plastic waste so that it can reduce the pile of waste and can empower PKK mothers to be able to process this plastic waste to make it highly useful. Plastic waste can be reprocessed in the form of recycling, energy sources, gas, and oil (Purwaningrum, 2016). Based on the expertise of the proposer who teaches entrepreneurship and craft architecture courses, where one of the chapters is processing waste into creative products and how to market the product.

Besides the dangers it causes, plastic at the same time has promising potential to be developed as creative products and services (Putra & Yuriandala, 2010). The advantages of using plastic for creative products are:

1. Economic value, because with the minimum amount of materials possible good quality goods will be produced.
2. Easy to find, plastic waste can be found in densely populated areas such as Tambak Oso.
3. Increase the selling value, from useless materials processed into goods of the sale value.
4. Attracting buyers, outsiders who are interested in buying various kinds of souvenirs and creative handicraft products to be used as souvenirs

There are around 75 housewives who are part of PKK in Tambak Oso Village. Currently, the activities they have carried out are mostly helping fathers to process fishpond products. there are rarely activities related to skills improvement. This is also done if you get the results from fishing activities or become a farmworker. As for the day, there is not much they can do. Of course, becomes a village problem and the solution to the solution is one of them by equipping them with the skills to make crafts from plastic waste.

Material and Methods

Referring to the solutions and problems above, the steps are taken are as follows:

1. Conducting counseling beforehand to PKK mothers in Tambak Oso Sidoarjo Village about the importance of having additional skills, especially in the skills of processing plastic waste into creative products such as bags, flower vases, flowers, chandeliers, and household furniture. Besides that, he also conveyed the opportunities and market share of these products which are still wide open.
2. Conduct training on making creative products from plastic waste. In the manufacturing process of plastic accessories, hard and soft plastics are used. For hard plastics such as drinking bottles, detergent wrappers, etc., it is processed into vases and flowers using scissors, paste, and paint techniques. It takes creativity in processing the plastic material to produce a unique product that is liked by the market.

Results and Discussion

This is an activity to empower members of PKK mothers in Tambak Oso Village, Sidoarjo which aims to generate the potential and active role of PKK mothers. This is also related to problems in Tambak village related to plastic waste. The plastic waste in Oso Pond is less beautiful and healthy. The stages carried out in this activity are counseling and training. During the counseling and training, the participants consisting of PKK mothers were very interested, listened well, and actively interacted. Because the implementation was during the pandemic, participants were also limited so they could maintain a distance. All participants also wear masks and face shields to maintain their health.



Figure 3. Plastic waste management training participants in Tambak Oso Village

There are some steps that they do to realize the program, there are:

Counseling on the establishment of a waste bank

The solution to the waste problem is not only done by garbage officers but is the responsibility of the whole community. One way is to apply the 3R principle (Reduce, Reuse, Recycle) in the form of a waste bank. In Tambak Oso village, a Garbage Bank has been formed under the name Peduli Mutiara Berkah. But it could not run due to several obstacles.



Figure 4. Banner of Tambak Oso village's waste bank

In the beginning, each house was given a different colored plastic bag to distinguish organic and inorganic waste. At first, the program worked well. But there are obstacles to its implementation. Garbage officers do not want to just pick up organic waste, because they usually sort the residents' waste and sell some of the plastic waste. By simply taking their organic waste there is no additional income. Meanwhile, residents themselves are only able to sort the waste at the very beginning, further developments are back to mixing their household waste.

The counseling was carried out on August 31, 2020, at the Tambak Oso Sidoarjo village hall. At the time of counseling, the existing garbage bank was rearranged by forming management. Because with the existence of a core committee, it will be able to coordinate other mothers and be able to carry out the sustainability and consistency of the waste bank.



Figure 5. Explanation about waste bank

It also explained how to raise funds from a waste bank to generate income. Furthermore, they also discussed the place for their waste bank post. Because of the obstacles previously, there was no special place to collect the plastic waste. Placement in one of the residents' houses. And this of course creates a problem. During the rainy season, it creates an unpleasant odor and of course disturbs the environment. Finally, at the time of extension, it was decided that the place for the new waste bank would be the TPA which was newly built by the village and located some distance from the settlement. The place is wide enough and shaded so that during the rainy season the plastic waste will not be exposed to water.



Figure 6. Location of Tambak Oso Village's TPA

So, after counseling on how to manage a Waste Bank, it is hoped that PKK mothers will understand more and can start reorganizing their waste banks.

Table 1. Value of waste bank formation training

No	Before Training	No	After Training
1	The Waste Bank core team has not yet been formed	1	The Waste Bank core team has been formed
2	There is no garbage bank collection post yet	2	It was decided on a garbage bank collection post at the oso pond TPA
3	The garbage officer doesn't want to take the sorted trash	3	Educate the garbage officers and giving points and savings for garbage officers
4	The mother are not all and have not been consistent in sorting and depositing plastic waste	4	The mother will consistently sort and deposit the plastic waste to collect the garbage bank and get points

To be continued

5	Not yet collaborating with PLN for the electricity swap program	5	The core team will collaborate with PLN to exchange points into electricity payments
6	There are no more places that want to accept sorted plastic waste	6	Collaboration with a larger garbage bank in Surabaya as well as with plastic pellets

Plastic waste management training

The training was held after the counseling explanation, namely on August 31, 2020. At this stage, the material was first given about several types of inorganic that were around, including:

- a. *Soft inorganic waste* is a type of non-natural waste that is easily formed or processed. The building blocks of waste consist of flexible materials. Several kinds of soft inorganic waste, including plastic waste, packaging wraps, textile waste (such as rags).
- b. *Hard inorganic waste*: contains materials that are difficult to crush and are stronger than soft types. Most of this waste is difficult to reprocess. To carry out recycling, more complex technology and tools are needed. Kinds of hard inorganic waste, including cans, glass or glassware, and metal.

So plastic is a type of inorganic waste that is soft and easy to process. To utilize waste, 3Rs are required, namely, Reuse, Reduce, Recycle.

- a. Reuse (reuse) is reusing waste directly, with the same function or a different function.
- b. Reduce is the reduction of all activities that can cause waste
- c. Recycle (recycling) is the reuse of waste with several stages of processing.

The next stage is practice. For the practice, the mothers were divided into 3 groups, namely the group that made eco-bricks, the group that made crafts using the heating technique, and the group that made crafts using the painting technique.

- a. Craft with Ecobrick Techniques

This technique is done by inserting plastic waste into bottles. This technique is quite effective in reducing plastic waste that is in the Oso pond. Because to be able to fill one plastic bottle, it takes quite a lot of plastic waste. Of course, this plastic waste must be cleaned first.

Furthermore, the bottles are arranged into a certain shape. The bottles used can be small or large. It takes 19-25 large plastic bottles to make a chair.



Figure 7. Bottles that have been arranged in a circle pattern

Other materials besides bottles needed include duct tape to glue the bottles together, cardboard for the top section and strengthen the chair, as well as a sponge with a thickness of 2 cm to make the chair more comfortable when occupied.



Figure 8. Giving cardboard at the top

The last stage is giving a cloth covering to the chair. For fabrics, any type of fabric can be used, both for sofa and patchwork to take advantage of fabric waste. Fabrics are cut to the pattern and sewn. At the bottom, there is a rope that can be drawn to cover the bottom of the chair.



Figure 9. Ecobrick chair finished

b. Crafts with heating techniques

To make crafts from plastic waste materials with heating techniques using heat transfer techniques. The heating and softening process is carried out on pieces of plastic packaging waste such as plastic bags etc. A simple tool that can be used for the heating process is iron. The result of the heating process is formed in a pattern resembling a flower petal then cut and assembled.



Figure 10. Making bag from plastics

c. Craft with painting techniques

Processing plastic waste with paint techniques is very easy and can be done by new mothers. The materials needed are used bottles and paint. Creative objects that can be

made include flower vases, pencil cases, etc. During the training, mothers were very enthusiastic about making flower vases with the initial image being to plant ornamental plants in front of each house. It is hoped that later when you are proficient you will be able to sell vases as well as ornamental plants and will be the superior product of the village.



Figure 11. Making vase from plastic bottles with the painting technique

Table 2. Value before and after training

No	Before Training	No	After Training
1	PKK mothers are not yet able to run a waste bank	1	PKK mothers can run a waste bank
2	PKK mothers have not been able to process plastic waste into creative products	2	PKK mothers can process plastic waste into creative products, for example making eco brick chairs, flowers from plastic bags, etc.
3	So far, selling unprocessed plastic waste at low prices	3	Can sell plastic waste at a more appropriate price
4	PKK's mothers have not been able to take product photos	4	PKK mothers can take pictures with the aesthetics of their products.

Conclusion

This training activity is needed by PKK mothers in Tambak Oso Village who don't know much about waste banks or how to process plastic waste. So far they have only been able to form a waste bank but have not been able to run it, as well as plastic waste which they have only sold without being processed so that the price is low. With this training, they will be able to process plastic waste into creative products needed by the community so that they can increase their household income and later become the superior product of Tambak Oso Village, Sidoarjo.

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